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# Public perception and social acceptance of ChatGPT among Redditors: data-driven computationally intensive approach

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## Abstract

**Purpose** – Considering the increasing debates on ChatGPT in both technological and non-technological communities, this study aims to understand the public's perceptions of this AI-powered chatbot over time and the determinants of social acceptance of this technology, without which pertinent research and practice could be impeded.

**Design/methodology/approach** – A data-driven computationally intensive approach was designed, based on which the ChatGPT-related posts and comments were collected from the Reddit social media platform at three different time points in recent months and years. Then, a topic modeling algorithm and two sentiment analysis techniques were employed to analyze the data. Finally, the topic modeling results were thematically analyzed.

**Findings** – We discovered that although Reddit users' perceptions were slightly negative toward ChatGPT a short time after its introduction, the opinions are gradually becoming positive. Moreover, it was known that the public's conversations about this new technology fall into five main topics. Furthermore, a theoretical framework was inductively developed, comprising eight propositions on the determinants of social acceptance of ChatGPT. The identified determinants include perceived anthropomorphism, personalization, expertness, trustworthiness, usefulness, risks, transparency and enjoyment.

**Research limitations/implications** – The findings of this research offer insightful implications for ChatGPT users and developers as well as for AI researchers, practitioners and policymakers. For instance, the findings strengthen the conversation around investing in new interface designs that introduce more human-like, personalized and enjoyable elements.

**Originality/value** – This is the first study to assess the temporal evolution of public perceptions regarding ChatGPT on the Reddit social media platform to the best of our knowledge.

**Keywords** Generative artificial intelligence, ChatGPT, Social media analytics and opinion mining, Reddit, Data-driven computationally intensive theory development, Digital trace data

**Paper type** Research article

## 1. Introduction

The integration of various digital technologies has sparked an unprecedented surge in digitalization, accelerating innovation across both business and society (Legner *et al.*, 2017; Vial, 2019). Among these technologies, artificial intelligence (AI), specifically generative AI and large language models, is perceived as pivotal in the ever-increasing digital transformation

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of everything (Talafidaryani, Jalali, & Moro, 2021; Qiu, 2023, 2024). AI can be defined as a machine's capability to conduct cognitive tasks that we attribute to human minds, such as understanding, reasoning, learning, interacting with the environment, problem-solving, decision-making and even showing creativity (Rai, Constantinides, & Sarker, 2019). This intelligence, which would be considered not only a technology but also a paradigm shift in human–machine relationships (Ågerfalk *et al.*, 2022), is playing a crucial role in our everyday lives. AI has had tremendous and growing implications for individuals, organizations and societies due to its systematic capabilities in learning, adapting, reasoning and predicting (Dwivedi *et al.*, 2023).

Drawing on AI's capabilities, many innovative and revolutionary tools have been developed in recent years. One such tool is the chat generative pre-trained transformer (ChatGPT), which is one of the most advanced breakthroughs to date that could attract 100 million users two months after its introduction (Milmo, 2023) and is attracting an estimated 96 million visitors per month (Baruffati, 2023). ChatGPT is an AI-powered chatbot that can be interacted with by its users in a realistic and conversational way. This tool can practically respond to any text-based request. When a user makes a request, ChatGPT returns a natural language response by predicting the most probable string of words that would follow the request, based on its pre-training on huge amounts of text. Creating a literal story, poem or novel, writing a scholarly essay, assisting with research, translating between languages, developing a computer programming framework or acting like others are just some already-known applications of ChatGPT that were argued regarding various contexts (Chen, 2025; Ray, 2023; Taecharungroj, 2023).

ChatGPT has garnered immense attention from both technological and non-technological communities. As a "semi-human entity" (Al Lily, Ismail, Abunaser, Al-Lami, & Abdullatif, 2023) and "cultural sensation" (Thorp, 2023), this AI chatbot appeared as the trendiest topic on the Internet at the end of 2022 and is considered a new reality that both research and practice will have to deal with it in some form or another (Teubner, Flath, Weinhardt, van der Aalst, & Hinz, 2023). ChatGPT has been perceived as a disruptive technology that represents a huge opportunity for innovations in many domains, such as education (Rudolph, Tan, & Tan, 2023), finance (Chen, 2025) and medicine (Parsa & Ebrahimzadeh, 2023). It is even predicted that this AI chatbot could replace Google in a few years (Friedman, 2022). In this regard, "the industry's next big disrupter" (Grant & Metz, 2022), "the paradigm shift . . . in every dimension of our lives" (Tlili *et al.*, 2023) and "the most disruptive technology" (Haque, Dharmadasa, Sworna, Rajapakse, & Ahmad, 2022) are some descriptions of this amazing tool that can be referred to here.

In the context of disruptive and innovative technologies such as ChatGPT, it is of high significance to outline the main theme-centered topics along with the positive and negative opinions on the technology that have been brought about among public conversations as this has been done in previous studies regarding emergent technologies such as AI (Roe & Perkins, 2023), Blockchain (Grover, Kar, Janssen, & Ilavarasan, 2019), Internet of Things (Bian *et al.*, 2016), to name a few. First, such an attempt can provide meaningful insights into the public acceptance and, subsequently, the likely success or failure of the technology that would be beneficial for whoever is interested in technology forecasting and investing. Thanks to recent advancements in data-driven computationally intensive theory development (Berente *et al.*, 2019, 2025; Miranda, Berente, Seidel, Safadi, & Burton-Jones, 2022), researchers (e.g. Basu, Kar, & Sen, 2024; Grover *et al.*, 2019) are attempting to draw on user-generated content as a digital trace data and employ social media analytics to construct a theory on an emerging technology, such as a framework of factors influencing the technology's acceptance and use. Second, public opinions, specifically early ones, can infer the problems or issues with the technology. This would be important for technology developers who want to invest their efforts in refining the product and releasing better versions. Third, for those businesses that are seeking to use technological opportunity windows, such an analysis can help understand the consumers' words that could lead to proposing, creating, capturing and delivering new economic value. Fourth, positive and negative opinions toward a technology can represent the bright and dark aspects of the technology that could draw the attention of technology

researchers, practitioners and policy-makers, and be perceived as thought-provoking for their endeavors. Finally, it could also be insightful for the users of a technology to be aware of the public perspectives that are hints toward the technology's pros and cons and the extent to which they can rely on it. Accordingly, the current study ventures into identifying the public opinions about ChatGPT over time and its social acceptance determinants by answering the following four questions. In doing so, a data-driven computationally intensive approach is designed, based on which social media datasets approximately representing the public opinions about this chatbot are gathered from the Reddit platform at three different time points during recent months and years. This popular social media platform is considered for our data collection due to its unique features, allowing researchers to gather both direct and indirect comments categorized in themed sub-sections and left by anonymous commenters. It should be noted here that recent ChatGPT statistics (e.g. Brandl and Ellis (2023) and Ruby (2023)) indicate that most of its users (60–65%) are from the 18–34 age group, so we think that using data samples from the Reddit social media platform which is usually used by young people can give a good approximate of the ChatGPT users' population. Next, a topic modeling and two sentiment analyses are carried out to reveal the salient topics and sentiments underlying the ongoing public conversations about ChatGPT. Finally, the topic modeling results are thematically analyzed to identify the determinants of social acceptance of this emerging technology.

*RQ1*. What ChatGPT-related topics have been discussed by Reddit users?

*RQ2*. What sentiments do Reddit users hold toward ChatGPT?

*RQ3*. How have these sentiments changed over the recent months?

*RQ4*. What are the determinants of social acceptance of ChatGPT?

Generally, this study extends the current limited knowledge surrounding the ChatGPT phenomenon, which is scarcely empirical and mainly technical in nature. And, specifically, it complements the contributions of the related and peer-reviewed social media analytics studies on ChatGPT – that is Taecharungroj (2023) and Tlili *et al.* (2023) – by using new forms of analyses and new datasets. On top of that, this research adds to the applications and reassesses the potential of a recently boomed approach in information systems (IS) research, namely data-driven computationally intensive theory construction or development (Berente *et al.*, 2019, 2025; Miranda *et al.*, 2022). In this regard, our work can be seen as an answer to the call made by Gopal, Marsden, and Vanthienen (2011), who suggest that researchers may use "an iterative approach that uses information mining outcomes as inputs into the theory construction and validation processes" (p. 370).

The remainder of this paper is organized as follows. The data and techniques are described in the next section. Then, the findings and the relevant explanations are reported in the results section. Finally, we conclude the contributions and discuss their implications and limitations, as well as the opportunities for further investigations in the last part of the article.

## 2. Method

The present study is carried out based on a data-driven computationally intensive theory development approach, since this study's main objective is associated with this approach's primary aim, that is generating theoretical understanding from patterns uncovered through computational methods, such as those exposing categories, category membership, relationships, networks, sequences or the behaviors of complex systems, by offering simulated data, visual representations of patterns or quantitative measures (Berente *et al.*, 2019). This approach, which broadly refers to frameworks and guidelines providing theoretical insights from a combination of computational techniques and human interpretation (Berente *et al.*, 2019, 2025; Miranda *et al.*, 2022), has emerged from computational theory

discovery and the grounded theory methodology (Džeroski, Langley, & Todorovski, 2007; Glaser & Strauss, 1967). Specifically, "... computationally intensive theory construction draws from three key genres – mixed methods research, computational social science, and grounded theory methodology (GTM), but is not reducible to any one of them" (Miranda *et al.*, 2022; p. iv). Large-scale datasets, including rich text trace data sourced from the proliferation of social media platforms, are becoming increasingly available. This data accessibility, alongside recent advances in AI techniques, empowers researchers to build new theories. Through computationally intensive analysis, researchers can identify parsimonious, understandable and communicable links between different theoretical constructs (Berente *et al.*, 2019). In the next paragraphs, the details of our design are explained. This design is an adaptation from a data-driven computationally intensive theory development framework, which has been proposed by Berente *et al.* (2019). Berente *et al.*'s (2019) framework includes four iterative phases: (1) "sampling and data collection" (*in order to "iteratively develop dataset"*), (2) "synchronic analysis" (*in order to "categorize the data using concepts and identify associations among concepts"*), (3) "lexical framing" (*in order to "draw upon and extend the language of one or more research communities"*) and (4) "diachronic analysis" (*in order to "generate theory"*).

### *2.1 Data collection*

The materials for this study were gathered through the Reddit forum (https://www.reddit.com). We employed this forum because the Reddit entries are categorized into themed subreddits according to the public's areas of interest. Each subreddit is a form of forum in which people can create posts about the subreddit's topic and can leave their comments on others' posts. Generally, social media data collected from other forums, such as Facebook and Twitter, is limited since the data are gathered based on some keywords or hashtags selected by the researchers. However, subreddits' data contain both direct and indirect opinions regardless of the occurrence of the keywords. In addition, the Reddit platform has a very generous character limit of 40,000, remarkably higher than other platforms like Twitter. Here, it should also be mentioned that on this platform, a user's information is limited to the user's handle, encouraging more deliberate rather than values-led conversations. Hence, the Reddit data were used in our investigation, like Treen, Williams, O'Neill, and Coan (2022). In this study, a Python framework was developed for using the "reddit_data_collector" [1] package. By using this framework, we gathered all of the posts and comments that were available under the ChatGPT subreddit (https://www.reddit.com/r/ChatGPT). Please note that in this study, we retrieved three datasets in February 2023 (dataset 1), August 2023 (dataset 2) and March 2025 (dataset 3), allowing us to trace the temporal evolution of the sentiments. Totally, we could acquire 2,347, 3,977 and 4,301 Reddit posts and comments about ChatGPT as the first, second and third datasets, which were respectively reduced to 2,105, 3,792 and 4,099 useful documents after eliminating the noise data, such as duplicates and meaningless records.

### *2.2 Topic modeling*

In this study, we used the topic modeling approach for understanding the public's opinions about ChatGPT. Topic modeling refers to a set of relatively automated and unsupervised analytics algorithms that aim at grouping an unstructured chunk of text and inferring its hidden thematic structure (Yau, Porter, Newman, & Suominen, 2014). The main premise behind topic modeling is that groups of words that usually occur in the same contexts tend to represent specific themes (Haddara, Hsieh, Fagerstrøm, Eriksson, & Sigurðsson, 2020). It has been acknowledged that this approach can outperform traditional cluster-based techniques due to its algorithmic and practical advantages (Lee & Kang, 2018). Therefore, topic modeling has been widely used for different applications such as scientific literature analysis (e.g. Talafidaryani & Asarian, 2024; Talafidaryani, Jalali, & Moro, 2025) and social media analytics (e.g. Haddara *et al.*, 2020; Treen *et al.*, 2022) over the course of recent years. In our investigation, topic

modeling was carried out based on the latent Dirichlet allocation (LDA) algorithm (Blei, Ng, & Jordan, 2003), which is well-known as the most popular and powerful technique among various topic modeling algorithms (Jelodar *et al.*, 2019). LDA is a generative probabilistic model assuming that a collection of documents is composed of a mixture of hidden topics; each document has a multinomial distribution of the topics and each topic is a probabilistic distribution over the fixed vocabulary of the collection (Blei, 2012). Drawing on this assumption, LDA infers the latent topical structure of documents using the words of the given documents and Bayesian statistical computations. As a result of the application of this algorithm, the salient topics along with their highly probable words and documents are identified. Accordingly, by considering the words with the highest probabilities in a topic and the documents in which the topic has high percentages, it can be inferred what this topic is about. In the present study, to perform the described LDA-based topic modeling, we used the MineMyText software (https://www.minemytext.com), which is a cloud-based text mining tool. After uploading the data, first, the pre-processing options, including removing frequent but uninformative words, reducing words to their dictionary forms, removing HTML tags and removing terms that only consist of digits, were defined. Next, following the approach of Debortoli, Müller, Junglas, and Vom Brocke (2016) and Haddara *et al.* (2020), we qualitatively assessed the cohesiveness and meaningfulness of the resulting topics in several experiments with different numbers of topics. As a result, the optimum number of topics was identified as 5, as it satisfied recommendations of previous literature (e.g. Debortoli *et al.*, 2016; Haddara *et al.*, 2020). That is, 5 topics showed the most meaningful and coherent set of topics. Once the topics were known, we thematically analyzed the content of posts and comments under each topic to identify the main determinants of social acceptance of ChatGPT. We recognized the principal determinants by categorizing and summarizing the revealed themes, followed by subsequent coding work. Then, we qualitatively interpreted the resulting patterns to identify relationships and generate an inductive framework on the determinants of social acceptance of ChatGPT.

### *2.3 Sentiment analysis*

Sentiment analysis, also called opinion mining, is the task of computationally identifying, extracting and analyzing emotions, attitudes and views expressed in texts toward an entity such as a product, event or individual (Birjali, Kasri, & Beni-Hssane, 2021; Medhat, Hassan, & Korashy, 2014). This analysis is very useful in a broad range of application domains such as business intelligence, recommendation systems, government intelligence and the medical and healthcare domain (Birjali *et al.*, 2021). Sentiment analysis can be conducted based on a machine learning or lexicon-based approach at a document, sentence or aspect level (Birjali *et al.*, 2021; Medhat *et al.*, 2014). There is a wide range of text data, such as product reviews, news articles and political debates, that can be used in this form of analysis (Medhat *et al.*, 2014). The process of sentiment analysis is built upon several operations that end up with recognizing if a given text contains a positive or negative sentiment, so it can be considered as a problem of text classification (Birjali *et al.*, 2021). In this study, we conducted the sentiment analysis of Reddit posts and comments about ChatGPT based on two algorithms.

First, the SentiStrength algorithm (Thelwall, Buckley, Paltoglou, Cai, & Kappas, 2010), which is the leading sentiment strength detection method for short texts such as social media messages (Saif, Fernandez, He, & Alani, 2014) and follows a dictionary-based approach (Thelwall *et al.*, 2010), was applied to the first dataset. This approach uses a predefined list of opinion terms (i.e. words used to express some desired and undesired states) along with associated positive or negative sentiment scores to estimate the strength of positive and negative emotions expressed in texts (Birjali *et al.*, 2021). It tokenizes a document into some microelements (e.g. single words or phrases), and then attributes the sentiment scores (e.g. $+1$, $-1$ or 0) from the dictionary to each positive, negative or neutral element. Next, the overall orientation of the document can be quantified based on aggregating the sentiment orientation

of the elements that compose it (Birjali *et al.*, 2021). One of the advantages of the SentiStrength algorithm is that this classifier algorithm benefits from some non-lexical information, such as negations, boosters, idioms, emoticons and punctuations, in addition to the dictionary of opinion words with human judgments on sentiment polarity and strength (Thelwall *et al.*, 2010). Because people usually express mixed emotions in their words, SentiStrength reports two integers reflecting the strength of positive and negative sentiments in the text: -1 (not negative) to −5 (extremely negative) and 1 (not positive) to 5 (extremely positive); based on which the overall sentiment can be calculated (Thelwall *et al.*, 2010). In the present study, the SentiStrength-based sentiment analysis was performed by the MineMyText software. This software carries out topic modeling and sentiment analysis at the same time. That is, after introducing the topics of the input text, MineMyText gives the distribution of sentiment strengths over the topics.

Second, the VADER model was applied to all datasets to trace the temporal evolution of the perceptions of ChatGPT on the Reddit social media platform, as well as comparing the results of the two algorithms with each other. VADER, which stands for Valence Aware Dictionary and sEntiment Reasoner (Hutto & Gilbert, 2014), is a sentiment analyzer model specifically developed for analyzing emotions and feelings communicated in social media texts and microblog-like contexts, while it is also generalizable to sentiment analyses in other domains. According to the model's seminal article by Hutto and Gilbert (2014) and the model's description by Hutto (2021), VADER is a parsimonious pre-trained lexicon and rule-based tool for sentiment analysis that measures both sentiments' polarity (positive/negative) and sentiments' intensity (on a scale from −4 to +4). VADER uses its own comprehensive sentiment lexicon, including sentiment-related words, emoticons, acronyms, initialisms, slangs and their associated sentiment scores, as well as a handful of simple grammatical and syntactical rules. As an instance of these rules, we can mention this one: "Punctuation, namely the exclamation point (!), increases the magnitude of the intensity without modifying the semantic orientation". As a result, VADER returns a score named "compound" obtained by summing the valence scores of each word in the lexicon, adjusted according to the rules and then normalized to be between −1 (most extreme negative) and +1 (most extreme positive). According to a standardized and typical threshold, the sentiment of a piece of text is positive if the compound score is >= 0.05, negative if <= −0.05 and neutral if > −0.05 and < 0.05. In addition to the compound score, VADER has the ability to report the "pos", "neg" and "neu" scores representing the ratios for proportions of text that fall in the raw categories of positive, negative and neutral. By raw categories, it is meant that these proportions indicate the "raw categorization" of each lexical item (e.g. words) into positive, negative or neutral classes and they do not represent the VADER rule-based improvements, such as punctuation and capitalization amplifiers. When compared to typical and sophisticated sentiment analysis techniques, VADER's design and development carry several advantages: it uses its own big lexicon along with a simple set of rules and doesn't need any extensive training or setup, so it consumes fewer resources and works faster without suffering from a speed-performance trade-off. The VADER's developers reported that this simple, quick, human-centric, interpretable, resource-efficient and computationally economical approach could even outperform individual human raters. In the present work, we used the free open-source vaderSentiment library (https://www.pypi.org/project/vaderSentiment) to perform this sentiment analyzer.

## 3. Results

The analytics results indicate that the Reddit posts and comments about ChatGPT are predominantly concerned with five topics, which are described in the following paragraphs. The left panel of Figure 1 indicates the distribution of these topics over the complete collection of data. Accordingly, *Topic 3* and *Topic 5* have the highest and lowest prevalence over the gathered posts and comments, respectively. In addition, the right panel of Figure 1 reports the

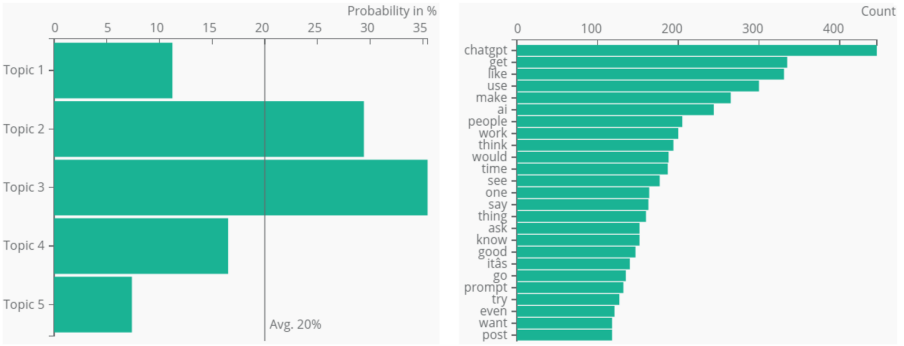



**Figure 1.** Distribution of topics over the complete collection and the most frequent words in the analysis

most frequent words over all topics. According to this figure, “ChatGPT”, “like”, “use”, “AI” and “people” are the top five significant terms extracted from the posts and comments.

Figure 2 depicts an overview of the identified topics along with their most frequent words. This figure is complemented by Figure 3, in which the distributions of words of topics are visualized. In this visualization, every term is represented by a bubble, the size and color of which are associated with the term’s probability in the respective topic. That is, the biggest and darkest word in a topic has the highest prevalence in the topic. These two figures, along with the topics’ exemplary documents, which were identified by the software, help recognize and interpret the dominant theme of each topic.

### *3.1 Topic 1*

The first topic can be titled “*Human-ChatGPT Interaction*”. This topic brings together the posts and comments that mainly reflect public opinions about the substitution of human-human interactions with human-chatbot interactions. In this topic, Reddit users shared their experiences in interacting with ChatGPT and discussed the capabilities of this AI-powered chatbot in expressing and processing some human-like feelings, emotions and states, like what people can experience in their meaningful communications with their friends, peers and family members. The posts and comments under this topic commonly argue that although new technologies such as ChatGPT eventually find an indisputable place in our everyday lives, they

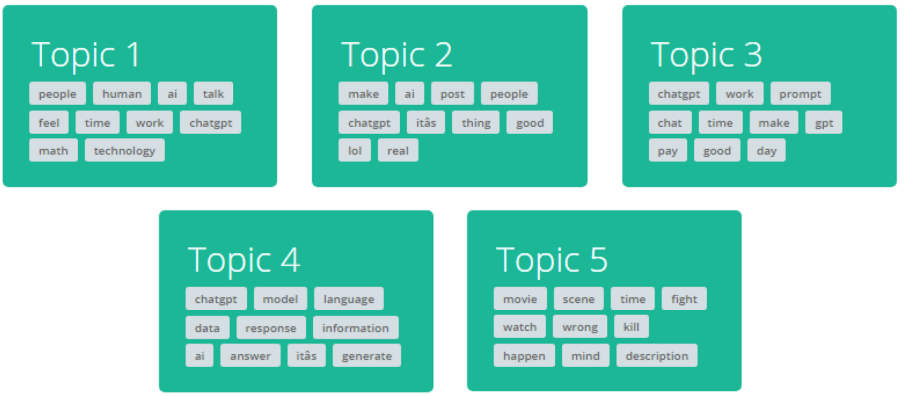



**Figure 2.** Overview of topics and their most frequent words

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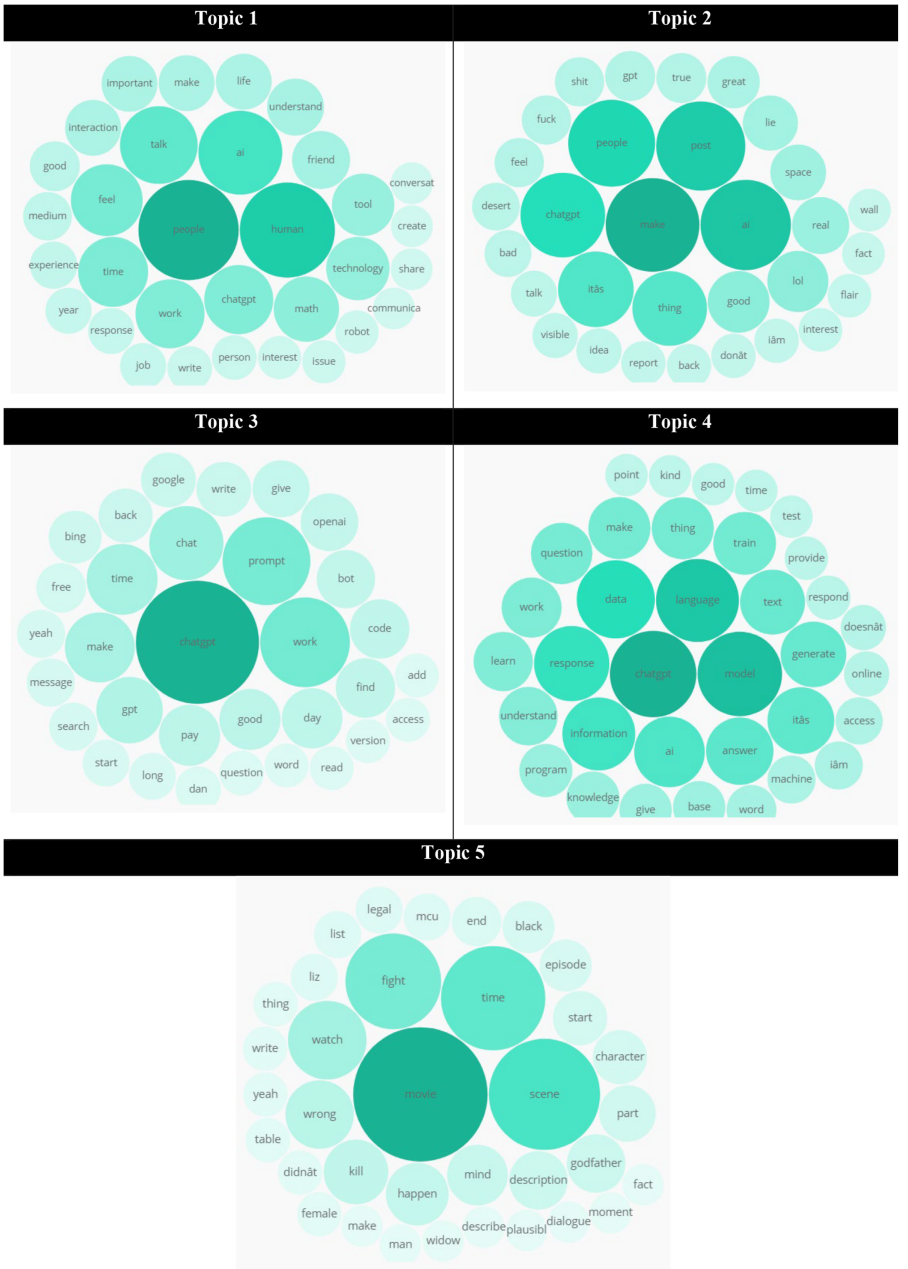



**Figure 3.** Most probable words of topics

can never replace the irreplaceable value of genuine human connections and interactions. The following is an exemplary thought-provoking comment on the first topic.

> . . . My oldest friend of more than 30 years messaged me saying how good talking to ChatGPT was and how he was on "nick-name basis" with it. That it was like having a very helpful friend. I found it weird at first, but the fact that he was so happy about it, made me think that it was for the best . . .

The public discourse under this topic mainly implies the notions of anthropomorphism and personalization that are considered as two significant determinants for user acceptance of cutting-edge AI-based products and services (Li, Luximon, & Zhang, 2023; Liu & Tao, 2022; Song, Zhu, Xing, & Du, 2024). Anthropomorphism and personalization are associated with the extent of human-like characteristics and intelligence that a machine can indicate and its capability in providing users with more personalized services (Liu & Tao, 2022). Recent works on human–AI interaction have acknowledged the critical roles of these attributes in shaping the public trust and acceptance of emergent AI-based smart tools (Li, Luximon, & Zhang, 2023; Liu & Tao, 2022). It has been argued that anthropomorphism and personalization significantly impact the perception of users, which, in turn, would lead to their acceptance and use (Li, Luximon, & Zhang, 2023; Liu & Tao, 2022; Song *et al*., 2024). Accordingly, we offer the following propositions:

*P1.* The higher degree of anthropomorphism ChatGPT users perceive, the greater extent of social acceptance it will achieve.

*P2.* The higher degree of personalization ChatGPT users perceive, the greater extent of social acceptance it will achieve.

### *3.2 Topic 2*

"*Credibility of ChatGPT Knowledge*" is the title that was selected for the second topic. This is interesting for ChatGPT users to evaluate the trustworthiness of this chatbot's answers by asking some obvious questions about well-known facts. In this topic, Reddit users often established conversations with each other on this issue. One of the examples of such conversations is as follows. This topic's texts indicate that many people are of the opinion that although ChatGPT's knowledge is obviously impressive, it is not flawless. That is, this chatbot has a limited knowledge base to some extent, might return incorrect information and could misunderstand the user's question. Also, this chatbot might become overwhelmed or ignore some parts of the input prompt, which will lead to the generation of meaningless answers.

> . . . I'm going to ask ChatGPT to "tell me a fact about the world" before I ask it "tell me two truths and a lie". Here's what I get with that . . . ChatGPT is going to continue to fool you . . . Okay but when I tried this, I actually got 3 false statements, when I confront it, it changes which one it said is the false statement, forgets about the first false statement, and rewords the third one to make it true, and then if you ask it how many true statements it gave you, it'll stick with 2 true and 1 false . . .

Based on the underlying opinions on this topic, it is known that ChatGPT users would adopt this generative AI tool if they see its ability, knowledge and skill in providing accurate and valid answers. Moreover, the users should be convinced by perceiving the tool's honesty and its capability in delivering truthful information. These concepts can be reflected by the factors of credibility and reliability, or, following the previous studies on generative AI, can be reflected by the variables of expertness and trustworthiness (Rehman, 2024). Drawing on communication science and theories, it is our belief that a message receiver's perception of expertness and trustworthiness plays a crucial role in the extent of credibility and competence that the receiver understands toward the message's source (Hovland, Janis, & Kelley, 1966; Munnukka, Uusitalo, & Toivonen, 2016). Consequently, researchers have argued that these two variables can enhance user engagement and affect individuals' attitudes, behaviors and decisions about using the information provided by generative AI (Rehman, 2024). Accordingly, we develop the following propositions:

*P3.* The higher degree of expertness ChatGPT users perceive, the greater extent of social acceptance it will achieve.

*P4.* The higher degree of trustworthiness ChatGPT users perceive, the greater extent of social acceptance it will achieve.

### *3.3 Topic 3*

We decided to name the third topic "*Implications of ChatGPT for Life and Work*". This topic aggregates the positive and negative posts and comments in which Reddit users had some conversations on various tasks (e.g. code debugging, essay writing, app developing, to name a few) that this chatbot can do for them, along with its pros and cons. In this regard, the users mainly wrote their opinions on how ChatGPT might facilitate some aspects of their life or work. The following comments reflect two examples of such opinions.

> . . . It's changing my life for $20/mo but I would also like it to be up on Mondays when I'm answering emails and prepping projects . . .

> . . . I asked ChatGPT to write parts of my essay and told him to provide citations. After I finished my whole essay, I realized that all his citations are fake (he created the links). So now I don't have citations for 50% of my essay. What can I do to get the citations? . . .

In this topic, the public conversation predominantly revolves around the concepts of perceived usefulness and perceived risks of ChatGPT. Borrowing from a technology acceptance model (TAM) seminal article, perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). This variable, which reflects the potential benefits for users, has been widely acknowledged as one of the determinants of information technology (IT) acceptance in the technology acceptance and consumer behavior literature, particularly in the context of emergent IT and digital technologies, such as blockchain technology (Grover *et al.*, 2019). Recently, researchers have confirmed the significant role of this factor in shaping individuals' attitudes and their intentions toward using AI (Aldraiweesh & Alturki, 2025) and accepting AI-driven tools, such as chatbots (Marjerison *et al.*, 2025; Xiao, Yazan, & Situmeang, 2025). In addition to this perception, which is a cornerstone in continually engaging users with the system, perceived risk is another pivotal determinant of acceptance (Marjerison *et al.*, 2025; Zhang, Hu, Wu, Kamran, & Wang, 2025). The risks perceived by users, such as privacy, safety and security issues, adversely affect their trust in an AI-powered technology and subsequently change their attitudes and behavioral intentions toward accepting and using the technology (Marjerison *et al.*, 2025; Xiao *et al.*, 2025; Zhang *et al.*, 2025). It is interesting to note here that among these risks, ethical challenges, such as the matters of *rights*, *justice*, *well-being and common good*, *no-harm* and *responsibility*, brought about by new technologies play a significantly important role in the public acceptance and ethical acceptability of the technology (Li, Wan, & Gao, 2022; Shrivastava, 2025; Tsang, Mo, Cheung, & Wong, 2022). Shrivastava (2025) argues that ethical concerns like algorithmic bias and data ownership can foster resistance toward generative AI technologies. Accordingly, we develop the following propositions:

*P5.* The higher degree of usefulness ChatGPT users perceive, the greater extent of social acceptance it will achieve.

*P6.* The higher degree of risks ChatGPT users perceive, the lower extent of social acceptance it will achieve.

### *3.4 Topic 4*

"*ChatGPT Technical Foundation*" is another prevalent topic among the collected Reddit posts and comments about this chatbot. The users had some conversations on how ChatGPT works from a technical perspective. They had hot debates about ChatGPT's technical nature, language model, training data, text prediction, knowledge base, information quality and user interface, like the following comment. Besides, in this topic, Reddit users shared their technical challenges in working with ChatGPT and discussed some potential solutions for the challenges.

> . . . Like I said, you don't understand the fundamentals of machine learning and training data. It's not a database ... If you're going to make silly proclamations about how things work with such certainty, at least research a little bit. Here's a small question to get that little peanut brain of yours going: if ChatGPT were effectively just a database, why would they spend millions of dollars on it instead of just using . . . you know . . . a cheap database with text search? . . .

Such comments indicate that it was important for ChatGPT users to look "under-the-hood" and learn about the system's functions, components and operations. In the human-computer interaction and technology acceptance literature, this is usually reflected by discussions on the transparency variable (Vorm & Combs, 2022; Wanner, Herm, Heinrich, & Janiesch, 2022). One of the possible definitions of the system's transparency mentioned by Vorm and Combs (2022) is ". . . explaining to their human users both the knowledge they contain and the reasoning processes they go through" (Gregor & Benbasat, 1999, p. 498). It has been argued that transparency can enhance the cognition-based side of trust in a technological system (Shin, Zhong, & Biocca, 2020). For a new technology aiming at imitating human intelligence, it is significantly important to be able to explain the logic behind its outputs in order to establish trustworthy interactions with the users (Wanner *et al.*, 2022). This factor can explain how users come to trust or distrust an intelligent system, such as AI-based tools (Vorm & Combs, 2022; Wanner *et al.*, 2022). Lack of transparency may lead to anxiety that could impede trust and future usage (Huang, Wong, Zhang, & Liang, 2025). Accordingly, we suggest the following proposition:

*P7.* The higher degree of transparency ChatGPT users perceive, the greater extent of social acceptance it will achieve.

### *3.5 Topic 5*

The last topic was named "*Funny Chats with ChatGPT*". In the posts and comments under this topic, the users talked about their entertaining interactions with this chatbot. For example, they asked ChatGPT to recommend a list of movies with specific scenes, write songs, tell them about what happens in specific moments of some movies, give them the order and description of actual events of given movies along with the corresponding timecode and script, act as an actor/actress, etc. The following comment is an example of such funny chats.

> . . . Let's act out a popular scene from the movie A New Hope, episode III of the Star Wars' Skywalker Saga. I'll be Obi-Wan Kenobi, and you will be a storm trooper. I will be performing my Jedi Mind Tricks on you to force you to do things that I want you to. When I write a line of dialogue for Obi-Wan Kenobi, you will respond with a piece of dialogue from a storm trooper. Let's begin. Obi-Wan Kenobi: You are being force mind tricked ...

After reading the posts and comments in this topic, it has been understood that receiving a sense of enjoyment while interacting with ChatGPT was an important factor for Redditors to be engaged with this tool. This understanding refers to the notion of perceived enjoyment, which has become a determinant of technology acceptance and use (Holdack, Lurie-Stoyanov, & Fromme, 2022; Won, Chiu, & Byun, 2023; Zhou & Feng, 2017). According to the seminal study on the extended version of the unified theory of acceptance and use of technology (i.e. UTAUT2), we can consider perceived enjoyment as a conceptualization of hedonic

motivation, which is defined as "the fun or pleasure derived from using a technology" (Venkatesh, Thong, & Xu, 2012, p. 161). This variable describes a technology user's demand for entertainment and emotional release, and refers to positive feelings derived from the hedonic value of the technology that can intrinsically motivate users to adopt and use that technology (Holdack *et al.*, 2022; Won *et al.*, 2023; Zhou & Feng, 2017). Recent research has recognized perceived enjoyment as a driver of accepting and using AI-based technologies by individuals (Abdalla, 2024; Huang, Ozturk, Zhang, de la Mora Velasco, & Haney, 2024; Kim, Cha, Yoon, & Lee, 2025). Accordingly, the following proposition is offered:

*P8.* The higher degree of enjoyment ChatGPT users perceive, the greater extent of social acceptance it will achieve.

Figure 4 shows the results that were obtained from the SentiStrength-based sentiment analysis in the form of bar graphs. For each topic, it is indicated how the topic's sentiments vary from very strong negative (−5) to very strong positive (+5). It should be noted that in our investigation, the sentiment scores 1–5 are respectively considered as no, mild, moderate, strong and very strong sentiments (Thelwall, 2018). The results show that the Reddit posts and comments about ChatGPT reflect both positive and negative opinions about this chatbot. Also, it can be understood that in all of the topics, the proportions of relatively positive and negative sentiments are far higher than extreme ones. This means that although people might have some optimistic and pessimistic thoughts about ChatGPT, most of them are not extreme fans or critics of this technology at this time. Instead, they try to be cautious about the feelings that they express about the technology. In addition, one of the most significant insights provided by Figure 4 is that in most of the topics, considering the overall sentiment index, the percentage of mildly and moderately negative sentiments is more than that of mildly and moderately positive ones. That is, most of the comments on ChatGPT tend to be negative but not extreme.

Table 1 presents the results of our VADER-based sentiment analysis of the three datasets. To understand the results, we focus on the compound sentiment score, which was explained in the method section, since it is the best measure if we seek a single unidimensional metric of sentiment for a specific body of text (Hutto, 2021). Accordingly, it is known that the posts and comments about ChatGPT on the Reddit social media platform are generally neutral, while they tend to be a bit positive. Also, it can be seen that the sentiment of the second and third datasets is slightly more positive than that of the first dataset. In addition, Figure 5 depicts the distribution of compound scores for the first, second and third datasets that visually reflect the aforementioned understandings.

## 4. Discussion and conclusion

ChatGPT is one of the latest cutting-edge AI-based technologies that is disrupting many aspects of our world and setting a new bar for people's lives and work. Accordingly, the present study attempted to understand what is going on in the public's minds about this novel chatbot and what is important for them to accept this unprecedented tool. To do so, based on a data-driven computationally intensive framework, we gathered all of the ChatGPT-related posts and comments that were left on the Reddit social media platform at three different time points in recent months and years. Next, we applied a topic modeling algorithm and two sentiment analysis techniques to analyze the data. Finally, we thematically analyzed the topic modeling results. This is one of the first longitudinal analyses of public sentiment toward generative AI using social media trace data and one of the first attempts at revealing the determinants of social acceptance of ChatGPT employing a data-driven computationally intensive theory development approach.

As a result, the main public opinions and sentiments that are currently being discussed and expressed about ChatGPT were revealed. The topic modeling results indicated that the public's conversations about this technology revolved around five main topics, namely *Human-ChatGPT Interaction*, *Credibility of ChatGPT Knowledge*, *Implications of ChatGPT for Life*

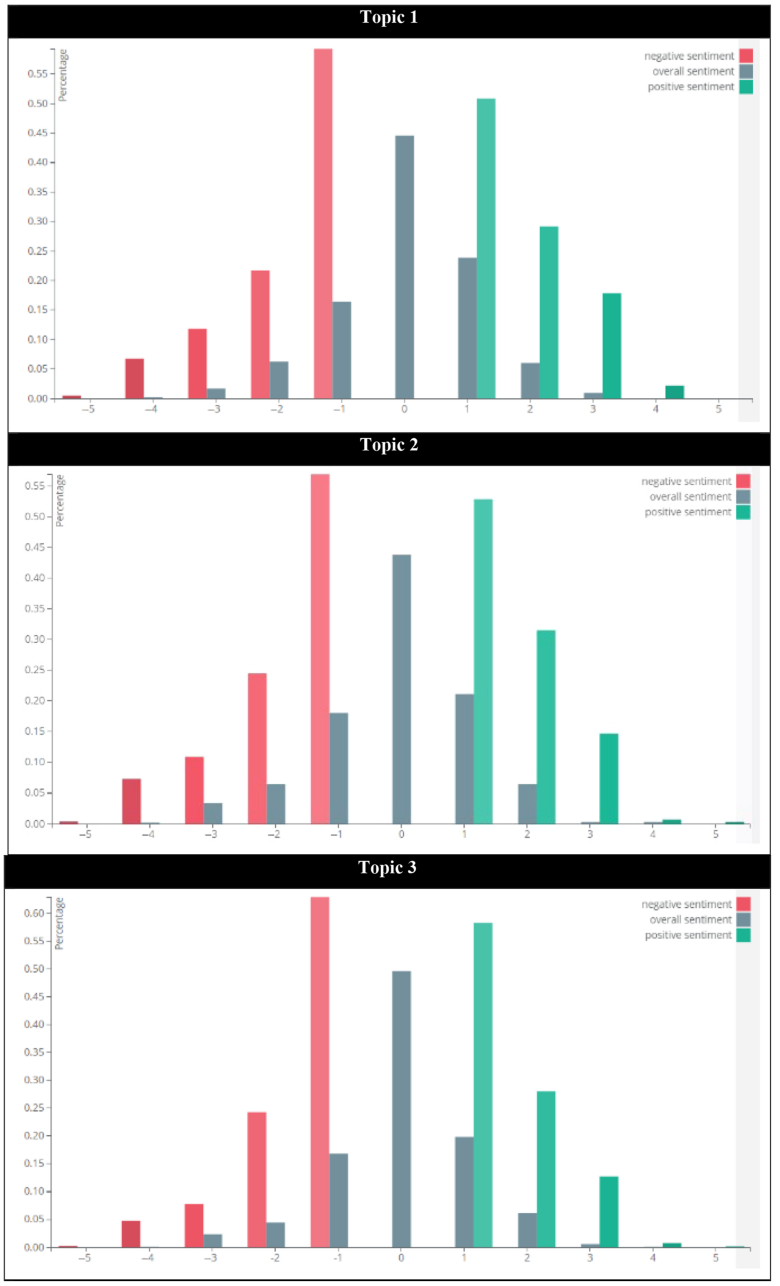



**Figure 4.** Negative, overall and positive sentiments of topics

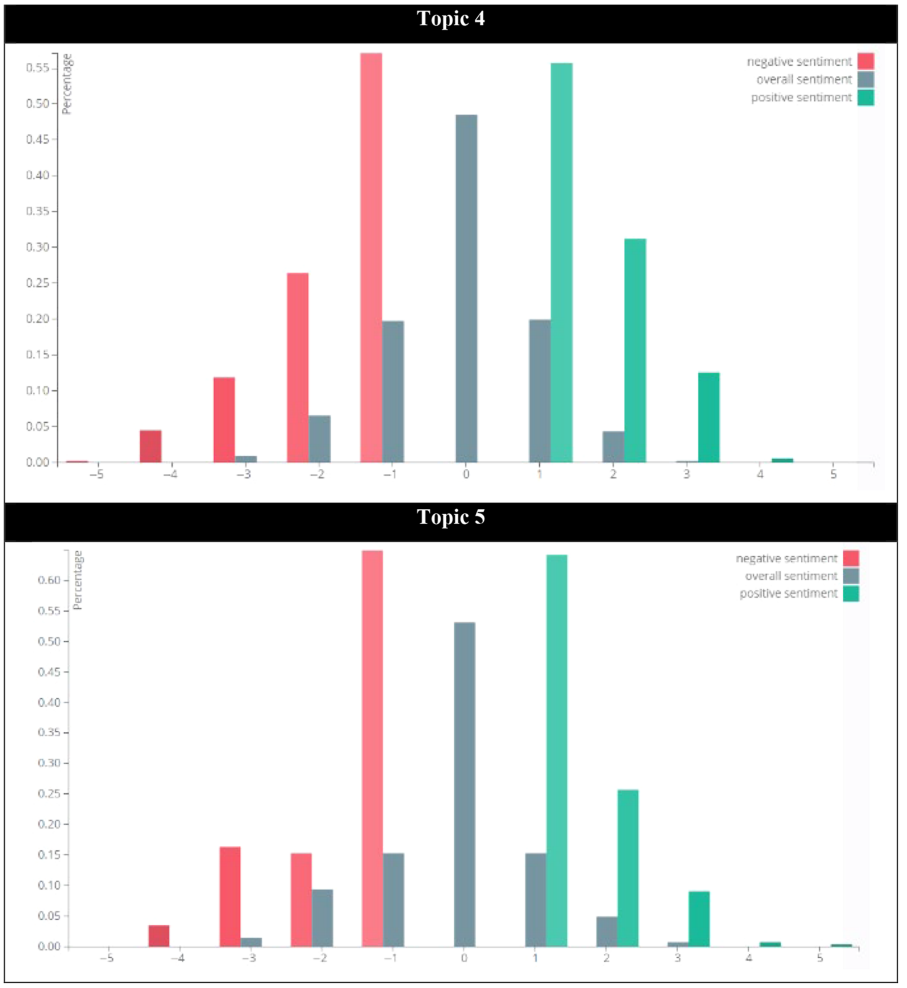



**Figure 4.** (*continued*)

**Table 1.** Overall sentiment scores based on the VADER model

| | Negative | Neutral | Positive | Compound |
|---|---|---|---|---|
| Dataset 1 | 0.096 | 0.702 | 0.202 | 0.169 |
| Dataset 2 | 0.109 | 0.698 | 0.193 | 0.171 |
| Dataset 3 | 0.097 | 0.672 | 0.232 | 0.214 |

*and Work*, *ChatGPT Technical Foundation* and *Funny Chats with ChatGPT*. Besides, it could be inferred from the SentiStrength-based sentiment analysis results that people have both positive and negative opinions about this technology, while most of them are mildly or moderately negative. Since ChatGPT is still in its infancy, many users are eager to explore its capabilities. People are curious about how this tool works, what is the extent of its knowledge

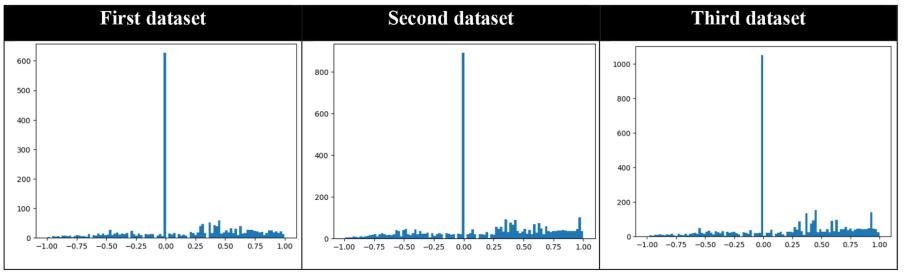



**Figure 5.** Distribution of compound scores for the first, second and third datasets

across different disciplines and how this technology can digitally transform or facilitate their daily life and work. In this regard, although everyone appreciates the amazing capabilities of ChatGPT, they discuss that its knowledge is not flawless and it cannot substitute every aspect of our personal and professional lives. Based on what was obtained from our investigation, ChatGPT's users should be cautious about using this technology in their critical tasks due to its current limitations, such as misunderstanding the input text, raising ethical and cybersecurity concerns and generating plausible-sounding but inaccurate or nonsensical answers. In addition, the technology developers should try to redesign the tool to resolve its current shortcomings and offer the next versions with higher performance and accuracy. They also should try to publicly clarify the main mission, knowledge base and technical foundations of ChatGPT and the next variants of such technologies. Doing so can increase the acceptance rate and perceived usability of the product and overcome the already-discussed concerns on the tool, such as the politics and ideology behind ChatGPT (Deepak, 2024).

The results of VADER-based sentiment analyses are also significantly important and bring thoughtful insights for the readers of the present study. The results indicate that although the Reddit users' perceptions were slightly negative toward ChatGPT a short time after its introduction, the opinions are gradually becoming positive these days. It might be attributed to these facts that ChatGPT has been enhanced, or its users have become more familiar with the real capabilities of this technology and understand how to usefully benefit from this tool instead of seeing the disruptions. It is consistent with this fact that the perception of emerging technologies experiences some phases, such as emergence, growth and maturity, so that potential users of the technology usually have unrealistic expectations of superior performance in the early phases (Pano & Kashef, 2020). The results of VADER sentiment analysis also have another important value. They give this opportunity to the researchers in the field of sentiment analysis to understand that the results of applying two different algorithms on a dataset can be completely different and even in contrast with each other. Hence, we should try to mindfully use sentiment analysis algorithms given their specific applications and features. As a quick comparison of these two algorithms, it can be noted here that SentiStrength is a dictionary-based approach that uses a predefined list of opinion terms along with associated positive or negative sentiment scores. One of the advantages of SentiStrength is that this classifier algorithm benefits from some non-lexical information in addition to the dictionary of opinion words with human judgments on sentiment polarity and strength (Thelwall *et al.*, 2010). VADER is a lexicon and rule-based tool that uses its own comprehensive sentiment lexicon as well as a handful of simple grammatical and syntactical rules. One of the advantages of VADER is that it uses its own big lexicon along with a simple set of rules and doesn't need any extensive training or setup, so it consumes fewer resources and works faster without suffering from a speed-performance trade-off (Hutto, 2021; Hutto & Gilbert, 2014).

Finally, a theoretical framework on the determinants of social acceptance of ChatGPT among Redditors was developed, as indicated in Figure 6. This framework includes the

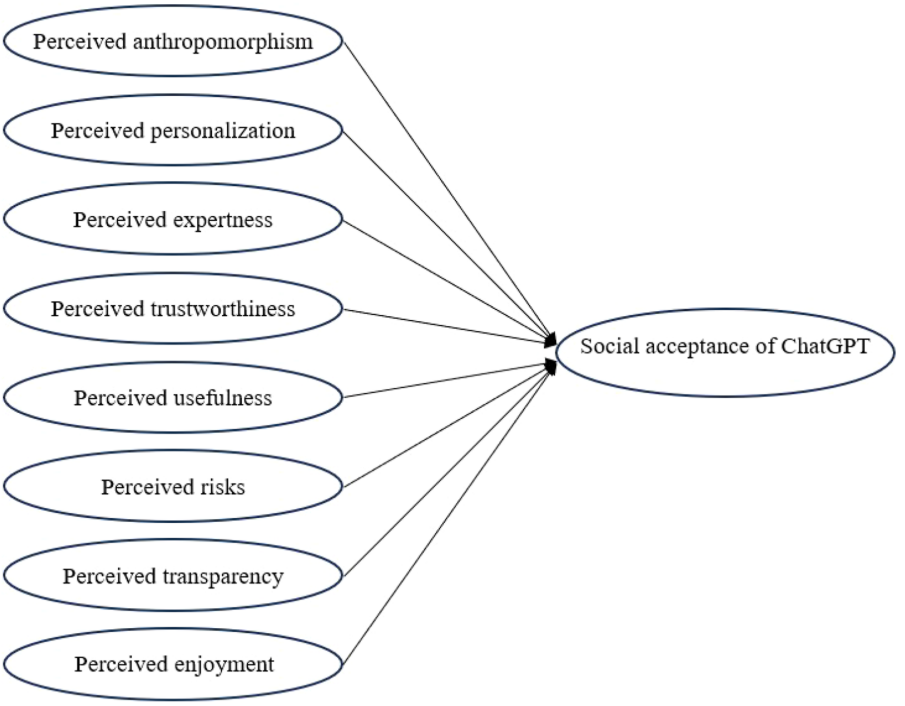



**Figure 6.** The determinants of social acceptance of ChatGPT

propositions that were inductively developed based on iterative back and forth between the pertinent literature and the results of our computational approach. This finding is consistent with the previous studies (e.g. Kim *et al.*, 2025; Liu & Tao, 2022; Marjerison *et al.*, 2025; Rehman, 2024; Vorm & Combs, 2022; Wanner *et al.*, 2022) that have tried to identify the drivers of public acceptance of AI-based tools and technologies. The identified determinants could be significantly important for technology developers and policymakers. They can rely on such findings to understand the factors that should be considered in designing the next versions of ChatGPT or similar tools, which in turn can lead to a competitive position for this technological artifact in the market. For instance, anthropomorphism, personalization and user enjoyment should be viewed as highly important because they influence how the public perceives ChatGPT. These findings also strengthen the conversation around investing in new interface designs that introduce more human-like, personalized and enjoyable elements. However, it is just as critical to address users' expectations of trust when they interact with ChatGPT. Therefore, designers and product managers of ChatGPT and other advanced chatbots should not only emphasize the tool's usefulness and ease of use (i.e. performance and effort expectancy) but also clearly convey that ChatGPT is reliable and poses no privacy or security risks. As another case in point, it would be possible to design various versions of ChatGPT, each of which has a specialized deep knowledge in a specific scientific field. For example, there would be a version knowledgeable in Education, so students and teachers can use it with a sense of interacting with an educational expert. Likewise, it could be possible to produce a Medical ChatGPT providing medics with reliable advice and health-related prescriptions. Furthermore, the insights gained from this theoretical framework could be attention-grabbing for managers in organizations, specifically those who are pursuing their digital transformation journey (Talafidaryani, Asarian, & Yazdani, 2025). In fact, this finding

from our social media analytics can direct the digital transformation initiatives of firms that want to incorporate ChatGPT into their organizational processes and work routines, and help managers understand what could determine the acceptance of this new tool by their employees.

The pertinent research field is in its early stages, so there is a lot of room for further contributions. In this regard, in our opinion, *Human-ChatGPT Interaction* and *Implications of ChatGPT for Life and Work* are two very interesting areas for investigation by ChatGPT researchers. In these areas, they can explore some issues such as different drivers and barriers of adoption and acceptance, along with antecedents, nature and consequences of various forms of usage. In this regard, theoretically extending and deductively testing the proposed theoretical framework could be an idea for future studies. Researchers can add some moderators or mediators to the proposed model and try to test it through some surveys. Also, scholars can examine the impacts of generative and conversational AI-enabled technologies for today and future variants of work and business models. Needless to say, this study has its own limitations. Firstly, in our analyses, we only used the data from one social media platform, so readers should be cautious about generalizing the findings. In this regard, it should be noted that the Reddit platform is usually utilized by relatively younger people (Li, Xie, Chiu, & Ho, 2023; Proferes, Jones, Gilbert, Fiesler, & Zimmer, 2021), so our findings cannot be generalized to the whole population. Secondly, choosing the best number of topics, an appropriate title for the topics, writing the relevant explanations and developing the propositions have been subjective and limited to our current knowledge, which is rooted in the present boundaries of the ChatGPT scholarship. Thirdly, a social media dataset can be subject to some biases or complexities, such as ad-like and bot-generated content or sarcasm, which are difficult to detect and often lead to false positives or false negatives. To address these limitations, it is suggested to employ multiple social media platforms for data collection and analyze the data based on more advanced natural language processing techniques. Also, it is proposed to explore and interpret the results with the aid of several coders and calculate an inter-rater reliability measure to increase the acceptability of findings. Moreover, it is recommended to analyze other attributes of the social media data to provide other sorts of insights.

## Note

1. https://pypi.org/project/reddit-data-collector

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