# Exploring Applications and User Experience with Generative AI Tools: A Content Analysis of Reddit Posts on ChatGPT

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## ABSTRACT

As part of a larger project, this paper reports on preliminary findings of a study exploring use cases of ChatGPT and associated behaviors and experiences among users of an online forum. We analyzed posts on a ChatGPT-related forum on Reddit ($N = 452$) using qualitative content analysis. This paper reports on themes relevant to this paper, including the types of tasks for which users used ChatGPT, user experiences, and perceived impacts of ChatGPT. ChatGPT was often used to facilitate various writing tasks (e.g., writing an essay), academic tasks (e.g., finding scientific references for a research paper), everyday tasks (e.g., creating a meal plan), and conversational purposes (e.g., having a simulated conversation about a past event). Users expressed positive (e.g., excited, amazed) and negative (e.g., fooled, concerned) feelings toward the technology. They raised various issues and problems with ChatGPT at the content (e.g., inaccuracy, incompletes) and system (e.g., unavailability, instability) levels. Users discussed the perceived impacts of ChatGPT on individuals (e.g., unemployment) and society (e.g., AI divide). Study findings can inform the design of policies and guidelines for mitigating AI problems and promoting the effective and ethical use of emerging AI technologies.

## KEYWORDS

generative AI, ChatGPT, information behavior, AI user experience

## INTRODUCTION

Innovative artificial intelligence (AI)-powered tools have generated a tidal wave in people's daily and working lives. Large language model (LLM)-based chatbots, such as OpenAI's ChatGPT, can support various user tasks, such as summarizing texts, answering questions on different topics, and creating plans and instructions for tasks (e.g., diet and exercise, household budget). Despite the promising capabilities and expanded role of AI in people's daily lives, some experts have raised concerns regarding the potential loss of individuals' control over the process of making essential decisions that may have significant effects on their lives (Anderson & Rainie, 2023). Such concerns seem to reflect the public's attitude toward AI—according to a recent survey by the Pew Research Center (Kennedy et al., 2023), only 15% of the respondents reported being more excited than concerned about the use of AI, whereas 38% expressed greater concern than excitement; 46% indicated an equal mix of concern and excitement.

As new information tools, LLM-based chatbots like ChatGPT extend the main function of traditional information-retrieval systems, such as search engines, from supporting access to existing information sources to producing convincing, synthetic humanlike content in natural language. However, they do not "know" truth or lies or fully comprehend the context (Gozalo-Brizuela & Garrido-Merchan, 2023; Ouyang et al., 2022). Also, the AI-returned content may include potential biases and lack creativity (Anderson & Rainie, 2023). Because LLM-based public chatbots are less than 1 year old, there has been little scholarly examination of people's information behaviors related to why and how they use such tools, what they feel and think about them, and how they perceive their impacts. As part of a larger project, the current paper starts to explore this research gap by addressing the following research questions: (1) For what tasks and how do users use ChatGPT? (2) What are their feelings toward and challenges and problems related to ChatGPT? (3) What are the perceived impacts of ChatGPT?

## METHOD

### Data collection

To investigate these research questions, we analyzed discussion threads from the r/ChatGPT subreddit. Reddit is one of the most highly used social media platforms, with millions of daily active users and more than 100,000 active subject-based subreddits (Auxier & Anderson, 2021). The study's sample features 452 posts and 10,620 associated comments collected from the r/ChatGPT subreddit on January 30, 2023. The median number of comments was three. r/ChatGPT was created on December 1, 2022, and at the time of data collection, it had more than 170,000 members. Reddit does not share the overall number of posts made in each subreddit at a particular time. The study used Reddit's application program interface (API) to assemble the sample. We requested submissions marked as

"hot" or "top" only. Top submissions are those that have earned the most upvotes, whereas hot submissions are those that have recently received a large number of upvotes or comments. We downloaded hot and top posts as separate datasets and limited the number of API requests for each type of posts to 1,200. Next, we merged the datasets and removed duplicate and garbled threads. The resultant dataset of 452 posts was used as the study sample.

**Data analysis**
The data were exported to NVivo 1.7 to facilitate analysis. Only the titles and texts of the posts were used in the analysis. Three authors each coded one third of the data independently using thematic content analysis. Main thematic categories, such as mental models of the system, use of the system, how to use the system, system issues and problems, user experience, impacts, need for support, user barriers and challenges, and credibility and quality evaluation, emerged from the data. The authors held multiple collective coding sessions to examine the content for each code. In the process, the codes were compared and consolidated, resulting in a revised coding schema with several levels of hierarchies. Disagreements were resolved by discussion.

**RESULTS**
Of the themes emerged from the analysis, we report on those deemed relevant to our research questions. We paraphrased quotations supporting our findings to avoid violating the privacy of authors of the posts analyzed in the study.

**Uses of ChatGPT**

*Types of tasks*
ChatGPT was used to facilitate various writing-related tasks, including creating new content (e.g., writing an essay, story, or email); revising existing content, such as rewriting a certain text into a different style (e.g., rewriting William Wordsworth's "The Solitary Reaper" in cyberpunk style); summarizing a large amount of text (e.g., a book); and translating content from one language to another.

Education is a domain where writing tasks often occur. Members of the forum reported using ChatGPT to support academic tasks, such as finding references for research papers, although multiple users reported accuracy issues with the references suggested by ChatGPT (we discuss this issue further in the Challenges and Problems section). Another use case in academic settings was creating instructional materials—one member used ChatGPT to create three levels of a task for people at three reading comprehension levels. ChatGPT was also used for programming tasks, such as writing, editing, and managing codes. For example, one member used ChatGPT to write a REST API in C. Another member mentioned that ChatGPT helped them focus more on an algorithm (i.e., what the code is intended to do) and less on syntax.

ChatGPT was also used to support various everyday tasks. For example, ChatGPT created customized meal plans based on the user's needs. Similar tasks included creating a shopping list, identifying recommended exercises considering the user's health condition, and revising a monthly household budget.

Members used ChatGPT to converse or ask questions on a wide range of topics (e.g., music, vehicles, technology). A noteworthy application of ChatGPT was observed in the form of simulated conversations concerning people's past negative experiences, such as conflicts with partners in a romantic relationship or regretful decisions. Such conversations were aimed at facilitating emotional resolution of the associated negative affect (i.e., for therapeutic purposes).

*How to use ChatGPT*
Members also discussed how to use the tool effectively to complete tasks. Specifically, they sought and shared experiential tips for creating good prompts to generate answers meeting their expectations. Such tips included making a prompt specific by providing best-practice examples to help ChatGPT better understand the prompter's instructions and preferences. Some technical tips aimed to accommodate the limitations or behaviors of ChatGPT, such as telling ChatGPT to continue from the last sentence when ChatGPT "cuts off" midsentence, a known issue that frequently occurs when editing large blocks of text.

Also, members discussed the possibility of integrating ChatGPT with other existing tools (e.g., web browsers, calendar or email applications) or creating a new tool using ChatGPT. Other topics related to how to use ChatGPT included creating multiple accounts to avoid echo chambers, evaluating and avoiding AI detectors, and the value of the fee-based version of ChatGPT.

**User experience with ChatGPT**

*Feelings toward ChatGPT*
Members expressed both positive and negative emotions toward ChatGPT. Positive ones were mainly reactions to ChatGPT's functions and abilities, ranging from "like," "special," "cool," "amazed," "grateful," and "excited" to "incredible," "mind blown," "life-changing" and "my only hope." Negative emotions were due to different reasons.

Some related to ChatGPT's system behavior, such as feeling frustrated when the server was down and annoyed by how ChatGPT responds to certain prompts (e.g., "As a language model, I…"). Some emotions were tied to their reflections on the impact of ChatGPT on individuals, society, and humankind. They reported feeling "dumber" and expressed concern that ChatGPT could be creating an "AI-divide," "replacing future jobs," and "taking over the world." One member expressed a feeling of "existential dread" due to how capable they perceived ChatGPT to be.

*Challenges and problems*
Members reported different kinds of barriers and problems they encountered when using ChatGPT. In particular, they expressed concerns about the privacy and security of the information they shared with ChatGPT (e.g., how the company used and shared that information). Members also expressed concern over the ownership of the content generated by ChatGPT and whether their use of the content could be considered or flagged as plagiarism.

Service unavailability-related problems were often mentioned. Members expressed frustration at being unable to access the service due to network errors, service downtime, unavailability in some developing countries, or overloaded with too many requests. In addition, members expressed frustration with ChatGPT's waitlist and the opaque nature of how that waitlist worked.

In addition, members referenced different types of information quality problems. For example, members said ChatGPT provided inaccurate information and referenced nonexistent or irrelevant publications as sources. Furthermore, it exhibited a tendency to be open to "persuasion" in a conversation and eventually agree with the user's statement, even if the statement was false. Members also complained about incomplete answers—they observed ChatGPT stopping in the middle of the conversation or generating incomplete code.

Another type of quality problem referenced in member conversations can be labeled as consistency problems. Members described ChatGPT losing the context of the conversation and generating inconsistent answers. Furthermore, they expressed frustration at the lack of originality and creativity of ChatGPT's content and its impact. They reported on ChatGPT regurgitating the same information in response to the same prompt in different contexts.

To evaluate the quality of information (i.e., accuracy) returned by ChatGPT, members used external reference sources such as Google Scholar and Wikipedia. They also observed ChatGPT's internal quality checks to avoid generating offensive or discriminatory responses. If the user's request contained such language, the system declined to complete the request and pointed to the problem. Some members found that self-censorship frustrating in their attempts to use ChatGPT to write fictional stories or engage the system in roleplaying conversations. Members expressed concern about how AI censorship and bias could affect the creative work of writers and visual artists.

**Perceived impact of ChatGPT**
Members contemplated ChatGPT's impact at different levels. At an individual level, some people were concerned about personal employability and experiencing internal crises. Some people were more positive, considering that ChatGPT could have a positive impact on individuals in both work and personal life. For work, they considered that ChatGPT could be a "writing partner," "guide," "tutor," "teacher," "coding assistant," and "research assistant." For personal life, particularly in terms of companionship and growth, they considered that ChatGPT could be a "storyteller," "AI friend," and "pressure reliever."

Viewing ChatGPT primarily as a technology or a tool, several members were concerned about its impact on the existing internet infrastructure. For example, one member asked, "Is ChatGPT a threat to Wikipedia?"

At the societal level, members' thoughts about ChatGPT's impact were multifaceted. Some expressed worried about the divide that ChatGPT might create among members of society, including the access divide and power imbalance. For example, one member commented that ChatGPT's base version should remain free because "such advantages can't be kept to people who pay, it must be accessible by everyone, especially with the world becoming more and more revolved around AI." Another member feared that ChatGPT would increase power imbalance in the society because it can be viewed as the ultimate authority on various topics and matters yet can be programmed with a bias benefiting people in power. Some members expressed concerns over censorship, posing questions about the potential ramifications of OpenAI imposing its system of morality on a tool that may become an essential part of the internet infrastructure. Members also mentioned ChatGPT's impact on a specific domain, such as education and economics, including the future relevance of existing jobs and labor exploitation in developing countries.

**DISCUSSION**

**Interpretations of key findings**
Our analysis identified different types of tasks for which people use ChatGPT, such as writing, academic work, and daily activities. We also identified tactics and strategies employed to effectively interact with this newly emerging tool, such as how to create good prompts. The frequent mentions of ChatGPT as a writing or research assistant in our study sample are in line with ongoing discussions on the need for a paradigm shift in learning, education, and

research that supports a constructive integration of generative AI tools based on clear and practical guidelines that facilitate responsible and ethical use of such tools (Anderson & Rainie, 2023; Susnjak, 2022; Zhai, 2022).

These challenges and problems identified by our analysis can be mapped or classified into the six criteria of information system evaluation from the literature: information quality, system quality, service quality, privacy, access, and ownership (DeLone & McLean, 2003; Mason, 1986). The information quality problems referenced by members can be further classified into information accuracy, completeness, consistency, and novelty problems (Stvilia et al., 2007). The findings show that users continue to use traditional characteristics of ethical and successful information systems when they evaluate new generative AI-based technologies.

Some members demonstrated being critical consumers of ChatGPT. This resonates with the Pew Research Project's recent survey results that more people are wary about the increasing use of AI in daily life (Kennedy et al., 2023). The concerns suggest that it is critical to study end users' mental models and perceived impact of AI-based tools to ensure that these tools are ethical and thus sustainable. At the same time, the potentially significant social and economic impact of AI tools like ChatGPT calls for responsive policies to regulate their use and prevent them from causing a drastic social and economic divide.

### Limitations and future research

The findings of the study should be interpreted in light of limitations of the study. First, our dataset included only user posts from a Reddit forum. Users of such technology-focused forums on Reddit tend to be tech savvy or highly interested in technology; thus, they represent a biased sample. Second, our data were collected during January 2023; thus, the content does not reflect people's use or experience of more recent releases of ChatGPT. Third, the data were forum posts, and we could not follow up on some important aspects of ChatGPT use, such as motivations and use contexts.

In our future work, we plan to conduct interviews with users to generate more in-depth insights into their perceptions and mental models of generative AI tools such as ChatGPT; motivations and use cases of these tools for academic purposes; practices and strategies for evaluating the quality and credibility of information returned by AI-empowered tools; challenges and issues with such tools; and need for support at different levels.

### CONCLUSION

Identifying the uses of ChatGPT and its users' mental models, feelings, and experiences can help the designers and developers of ChatGPT and similar generative AI-based technologies to better align the design and functionalities of their systems with users' needs and practices. In addition, the study's findings can inform the design of policies and guides to mitigate the impact of problems and facilitate effective and ethical uses of these emerging AI technologies.

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