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## Interaction with ChatGPT: The Potential Effects on Memory

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### Abstract

The rapid utilization of tools related to Artificial Intelligence (AI) like ChatGPT has transformed the methods by which individuals receive, retain, and recall information. Even though ChatGPT can aid the learning process by generating answers with proper explanations rapidly, saving their time by easy access to information, and providing personalized tutoring to them, frequent use and overreliance on ChatGPT may affect cognitive processes, especially related to memory. This article explores the effects of interaction with ChatGPT on memory, with a focus on how individuals interact with ChatGPT to seek assistance and how it affects their memory abilities.

**Key words:** Artificial Intelligence (AI); ChatGPT; Chatbot; Interaction; Memory; Effects.

### 1. Introduction

The rapid revolution in the field of Artificial Intelligence (AI) has brought remarkable changes in the process of how people get and search the information they need, how they learn and interact in their environment. ChatGPT is one of the famous AI-based technologies; it is a chatbot developed by OpenAI in 2015. ChatGPT has been used broadly for its abilities like generating answers to questions, clarifying concepts, providing generated ideas on different topics, and helping students in their learning and performing daily tasks. Although these types of interactions can save time, enhance productivity, and give one prompt access to information, overreliance on chatbots like ChatGPT may also affect the memory of individuals, how they process information, retain, and recall information. The human memory is deeply linked with the process of interactive learning, paying attention, exercising, and making efforts while retrieving information. Over-dependency on chatbots like ChatGPT may hinder the cognitive processes of memory in encoding, storing, and retrieving information. So, frequent interaction with ChatGPT can potentially affect the process and performance of memory, especially in the activities of retaining and recalling information.

### 2. What is ChatGPT ?

ChatGPT: the chat part of ChatGPT simply means “chat”; it shows the interactive conversation with AI, while GPT stands for Generative Pre-trained Transformer.(Rajpal R, 2025).

ChatGPT is an Artificial Intelligence (AI) based chatbot that uses natural language processing to generate conversational dialogue like a human. It is a language model that can answer questions and write various types of content, such as articles, social media posts, essays, and emails. (Hetler A, 2023).

ChatGPT is a form of generative AI- it is a tool that allows its user to prompt their questions to get images, various types of texts, and videos generated by Artificial Intelligence. (Hetler A, 2023).

### 3. Creation of ChatGPT

ChatGPT was created by OpenAI- a company of Artificial Intelligence research, and was launched by OpenAI in November 2022. ChatGPT was founded in 2015 by a group of researchers and entrepreneurs, including Sam Altman and Elon Musk. (Hetler A, 2023).

### 4. Functions of ChatGPT

The following are some functions of ChatGPT that can be used to answer questions posed by humans:

- **ChatGPT as a tutor:** It can explain language, codes, and subjects like physics well. As it improves AI tutoring skills, it can change the experience of students to engage with the world of outside. ChatGPT has also affected Edtech companies; they can now teach basic topics and use ChatGPT to solve and answer the inquiries of students.
- **ChatGPT as a content creator:** It can write content quickly for a given prompt, like songs, drafts and clarify the ideas and can also speed up the writing process in different formats.
- **ChatGPT for data analysis and organization:** It can assist in structuring the information, organizing datasets, creating formulas, elaborating queries, and helping with tasks related to data. Although it cannot be a replacement for specialized data analysis tools, it can support professionals to work more proficiently.
- **ChatGPT for Artificial Intelligence-supported creativity:** It can help to work creatively by providing diverse ideas, drafting briefly in creative manners, generating images with prompts, and collaborating with other video and image-creating tools. (Lopez M, 2025).

### 5. Uses of ChatGPT in learning

- **It can be used for personalised learning:** As ChatGPT is a digital online language tool, it provides individualized learning that can be easily adapted by the students. It can adapt to the unique and individual learning styles and abilities of the students based on their personalized recommendations, which indicate the learning histories of the students. Through ChatGPT, students can get only what they need for their personal learning and it also provides quick answers to their questions from any subject areas which they need support with. It can also support students in gaining knowledge of different topics that they are exploring for their results and tasks.
- **It can be used for virtual tutoring:** ChatGPT provides personalised learning experiences as a virtual learning tool. It can adapt immediately according to the needs of the students and can provide information that is relevant to them. ChatGPT can be used as a 24/7 virtual tutor; it can

provide instant support and feedback to students. There is no need to wait to get the answers because it provides answers instantly, which can help students to boost their confidence in their learning process.

It also helps students to identify the areas where they may struggle with content; it supports them in targeted areas where students may feel difficulties and keeps them out of frustration to provide them with the solutions that they need.

It can also help the students who are working on specific deadlines to work on time and provide them with online and instant help, which they can access from anywhere, and this is how ChatGPT can be used as a learning aid.

- **It can be used for language learning:** ChatGPT can be helpful in support of language learning by providing instant translations, pronunciation feedback, and grammar correction. It can support those students who are not good at writing by providing them with an individualized learning experience and helping them gain confidence in their writing.
- **It can be used for exam preparation purposes:** For exam preparation, ChatGPT can be an important tool as it can help students in their preparation by generating questions for practice in the subject area that they need, and it can also help them identify the topics where they need more attention and provide them with real-time feedback about their strengths and weaknesses.
- **It can be used for writing assistance:** ChatGPT can help students with their homework, projects, and writing assignments; they can easily generate ideas and get answers with a prompt related to the topics. (Digital Learning Institute, 2026).

## 6. What is Memory?

Memory is a complex function that is related to the brain. For humans, memories are personal life experiences that define identity and represent who we are. (Almaraz-Espinoza et al., 2023). Memory is the ability to record information and to store and retrieve it when required. (Paris Brain Institute). Memory is a system of processing information; this is the reason we often compare it with a computer. (Malmquist S et al).

## 7. Functions of Memory

There are primarily three functions of memory; they are:

**7.1. Encoding:** Encoding is a process through which we receive information into our brains; this is how we insert the information into the memory system. Once we acquire information from the environment through our senses, the brain starts to label or code it. We classify the information with other similar types of information and associate the new concepts with the existing ones.

**7.2. Storage:** After the process of encoding the information, now we have to retain it somehow. In this step, our brains receive the encoded information and store it. Storage is the activity of creating a permanent record of information in our brains.

**7.3. Retrieval:** The process of obtaining the stored information from the memory storage back to our conscious mind is called retrieval. It is like something you saved in your computer for your exam and searching for it on the computer's hard drive when you need it at the time of exam preparation, for

example: important study notes for any topic or subject. The process of retrieval is important for the smooth functioning of our everyday tasks. It helps us to perform our daily tasks in different ways, like how to brush, how to set your hair, how to drive, and how to do your job after getting it. (Malmquist S et al).

### 8. Potential positive effects on memory:

- **Improves memory recall:** ChatGPT can provide the same content or information a number of times or at a span of intervals, which has indicated an improvement in the process of memory recall.
- **Improves comprehension and retention:** ChatGPT can create an environment that provides interactive learning and may enhance attention and motivation. In addition, continuous interaction with learning material can lead to the improvement of comprehension and retention. (Bai L et al).

### 9. Potential negative effects on memory:

- **Impact on long-term memory:** Since ChatGPT can generate answers for almost every question, it may hinder students' ability to comprehend the topics in an in-depth manner. This casual and inadequate engagement can negatively impact the creation of long-term memory.
- **Impact on memory process:** Excessive use of ChatGPT can reduce the chances for human interactions, which has an important role in the process of learning and memory.
- **Decline in memory abilities:** ChatGPT can help students learn with less effort; however, it can also lead them to rely on AI-generated answers rather than solving their problems independently. This lack of cognitive exercise may lead to a decline in mental development and memory abilities. (Bai L et al).

### 10. Conclusion

The rising interaction between ChatGPT and individuals has indicated both potential positive and negative effects on memory. ChatGPT can help in the learning process in different ways, such as generating answers, providing prompt access to information, clarifying complex information more simply, and supporting students to understand difficult concepts that are not familiar to them. However, the extreme use and reliance on ChatGPT may decrease the necessity of active recall, freedom to think independently, and continuous interaction with information, which are the necessary activities for effective memory retention and the formation of knowledge.

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