

The Landscape of ChatGPT Usage

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Introduction and background

Chat Generative Pre-Trained Transformer, abbreviated as ChatGPT, is an AI developed by OpenAI. The program has generative capabilities, which means that it can understand the user's input to an advanced degree and produce an adequate response. The AI can track patterns and grammar, which makes it accessible to many different groups of people, like students and researchers.

During the past year or two, ChatGPT has gained massive popularity. How could it not when it is an AI tool that seemingly has an answer to every question that ever existed? AI can make it happen, whether it is fixing code, asking about the human body, or even writing an academic article about the most niche topic you can think of. Many students and academic professionals started using the tool to assist in various tasks like the ones previously mentioned. Of course, many people have had prolonged debates on the validity of using such tools in an academic setting. Many people consider using it unethical due to the plagiarized nature of some of the program's responses.

Previous research has proven to be very extensive on this topic. There are a few papers worth highlighting, the first one being "*Is using ChatGPT cheating, plagiarism, both, neither, or forward thinking?*" By Anders (2023). The author discusses how ethical ChatGPT is and the different implications students would face if it was considered cheating. Moreover, Another study conducted by Azaria et al., (2023) highlights many different uses of ChatGPT across different fields like education and medicine, furthermore, the authors also reported its shortcomings like incorrect information provided as answers or producing plagiarized text.

Lastly, the research by Han et al., 2023, studied the effects of incorporating ChatGPT into academic writing for students through a platform called RECIPE. After using the platform, the students reported their levels of satisfaction with the new platform. The survey provided to the students in that study has several parallels with my survey like rating the students' satisfaction with ChatGPT. In that survey, most students (85%) reported using ChatGPT for academic purposes to aid in academics. Furthermore, Less than half of these students reported that they use ChatGPT to improve their English skills specifically.

However, there were very few resources that used surveys to quantify the overall usage of ChatGPT by their participants. For this reason, I decided to look further into the "landscape" of ChatGPT's usage among undergraduate students at the University of California, Davis. The main appeal of this subject that has inspired the study is how divisive ChatGPT makes everyone feel. Professors have different policies for ChatGPT, As a result, students will also be asked about their opinion regarding professors limiting ChatGPT's usage.

To cover the gap of knowledge about the patterns of use of ChatGPT among undergraduates, three main topics will be explored in my research and they are as follows:

Section 1- How often is ChatGPT used? And what for?

Section 2- Was ChatGPT used during the writing process? When was it used?

Section 3- Do the students think professors should limit it?

Methods

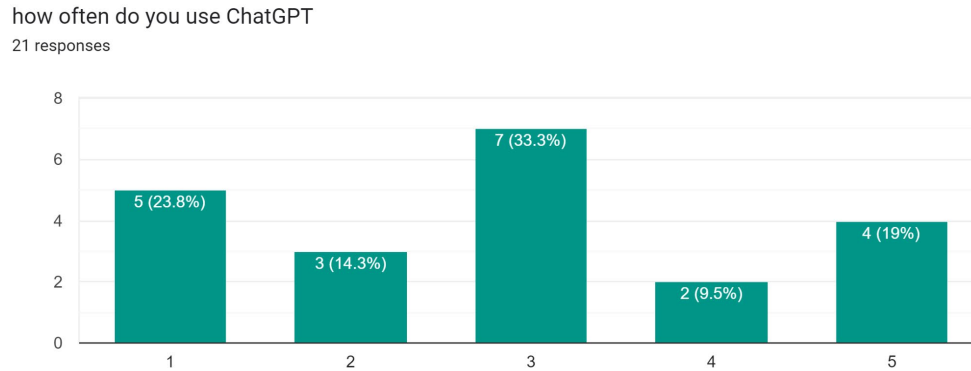
A sample of UC Davis undergraduates was surveyed and asked questions about their usage of the AI tool ChatGPT through an anonymous online form spread to social media. The surveys were conducted in July of 2023. In total, 21 participants answered the survey. All the participants were undergraduate UC Davis students and there were not any exclusion factors. The data collected concluded with eleven male and ten female participants. Furthermore, most students were in their junior year (50%) and sophomore year (29%). On the contrary, only two seniors and two freshmen participated.

The questions included ten questions across the three main topics of interest. Additionally, Most questions were multiple choice and Likert scales, and there were only three open-ended questions. Each of the sections covered included a visual representation of the data (if applicable) and some of the prominent answers to the open-ended questions.

Anonymizing the survey helped minimize the influence of pressuring the participants to answer in a specific way. These questions discussed the results from the closed-ended questions of the survey and were analyzed appropriately. Moreover, the open-ended questions were focused on persuading the participants to give out their opinions in an unbiased way. The emerging themes and trends that had risen in the student's open-ended questions were taken note of and discussed.

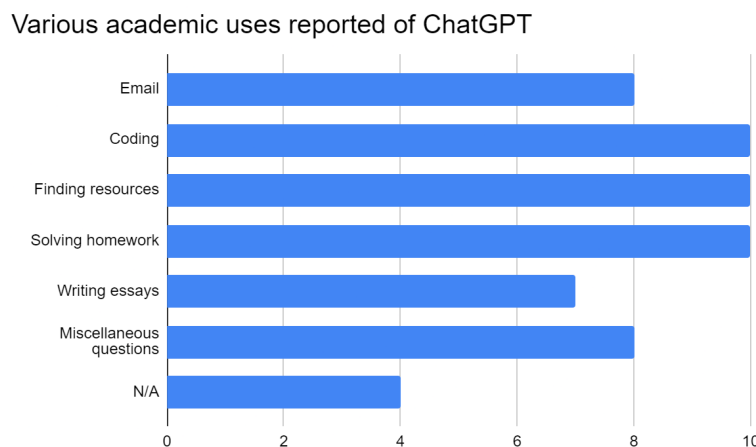
Results
Section 1

The following results were found when asking the students questions about their ChatGPT usage:



Graph 1.1 - UC Davis students report their usage of ChatGPT.

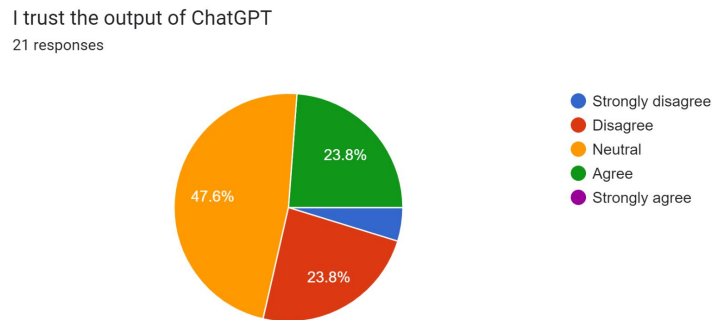
On a scale of 1 (rarely/never) to 5 (frequently), 15 participants (70%) of the respondents expressed how infrequently they use the AI model. On the contrary, the rest of the participants use ChatGPT often. As seen in Graph 1.1, the spread of answers indicates the division of people, this is further proved by a standard deviation of 1.4 from an average of 2.9.



Graph 1.2- Different uses of ChatGPT among students.

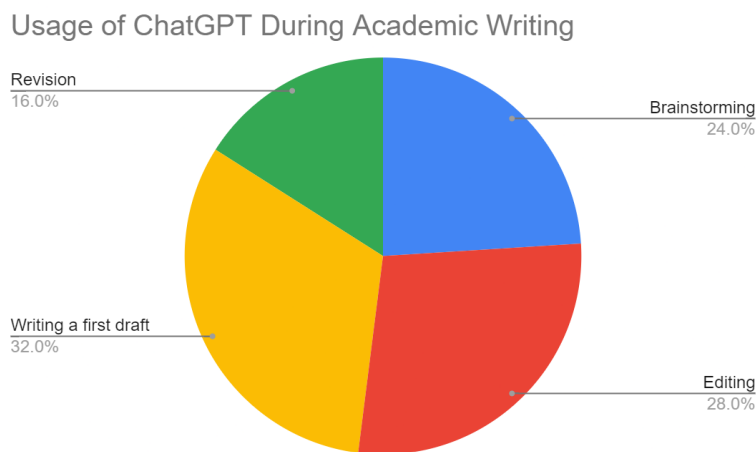
After collecting data on the general uses of the AI, students have been asked to specify their exact usage in a multiple-choice question. As visualized in Graph 1.2, it becomes clear that most students primarily use ChatGPT to solve homework problems, find resources for academic papers, and code. Interestingly, four people reported never using

the AI model. Occasionally, students used the AI language model to assist with writing essays. To gauge the truthfulness of the program’s outputs, participants answered a Likert scale. Graph 1.3 shows the participant's opinions on the output of the AI. Only 1 person thinks that the output is very trustworthy. Moreover, almost half of the respondents felt neutral toward what the program produces.



Graph 1.3- Participants report their trust in ChatGPT’s output.

Section 2



Graph 2.1 - Participants report the use of ChatGPT during the different stages of writing.

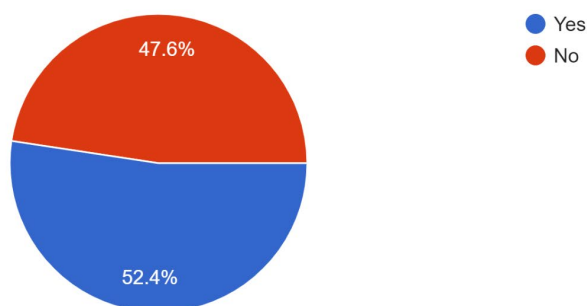
The goal of this section is to find out how students use ChatGPT when writing academic pieces. Because of this, participants were asked a multiple-choice question about the specific point at which ChatGPT was used during the writing process (if applicable). Ten participants expressed their usage of ChatGPT as shown in Graph 2.1. Most students used ChatGPT to produce a first draft that then was edited by the student. Furthermore, several students used it for the process of editing an already-written article without revising the output of the program. On the other hand, some participants indicated that ChatGPT was used to revise the written academic article at the end of their writing

process and the program's output was checked by the student. The revision process was the least used among all the different processes of writing.

Section 3

Do you think professors should limit it?

21 responses



Graph 3.1 - students expressing opinions on limiting ChatGPT in classrooms.

This section aims to know how students feel about the limitation of ChatGPT in classrooms. Based on the data in Graph 3.1, it seems that there is almost an even split between those who believe that ChatGPT should be limited and those who believe it should be uncontrolled.

To gain a better understanding of the opinions of students and to explore the silver linings, an open-ended question was also included. Many students expressed their concerns about AI and advocated for more control over its use in learning, a recurring concern these students had was how ChatGPT could be easily used to produce essays filled with plagiarism. On the other hand, the other group of students pointed out the benefits of ChatGPT, especially for those who are learning asynchronously, saying that it helps with the information overload of this generation.

Discussion

Section 1

People had mixed feelings about the usage of chatGPT and whether it is reasonable for the AI tool to be limited in classrooms. As evidenced in all the section 1 graphs, many students admitted to using ChatGPT for different academic purposes, mainly coding and helping with homework. While several students started using ChatGPT as a search engine to substitute Google.

That being said, this does not mean that most of the participants actually fully trust the output of the AI algorithm. Most UC Davis Students thought ChatGPT's outputs should

be taken with caution. According to Azaria et al., (2023), during several instances, the authors observed that the AI would provide incorrect or incomplete answers while still providing detailed information to the point of deceiving the inexperienced. The findings of Azaria et al., (2023) go together with many participants that also recommended to “triple-check” the AI’s output. A participant stated that ChatGPT can “confidently” provides incorrect answers.

Section 2

Graph 2.1 provides very interesting insight into how students operate the AI tool. The frequency of all four writing stages being used showed that students are learning to take full advantage of this technology. Even though the AI does not produce perfect edits, the students are aware of that. A student voiced their opinion by saying “It’s great for putting you in the right direction. It’s easy to use, but that’s because I use it more like a tool for ideas rather than relying on it for work.”

According to both the students and Azaria et al., (2023), ChatGPT should be used cautiously and its output should be revised when writing academic pieces. Surprisingly, revision ranked last when compared to the other processes, since ChatGPT can detect small errors that might be overlooked by a human. However, this can be justified with the claim that ChatGPT is not very proficient in grammar As seen in the results provided by Azaria et al., (2023).

Since only ten students conveyed that they use ChatGPT to help with improving their English writing skills, the results of my survey and the study that Han et al., 2023 conducted share similar results. In their South Korean study, less than half of the participants reported using ChatGPT to improve their English writing skills. With that information, it can be concluded that less than half of students worldwide use ChatGPT to improve their writing skills.

Section 3

When asking if ChatGPT should be limited, it becomes clear that there are differing opinions on the issue overall. It's important to consider all perspectives to make informed decisions about how AI can best be used in education. In Anders (2023) the author argues that ChatGPT usage should not be constrained by professors because AI is becoming more integrated with our everyday life. Moreover, Anders proposes different ways to become more flexible with the usage of ChatGPT, like indicating the different limitations on each assignment’s rubric rather than a general ban.

The conclusion by Anders (2023) follows the finding of my study closely. For instance, a student conveyed, “People are going to use it regardless, you need to learn how to integrate it into your workspace.” When seeing the evergrowing applications in different sectors like the medical or educational sector the statement does not seem like fantasy

(Azaria et al., 2023). Most professions nowadays involve the help of AI to do specific tasks like answering questions like a search engine or even performing complicated surgeries.

On the other hand, a number of students disagreed with the earlier statements. As evidenced by the following quote by a participant “Professors should actively discourage the usage of ChatGPT as a tool of writing because it might be plagiarized; however, ChatGPT can be used to provide insight on niche topics that Google lags behind.” Even though the student agrees that writing help would be limited, they also agreed that ChatGPT is good for finding information about specific topics. One Student expressed how the AI tool helps combat the information overload people face nowadays because it can provide “intricate and simple responses depending on your needs”.

Many of the participants of my study that use the tool for writing have indicated an understanding of the different consequences of using the tool. This is evidenced by the almost unanimous opinion that ChatGPT is not a good tool for writing strong academic articles. However as seen in Graph 2.1, this does not stop some students from using it as a primary source of writing.

According to the findings of my study and different studies (Azaria et al., 2023; Anders, 2023), writers are discouraged from the use of ChatGPT for solely writing an entire academic article without any revisions. That is due to concerns about owning intellectual property if it was not explicitly written by the author. Moreover, issues with plagiarizing without proper citation may arise. On the other hand, the majority of students, across different viewpoints, agree that this AI tool can be used for purposes that do not include dependence on plagiarized content like coding or finding resources to read about a specific topic.

There had been some limitations to the research, for instance, the fact that body language was impossible to read during the survey. As well as, the time to collect surveys was relatively short, and the student sample that answered the survey is too small to make a general statement about the entire undergraduate student body of UC Davis.

Conclusion and Next Step

This survey provided insight into the varying usage of a sample of UC Davis undergraduate students. Additionally, opinions on limiting ChatGPT were collected to measure how students felt about the tools being used in a classroom setting. It can be seen that most students use ChatGPT to assist in their academic endeavors. Future research could expand on my research by expanding the scale of data collection to find more conclusive data that cover all or most of the student population of UC Davis.

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