

Challenges and Controversies in the Use of AI within Academic Writing

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ABSTRACT

Through a comprehensive research process upon all the facets of AI's impact in academia writing or "academia," for short, Aditya Kaushik analyzes the demographics in the creative writing community based on their views of the use of conversational AI in academia. Through the process of analyzing the impacts, uses, and opinions of others on AI, Aditya outlines potential next steps for high schools or colleges in terms of their guidelines when it comes to the use of AI in creative writing.

Introduction

In the 21st century the prevalence of conversational artificial intelligence, or machines that can understand, process, and respond to modern day human language. It is undeniably becoming more prevalent at unfathomable rates with companies like Google, OpenAI, and Microsoft all making their own conversational artificial intelligence. All of these conversational AIs are different, as they all have their defining characteristics for their usefulness in creative writing. For example, ChatGPT is the best conversational AI for an "all-around" purpose, such as analyzing data, creating charts, solving math problems, editing files, and even developing hypotheses to explain data trends (Bailey, 2023). On the other hand, there are bots such as Tableau AI which specialize in analyzing large datasets and finding trends or commonalities within the datasets (Kundariya, 2023). However, this rise in prevalence also corresponds to a significant spike in use of AI in academic writing since in college courses around 53% of students surveyed say that they have had coursework in the past that requires them to use artificial intelligence as part of an assignment (Nam, 2023). Around 30% of US college students have unpromptedly used OpenAI's ChatGPT for college essays, and close to 60% unpromptedly use ChatGPT on more than half of their academic work (News Staff, January 2023). In terms of the amount of unethical AI usage, approximately 85% of students use AI unethically to get ideas or to assist them in their academic assignments and projects in a school setting (Dakakni & Safa, 2023), and there have been revealed instances of misconduct that was seen across various academic levels where students incorporated AI-generated text into their manuscripts without proper attribution or citation (Jing Miao et.al. 2023). This raises the question; what prompts students in the 21st century to unethically utilize AI within academic writing? The investigation of why students utilize conversational AI in their academic works is significant in the 21st century because it has potential to provide an insight on how to most effectively alter AI usage policies within schools to encourage students to use AI to help with assignments while simultaneously discouraging students from using AI unethically in the form of plagiarism. These findings from the study can be advantageous mainly because it gives schools and colleges a proper understanding of what situations students feel inclined to use AI unethically in, which influences schools and colleges to prevent these situations from taking place.

Methodology

In order to efficiently and accurately draw conclusions and synthesize information from a wide variety of sources, many different types of sources were scoured, including case studies and certain academic journals that provided varied perspectives upon a certain topic. In order to make a stance on a topic such as what prompts students in the 21st century to unethically utilize AI within academic writing, sources would be found ranging from all of these types and their information would be put together to ensure that not only is this stance supported by the beliefs of scholars, but also supported through real-life application. This approach was chosen for this study due to the fact that since artificial intelligence is a fairly new topic, it should be studied on a wide range before making assumptions or conclusions about its use in any way. This approach may be different in comparison to the approaches presented by other studies that utilize secondary sources due to the fact that this studies' approach tends to focus on case applications along with scholar beliefs. To reiterate, this studies' approach is more in-depth and accurately supported due to the applications of beliefs. To collect the case studies and scholar beliefs, the help of Perplexity AI was used, which is an AI that is used specifically to aid students in researching and utilizing scholarly sources in academic writing. This use of AI to skillfully locate sources for use in this paper was justified due to the accomplishments and accuracy that Perplexity's AI promises, along with the past use and reliance on this AI that yielded satisfactory results.

Types of AI and Their Uses in Academic Writing

In this modern society with all of these different types of AI being released that specialize in different things, these different types of AI have different uses in terms of their uses within academic writing by students. An example of a use that AI has in academic writing is to enhance the drafting and revision that takes place during the writing process through support in both researching and editing for grammar mistakes (Heintz, 2023). In an article published by AI researcher John Bailey, he states some different popular types of AI and their particular usefulness in academic writing. For example, ChatGPT 4.0, OpenAI's latest version, is very powerful and fast and specializes in creating charts, solving math problems, editing files, and developing hypotheses about data trends (Bailey, 2023). When it comes to personalization of recipes in a more broad sense, Google BardAI can be used for the job (Bailey, 2023). In a similar study about the uses of particular AIs in their ability to contribute to the production of academic works, AIs such as Trinka were mentioned which is a very common AI tool for scholars and students since it helps with grammar and language correction for academic writing as well as Tableau AI, which is a powerful AI bot that is designed for large dataset analysis which specializes in tracking patterns and finding trends for research and conclusion drawing purposes (Kundariya, 2023). These forms of AI and their benefits can significantly support the research process in academic writing, but there are other forms of AI that can help in other ways that don't include the research or conclusion-drawing process. When students need help writing their paper to begin with, that's where AI bots like Grammarly's bot comes into play. When students narrow their topic, researching is clearly the next step, but what happens when the students need help with how to actually write their paper on the selected topic? Grammarly's AI can provide a research plan to help the student start building their outline and then help the student draft the outline based on the synthesized research plan, ultimately ending in the student being well-prepared and confident to research their topic more efficiently than they would have been without the AI (Grammarly, 2023). AI that is focused on writing skills and sorting the writer's thoughts is very useful for writing an academic paper, and this can be seen by teachers across the USA who have incorporated AI into the curriculum for their students to reap the features of. In an experiment done by English Language Arts teacher Salas Salcedo in which she incorporated AI in her classroom for several years to study the differences between student performance and feelings towards AI, she discovered the benefits of AI when it comes to giving support in the writing process. She found it amazing that AI was available to give them immediate and personalized feedback to her students, which was significantly more efficient than having her read through all the papers and returning feedback a week later (Misha, 2023). When AI is used to not only help with the researching

process by sorting out the writer's ideas and outlining but also with the grammatical and conventional English that is used in the paper, the paper can be significantly improved.

How Does AI Improve Academic Performance?

Not only does AI have many uses in the process of researching and writing an academic paper, but AI also helps students improve in the classroom by supporting them in their academic performance. To test whether students would have a positive response to incorporating AI into the classroom, Morgan, a teacher at the University of Louisville, created the ENGL 303 course which is centered around the use of AI within the class on a daily basis. Within the first unit of the class, students were allowed to pick their topics for a field report within their major and use AI for the report, leading to them feeling excited and engaged by the incorporation of AI into the unit which ultimately improved student performance (Morgan, 2023). This implies possible uses for AI in education at a larger level, as experiments like this show promising results are the performance of AI in school settings. In a similar study almost the same conclusion was met in which virtual language tutors used AI to provide quick and personalized feedback to their students, leading to the students improving their language skills at a much faster rate (Poola & Bozic, 2023). AI is a much more efficient tool in providing feedback over a human tutor due to many factors, including the time it takes to provide feedback and the personalization of the feedback given to a student., AI is not only responsible for speeding up the feedback process, but it is also responsible for speeding up analysis of papers which ultimately makes researching more efficient correlating with higher quality papers in students. In a study by Dr. Alshater, a professor of finance technology at the University of Jordan, ChatGPT and other similar chatbots are used to read large papers and not only summarize the paper in and out of itself, but it can also extract relevant data for students to use, which allows students to write better papers due to their research process being sped up and helped out by AI (Alshater et. al., 2022). This would be yet another way that students can potentially utilize AI for the benefit in terms of writing academic works, because it highly simplifies and shortens the research and writing process.

How Students Use AI for Academic Works

Students use AI in their daily lives, which translates to a substantial use of AI in their school and academic works as well. When an individual is accustomed to using AI to solve certain problems daily within their life, they are then wired psychologically to rely on AI for reference in all scenarios that prove difficult. This leads to AI use in academic works, as students tend to find writing academically difficult due to the repeated process of reconsidering research questions and research topics. For example, in a study made by Digital Economic Business expert Jannik Linder, 81% of high school level students find AI-driven feedback on assignments particularly helpful, whereas 85% additionally prefer AI-powered tutoring for personalized learning support (Linder, 2024). This is due to students' psychology and their habits making them believe that AI is a dependable source and is reliable to provide adequate feedback on certain assignments. However, this dependency may not be as bad as people think. In several surveys that were given by the ACT administration, it turns out that 46% of high school students in grades 10 to 12 use AI tools for school and non-school assignments, which are primarily used in language arts (66%), social studies (49%), and science classes (37%) (Ciaramella, 2023). This strong dependency may seem terrible on the surface level since it possibly insinuates that students cannot live without AI in these classes, but these same surveys show that students who use AI in these classes tend to get higher scores on the standardized ACT test over students that don't utilize AI in these classes (Ciaramella, 2023). This means that the use that students get out of AI is not just to make things simpler, but it is to also understand things more fully and efficiently. Since students use AI in these classes and out of the classes for writing and proof-reading, that implies that these same students tend to use AI for academic works as well. In the academic works that these students produce, AI would likely be utilized to do things associated with its common uses in writing, such as

sorting and putting together ideas, or proofreading to check for proper transitions and connections between overlapping themes.

Concerns on the Use of AI

Though AI has its fair share of benefits and uses in the academic writing world, there are also some liabilities that it may present that could negate its benefits. In an article published by MCAA, the doubts that scientists had on the usage of AI were listed, and one of the main concerns were mistakes that AI can potentially make when it comes to outputting data or information about data (Patron). When scientists use AI for their research, they are often wary of information based on demographics, as AI can have biases towards certain demographics and leave information out about others due to incomplete information within the AI's database, along with making mistakes when recognizing trends about data that it is given (Patron). These liabilities that AI presents during the researching process can potentially negate the benefits it gives because the paper can be deemed near worthless if the stance is based on either fabricated trends or incomplete information. To look at the bias issue more in-depth, an academic article published by Benny Wolfharth, a professor at the Institute for Medical Education in the University of Bern states that AI can provide a deuteragonist role in publishing papers because it is held back by its academic bias (Wolfharth, 2023). Because of this issue, Wolfharth claims that AI should be avoided in academic writing until the problem of an incompletely informed database is fixed (Wolfharth, 2023). In addition to the liabilities presented by incomplete information within AI databases, there is also the risk of inauthentic sources. In rare cases, AI can present data that is incorrect or fabricated amongst accurate information, which makes identifying the inaccurate information very hard leading to the incorrect information being indistinguishable and included in the research articles (Elsevier, 2023). The use of databases in AI's knowledge may seem to be a good resource, but it is actually being uncovered as one of the reasons as to why AI is being opposed in academic writing due to issues in the databases themselves. Though the contents of databases may seem like a hindrance in the research process due to incomplete information, the use of databases to inform AI is another problem when it comes to being original. Though it may seem like AI writes in a very well-crafted manner, there is a lack of creativity because AI is taught to use the information from databases and rephrase them to fit the prompt, leading to AI generated articles about a particular topic being very similar to a similar previously made article in terms of vocabulary used and topics discussed (Thompson). This can make writing using AI very dangerous, as it can lead to works being flagged for unethical plagiarism since the writing can closely reflect other work done in the past. To advocate for the issues in ethicality, there are a lot of gray areas upon the ethicality of using AI for certain situations in an academic environment. In a survey conducted by Cheryl McKearin, there were many differing views on when it is ethical or unethical to use AI and in what situations can you consider AI use ethical, with some students saying that using AI to write is dishonest to begin with, while others view AI writing as ethical as long as the use of AI is acknowledged and cited (McKearin, 2024). This reflects a split decision on the extent of ethical AI usage, which presents another concern; what rules should there be to outline ethical AI usage in certain environments? It would be incredibly hard to outline a set of rules to apply to every use of AI which makes the matter a lot more complicated.

Perspective of the Academic Community on the Use of AI in Academic Writing

In the eyes of the academic community when it comes to AI's utilization in academic writing, the general response is highly varied, with some academics proudly supporting AI's features and applications, while other academics condemn AI to be untrustworthy in the academic writing field. In the view of Senior Data Scientist and Curriculum Designer Nikolas McGehee, AI can raise important ethical concerns about academic integrity and the authenticity of student submissions as AI becomes more prevalent in the future (McGehee, 2024). This is due to AI tools such as ChatGPT and similar chat-bots exacerbating plagiarism and cheating's prevalence by allowing students to submit AI-

generated content and passing it off as their own work (McGehee, 2024). This is one of the largest concerns that scholars present when it comes to the integration of AI in academic works, and it is due to the fact that this is one of the biggest current issues within the AI use of this decade. Though this viewpoint is fair and consistent with current uses of AI, there are a plethora of alternate viewpoints that scholars present to encourage the continued use of AI in academia. For example, according to Google Statistics Scientist Jing Miao, AI's wide implementation in people's daily lives makes it inevitable for its future use in academic works as well (Miao, 2023). Because of this, rather than fighting the use of AI it would be better to control its use by outlining guidelines for its use in academia and making adequate limitations as to how much it can be used (Miao, 2023). These limitations are an alternative to preventing the use of AI because it would support its use in moderation rather than stop its use altogether. Despite these highly varying viewpoints between scholars, society seems to be moving towards the latter view over the former.

Conclusion & Recommendation

AI is one of the most rapidly advancing and latest trends in an evolving society, and with it comes a lot of uses and controversies. In terms of uses, it is being implemented in modern-day school and college curriculums to support kids with personalized and quick lessons and feedback to help them make papers. Another example of how it's being used is that it is being used to help writers organize their thoughts and produce outlines, along with making students more engaged with learning through its use. However, with all of these good sides there is also a concern that is presented by individuals who use AI regularly. Some of these concerns include the use of databases to inform AI and to teach them how to answer prompts. This is because the use of databases can lead to the AI making mistakes if there is a mistake in the database like bias, or having a lack of originality due to the fact that AI gets all of its information from previously published information. With its widespread use in schools by students across all levels, it should come with a few caveats and regulations about its use. Despite some schools already having policies set in place about the responsible use of AI in academia and college papers, other schools don't have these regulations, leading to teachers having to make subjective regulations on AI usage in the classroom. In rare cases, there are even some schools and professors that do not have any rules about AI usage, making the ethicality of using AI to produce works a large gray area that needs to be made clear. With these issues, schools should look towards collaborating and creating a uniform policy on AI usage, incorporating a lot of the common uses of AI in the school like researching or synthesizing ideas. An example of some things that can potentially be discussed when producing these guidelines is to what extent is AI usage without citation considered ethical, and whether or not using AI to actually write small parts of the paper would be considered plagiarism or not. With guidelines like these being produced, over time schools would develop a uniform code on AI usage which can potentially outline future AI usage and result in better-fitting AIs being made for doing research and making papers based on that information.

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