Challenges and limitations of AI in education: Strategies for addressing racial inequity in ChatGPT

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ABSTRACT

In this essay, I explore the ethical challenges posed by ChatGPT through the lens of racial equity. While ChatGPT can enhance learning, it also risks exacerbating racial disparities in academic settings. I address potential racial biases in AI tools such as ChatGPT, emphasizing the importance of unbiased coding. If programmers do not examine their internal biases, AI bias can manifest, creating barriers for students of color. I identify three ethical challenges of using ChatGPT in classrooms and offer a call for action with strategies and recommendations for educators and administrators to ensure that AI tools promote equitable teaching and learning.

Keywords: AI, ChatGPT, Classroom Learning, Higher Education, Racial Equity, Student Affairs

INTRODUCTION

The intersection of technology and education has been a complicated relationship for the past century. A relationship that has activated a wide range of emotions and responses among educators. In the 1920s, the classroom was introduced to the radio to create supplemental learning opportunities for students to listen to on-air lectures (Purdue University, n.d.). Educational technology has evolved over time and has included overhead projectors, videotapes, the Skinner Teaching Machine, handheld calculators, scantron testing, and smartboards, to name a few examples.

The latest tool that has made its way into the classroom is ChatGPT (Chat Generative Pretrained Transformer), and concerns have already been raised that are similar to what has worried educators over the past 100 years when new and innovative technology was introduced to the academy. This chapter identifies the ethical challenges connected to AI tools such as ChatGPT and the ways in which educators and higher education administrators can turn these challenges into opportunities. With collaborative efforts among faculty, staff, and administrators, higher education can position itself to capitalize on the capabilities that AI tools provide to serve and resource students.

CHATGPT AND ARTIFICIAL INTELLIGENCE

AI tools and programs have existed in the United States since roughly the 1940s (History of Artificial Intelligence - Javatpoint, n.d.). AI technology is designed to simulate human behavior or thinking with the capacity to be trained to solve technical and adaptive problems. This tool was created to make other forms of technology more accessible, faster, and cheaper. As time progressed, so did the evolution of AI. In 1943, artificial neurons were created (History of Artificial Intelligence - Javatpoint, n.d.), which mimicked the neurons in human brains that deliver pulses and signals throughout the body for them to function. Soon after, the Turing Machine was created in 1950 (History of Artificial Intelligence - Javatpoint, n.d.) to assess and evaluate a machine's ability to emulate and recreate ideas and behavior that are similar to those of humans. As AI became more evolved and more prevalent, its reach expanded to other industries that led to the creation of ELIZA, the first chatbot in 1966 (History of Artificial Intelligence - Javatpoint, n.d.), and WABOT-1, the first intelligence robot in 1972 (History of Artificial Intelligence - Javatpoint, n.d.). Time and AI continued to progress and led to the creation of the Roomba in 2002, Google Now in 2012, and Amazon Echo in 2015 (History of Artificial Intelligence - Javatpoint, n.d.). Currently, where we live in a world driven by data, AI is a tool that is used across many industries to assist in the execution of tasks that contribute to the function of our society. The progression of this innovative technology has led to the creation of the ChatGPT.

ChatGPT is a language model that was created on November 30, 2022 by the company OpenAI (Marr, 2023). The primary purpose of ChatGPT is to help users find accurate information about a wide variety of topics. This is accomplished by ChatGPT, which develops text responses that are designed to be human-like. This language model tool runs on a computer trained by its parent company, OpenAI, to understand and provide information that references public information from the internet. To clarify, the information this language model tool absorbs from public information on the internet is retained only if the information is implemented in the tools' training algorithm, which is controlled by its parent

company. Currently, ChatGPT does not have the ability to explore the internet at its own discretion (Rojewska, 2023). While this tool has many capabilities to enhance the way in which the academic curriculum is delivered, it is also important to understand the implications of the use of this tool.

ETHICAL CHALLENGES AND PREDICTIONS

Machine learning, algorithms, and artificial intelligence (AI) bias. To ensure that people use common language, it is important to clarify that machine learning bias, algorithm bias, and AI bias are interchangeable terms that mean the same thing. While the use of AI creates multiple opportunities to add a sense of ease and convenience to everyday tasks and functions, it is crucial to still acknowledge AI as an innovative yet imperfect system. For AI to apply the information it has been trained to learn, it has to go through a machine learning process. The machine learning process involves engineers and developers providing massive amounts of data for the AI tool to learn, process, and retain. Many companies do have a process to vet and determine the quality and trustworthiness accuracy of the data they use in the machine learning process, and at the same time, a few instances of bias have manifested. The most frequent forms of bias that have come up are based on race and gender identities. One example of this instance is how AI tools have reviewed multiple images of people cooking and have commonly identified them as womxn (Gillis & Pratt, 2023). Another example of bias is how AI tools review multiple images of people working on cars and identify them as men (Gillis & Pratt, 2023). Finally, there have also been instances where AI tools have reviewed multiple images of historical figures and misidentified and misgendered who they were; many of these instances were in reference to Black historical figures (Hardesty, 2018). In the machine learning process used to train AI tools, the quality of the data and information is determined by the developers and engineers, who compile the information to train the AI tool. In this context, ChatGPT, like other AI tools, can develop bias, which presents ethical challenges.

A common process of the classroom is where an educator provides information to the students and then tests their knowledge to ensure that they are properly retaining the information and applying the information. Once that test has been completed, the educator will grade the test, where the grade will serve as an assessment and evaluation of how well the student performed during the test. Tools such as ChatGPT have the ability to grade assignments. Currently, there have already been instances where educators will grade a Black student's assignment more harshly than a White student's assignment, with an average of a 5-point difference (Quinn, 2020). If a tool such as ChatGPT has access to specific student information that does not violate FERPA policies, a risk is created for ChatGPT to further perpetuate and amplify grading bias on the basis of race. To be clear, this

is not to say that grading bias will occur all the time. Rather, the gap that grading bias creates will expand.

Application of information. Reportedly, 56% of students use ChatGPT or similar AI tools to complete their schoolwork (Nam, 2023). One of the key responsibilities of an educator is to provide information to their students and support them with retaining that information as knowledge to improve their holistic development. Since different types of AI technology are already being used in the classroom, it is safe to assume that ChatGPT can serve as an additional tool to support and resource students. However, like many things, it is crucial to find a balance when using the tool so that students do not become overreliant. To date, many students have used ChatGPT primarily for subjects such as English and science-related topics such as chemistry and biology (Kyaw, 2023). AI tools such as ChatGPT have the ability to provide user-friendliness along with convenient and easy use, support with organizational skills, and serve as a time saver in conducting research. However, the tool also has the ability to provide potentially inaccurate information, which is dependent on its training algorithm, which goes through the machine learning process. It also creates multiple concerns regarding what actions of a student using ChatGPT are considered an infraction of academic dishonesty and academic integrity policies (Wright, Jones, & Adams, 2018). Finally, the tool has the ability to blur the lines of a student's critical thinking and analysis skills.

OpenAI has already created a disclaimer that indicates that "ChatGPT may produce inaccurate information about people, places, or facts" (ChatGPT, n.d.). While this disclaimer is placed on the ChatGPT page, there is still a potential risk of inaccurate information being created and shared by this tool and having a student learner accept the information as truth. Furthermore, because of the convenience of access to ChatGPT, a student runs the risk of underutilizing their critical thinking skills to verify the information they are being given; this risk creates multiple ethical challenges with respect to information literacy in higher education. Finally, this creates an additional learning barrier for students of color. As previously noted, one of the subjects where ChatGPT was commonly used was English. English courses are primarily writing-intensive. ChatGPT has the ability to write an entire essay once a student directs the AI tool to do so. English courses typically have an expectation to write in either the MLA (Modern Language Association), the APA (American Psychological Association), or the Chicago format. These writing formats were all created by White writers, scholars, and researchers (Chicago Manual of Style, 17th Edition, n.d.; Notable Figures, n.d.; MLA Style | NMU Writing Center, n.d.; Greenwood, 2017), which perpetuates components of whiteness as the standard in higher education. While students of color can use ChatGPT to draft content for their English assignments to improve their writing in terms of the white gaze, this predicament also implicitly removes

the opportunity for individual expression. This can serve as a barrier for students of color whose first language may not be English and for students of color who speak and write with a different dialect of English, such as African American vernacular English (AAVE).

Tool vs tactic. The final ethical challenge I present in this chapter is how ChatGPT can be used more as a tactic than a tool. Specifically, while some students have resorted to using ChatGPT to complete their assignments, some faculty have also resorted to using ChatGPT to develop course syllabi (Claybourn, 2023). The ethical challenge posed here is how colleges and universities can use ChatGPT to develop syllabi for courses in subjects where the faculty of color retention may be low. Many colleges and universities have struggled with recruiting, hiring, onboarding, and retaining faculty of color (Thompson, 2008). Furthermore, many colleges and universities fail to equitably advance faculty of color through academic leadership roles or promote them to tenure (Writer & Watson, 2019). With the use of ChatGPT in the development of course syllabi, an ethical concern is that colleges and universities are taking an approach of placing underqualified faculty in positions where they are not fit to teach; racially, the number of teaching opportunities will continue to narrow for faculty of color while continuing to expand for White faculty.

Additionally, knowing and understanding the capabilities of AI tools such as ChatGPT, along with recognizing multiple pieces of legislation that are seeking to ban certain subjects that center race, this creates an ethical challenge of whose history is taught in the classroom, along with whether the history is accurate or not. This challenge creates another barrier where students of color will not have interactional diversity to learn about different topics from different cultures by faculty who share similar salient identities, which harms their holistic development, engagement, and retention in college (Bitar, Montague, & Ilano, 2022). Conversely, the reliance on ChatGPT in the development of syllabi runs the risk of having educators teach and disseminate inaccurate information while claiming it as knowledge. In such cases, AI tools such as ChatGPT navigate a thin line between being used as a tool and being used as a tactic, a tactic that seeks to misinform both students and educators.

RECOMMENDATIONS

The creation of innovative technology such as ChatGPT has always activated a range of emotions and concerns, especially among educators. It is understandable that many of the concerns are with respect to students cheating and not actually developing an understanding of course content, needing to make assignments more formulaic and technical as opposed to adaptive and varied, and

potentially making the profession of education more difficult to navigate (Blose, n.d.). I humbly acknowledge these concerns and offer the following recommendations:

Diversify the algorithm. OpenAI, the parent company that created ChatGPT, has 76% White management (OpenAI CEO and leadership: Executives and Demographics, 2021). Based on this figure and the fact that 66.2% of all coders are White (Computer Programmer Demographics and Statistics, 2023), there is an honest assumption that many of the developers and engineers of ChatGPT are also White. Since most developers and engineers control the information input into ChatGPT's machine learning process, there is a concern that ChatGPT is limited to disseminating information that aligns with and upholds whiteness. Therefore, it is crucial for companies and organizations to have a software development and engineering team that has diverse and equitable representation, along with an understanding of information literacy and equity. Colleges and universities' responsibility when potentially partnering with software development and educational technology companies is to ensure that the coding, algorithms, and technological design of AI tools are designed with every kind of user in mind, not just those of the dominant culture.

Human feedback. The capabilities of ChatGPT include (1) generating human-like text that emulates the style and structure of input data, (2) generating text in multiple languages, and (3) responding with text that is relevant to the context of a conversation. While ChatGPT's goal is to appear human-like, it is clear that this AI tool is not human. Therefore, colleges and universities need to maximize any and all opportunities to participate in the reinforcement learning from human feedback (RLHF) process. RLHF is a process in which humans provide feedback to an AI model to improve its safety and reliability (Coursera, 2023). Specifically, faculty can serve as subject matter experts and provide feedback to ChatGPT or other AI models to ensure that the information that is being reviewed, analyzed, and retained by the AI tool is accurate and relevant.

Amplify the opportunities of ChatGPT. ChatGPT has received a variety of responses, and many educators perceive this tool as a threat. This is an opportunity to reframe the narrative and experience a paradigm shift. ChatGPT, along with other AI tools, can complement the labor and effort of educators, as opposed to imposing on them. Since students have already opted to use ChatGPT, this AI tool is not going anywhere anytime soon, which presents a dilemma to colleges and universities, who seek to not openly embrace the benefits of ChatGPT. Colleges and universities need to invest their time and resources in training faculty and staff on the nuances of ChatGPT so that they can become more familiar with it.

Additionally, they can create resource guides for faculty and staff so that they can understand successful practices to use ChatGPT to complement their courses. Finally, faculty and staff need to educate their students on how they can use this AI tool without concern for, or the issue of, potential academic dishonesty and academic integrity policy infractions.

CONCLUSION

Change is difficult, and yet, it is inevitable. The structure of academia continues to evolve and shift as time progresses, as does technology. While additional concerns about ChatGPT and other AI tools continue to manifest, they do not change what opportunities still exist for us to take advantage of. ChatGPT will operate and function as a threat for as long as we view it as such and use it as such, whether intentionally or unintentionally. Colleges and universities have an opportunity to have AI tools complement the process of learning rather than having AI be a hindrance or nuisance to education and higher learning. As these recommendations are taken under consideration, I challenge scholar-practitioners to further contribute to the conversation around AI technology, student success, and faculty support.

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