educ-AI-tion

Sidonia Tameshtit
Queen's University
21sst11@queensu.ca

Jasmine Qin
Queen's University
23xbf1@queensu.ca

Sarena Sandhu
Queen's University
22bww2@queensu.ca

Ava Christie
Queen's University
21ajec@queensu.ca

Basma Azeem
Queen's University
23dvb9@queensu.ca

***Abstract*—Artificial intelligence is becoming an increasingly common tool for students and teachers alike, raising important questions about ethics, academic integrity, and its hindrance to creativity. This project explores how AI can be integrated into education to enhance learning while maintaining academic integrity, instead of outright banning its use in classrooms. Independent surveys and field research provide insights into how AI is being used in academic settings, where the line is drawn between assistance and cheating, and whether AI is improving or undermining education. Using this data, along with research on AI ethics, a proposed solution called GPTeach was developed. GPTeach is an AI tool designed to support learning without compromising critical thinking. This solution emphasizes streamlining the teaching process, educating students about responsible use and personalizing the learning experience to fit the strengths and weaknesses of each student.**

I. Introduction

30 years ago, students spent countless hours practicing cursive handwriting because it was considered a fundamental skill. However, by the time they entered the workforce, computers had largely replaced the need for handwritten communication. This shift reflects a broader challenge in education—keeping pace with technological advancements to ensure students are prepared for the evolving demands of the workplace. Today, artificial intelligence (AI) is reshaping industries at a rapid pace, yet many education systems remain hesitant to integrate it into learning. ChatGPT and similar generative AI chatbot programs have been banned in school districts across North America to "protect academic honesty," "avoid cheating," and preserve "critical thinking and problem-solving skills" [1] [2]. These concerns have overpowered the many possible benefits brought about by chatbots and generative AI programs to students and educators alike.

Generative AI programs pose potential not only to supplement under-resourced education systems, but also to support teachers struggling to address individual students' needs. Further, the use of generative AI prepares students for a 21st-century workforce which will rely more and more heavily on AI [2] [3]. Instead of avoiding AI, schools should focus on teaching students how to use it effectively and ethically, just as they once adapted to computers. A report from the World Economic Forum predicts that AI will be embedded in 75% of workplaces within the next few years, highlighting the growing importance of AI literacy [4]. By recognizing this shift and adapting educational approaches accordingly, schools can ensure that students are equipped with the skills necessary for the modern workforce.

II. Background and Related Work

A. History of AI in Education

The rapid advancements in artificial intelligence over the past few decades have generated significant interest and excitement within the field of education [5]. The background of AI, particularly in education, traces its roots to the mid-20th century when early artificial intelligence systems were conceived. The term "artificial intelligence" was first coined in 1955 by John McCarthy, and over the next few decades, the potential applications of AI were explored across various fields, including education [5]. One of the earliest examples of AI in education was the PLATO system developed in the 1960s, which was a precursor to modern computer-based learning platforms [6]. PLATO was designed to provide computerized tutoring and educational games, setting the stage for the integration of technology in learning [6]. By the 1980s, AI began to gain traction in more specialized applications, such as intelligent tutoring systems (ITS) and expert systems [7]. These systems were programmed to deliver personalized learning experiences based on a student's individual progress and performance. Socratic method-inspired systems, for instance, aimed to simulate human tutoring by asking questions and guiding students through problem-solving tasks [7].

Today, modern AI uses machine learning, natural language processing (NLP), and adaptive algorithms to enhance learning experiences. Machine learning allows AI to adapt to student behaviour over time, offering personalized learning paths. NLP enables AI systems to understand and respond to student queries (e.g. chatbots, essay feedback), and data analytics tracks student progress and predicts learning outcomes [8]. The tools modern generative AI employs introduces a promising learning tool for students around the world.

B. Current Significance of AI in Education

Recent research has highlighted the promising applications of AI in education, particularly concerning intelligent tutoring systems, automated assessment, and personalized learning [9].

AI-powered tutoring systems can provide customized feedback and adjust teaching strategies based on individual student requirements and progress. Some examples of AI platforms that were made solely for academic use include systems like DreamBox or Knewton, which adjust lesson difficulty based on student needs. Additionally, AI-powered tutors like Carnegie Learning can provide targeted help. Students can even use tools such as AI-generated quizzes, flashcards, and practice questions to study more efficiently. Furthermore, to increase student engagement, apps like Duolingo use AI to personalize and gamify learning.

Despite AI's positive role in academic settings, its increased use in education also comes with challenges such as ethical concerns regarding bias, data privacy, and access [10]. For example, if an AI model is trained on biased or incomplete datasets, then these ideas would be adopted among the students. Additionally, adaptive learning systems may not cater well to students from underrepresented groups because of the [11]. Bias could also be prevalent in grading systems which may unfairly disadvantage non-native speakers or students with unique writing styles. AI systems also require extensive student data to function, raising concerns about data collection, storage, and potential misuse. There is also a lack of transparency regarding data as users are often unaware of how their information is collected and used [12]. Furthermore, there is a risk of students becoming overly dependent on AI for learning, reducing critical thinking and problem-solving skills [13]. Additionally, teachers may overly rely on AI for administrative or teaching tasks, potentially diminishing the humane element of education. Not only can AI strip students of gaining vital skills learned from school but it is also known for relaying incorrect information to students due to the nature of its data retrieval from the internet.

The many facets of modern generative AI, including machine learning, natural language processing (NLP), and adaptive algorithms, lend themselves to empowering AI as an educational tool. Through awareness of AI challenges such as bias, privacy and access, AI has the potential to become a reliable and powerful tool in any student's arsenal. Though many have taken advantage of AI's ability to be used within learning, none have been created as an accessible, public tool for learning promotion which would work alongside schools. By understanding student and teacher use and opinion of generative AI, this project aims to create a generative AI tool with guidelines to ensure student growth and learning while easing the difficulty of teaching in a modern technological era.

III. Case Studies

The integration of AI into modern education has already led to significant changes in the classroom and will continue to make great strides as it evolves. This paper examines the ethical implications of AI in education by analyzing perspectives from both students and educators. To best grasp these implications, surveys for both groups were created and sent out, and the results provided incredible insights into uses, preconceived notions, and ethical dilemmas associated with AI in academic settings.

The surveys explored key concepts such as what teachers and students consider to be cheating, how AI tools are used in the context of schooling, and whether both groups envision a future where AI plays a central role in education and the workplace. To propose an AI-driven platform that meets the needs of both educators and learners, it was essential to gather firsthand data from those directly affected. Although the student and teacher sample sizes were relatively small, the results were very informative. For future work, a greater demographic of individuals should be surveyed so that the collected information is even more informative.

A. Context for Results

The student survey primarily examined the frequency of AI tool usage such as ChatGPT, the motivations behind its use, and students' personal ethical boundaries. A key focus was identifying where students drew the line between legitimate use and academic dishonesty. Exploration of their reasoning for AI use helped inform the development of an ethical alternative. There were 37 student responses, ranging from middle school (grades 6-8), high school, bachelor's degree, and college/professional degree.

The teacher survey examined similar themes from an instructional perspective. Topics explored included educators' definitions of cheating, their own AI usage, and their perceptions of how AI has affected student work. A critical objective was assessing whether teachers believe the quality of student submissions has changed since ChatGPT became widely accessible. Understanding these perspectives was crucial in suggesting a more effective and ethically responsible generative AI platform. 18 teachers were surveyed, including classrooms from middle school, high school, undergraduate and post-graduate level classes, and subject specialties spread across arts, science, business and professional courses.

B. Student Results

When students were asked about their AI use for school, 46.7% of students said they use ChatGPT one to five times per week for school, with 40% using it more than five times per week, as shown in Figure 1.

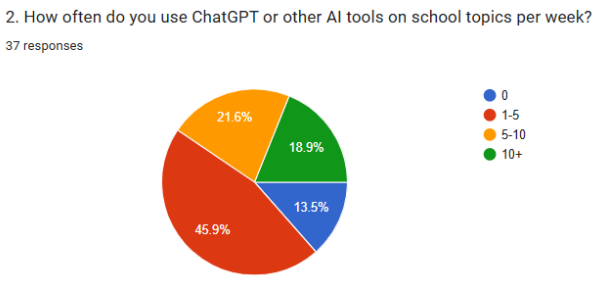

Fig. 1. Results from student survey conducted, demonstrating frequency of ChatGPT use amongst students

In contrast, students were asked how often they used campus/in-school help centres, and the most popular response was less than once per month, shown in Figure 2. This highlights the discrepancy between the help that students need and the help they seek through the school's support centres. AI is more readily accessible no matter the time or location, making it a favourable alternative.

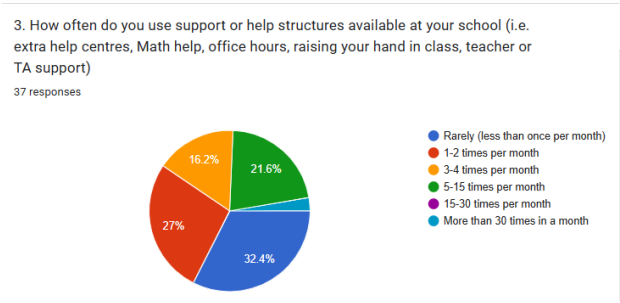

Fig. 2. Results from student survey conducted, demonstrating how often students make use of help centres provided by their schools.

When asked about the types of prompts students input to the program for school, almost half of students answered they input the homework problems verbatim, which is not in the best interest of their education experience. It was also found that 93.3% of students believe AI will be "somewhat important" to "extremely important" in the workplace in the next three to five years. This further demonstrates the eagerness for students to familiarize themselves with AI due to its rapidly increasing representation, and how important it is to introduce it to them before reaching the workforce.

When asked about their biggest concerns regarding generative AI's potential impact on their learning, three-quarters of students said they were worried that it would make them "lazy or reliant on technology". More than half responded that "AI may not be able to fully capture the quality of human learning", and one-third responded that "AI may give an unfair advantage to some students". This demonstrates the hindrances that generative AI can have by removing the need for students to use their own critical thinking skills.

When asked about the impact AI has had on students' educational experiences, the results show both positive and negative aspects. One student highlighted the ease of access to personalized learning, and its ability to "dumb down" more confusing subject areas, while another noted, "Often I can get solid answers with little to no research…this leads to less of an intense learning experience and stuff doesn't stick as well." Students have discovered ChatGPT as an incredibly useful resource, especially when outside help is inaccessible. But without limitations on its usage, it becomes a slippery slope towards over-reliance and the failure to truly grasp concepts.

1) Teacher Results: Two-thirds of the educators surveyed said they have used AI in a professional context. Most commonly, 44% responded that they use it to create assignments, and nearly 40% said they use it for creating lesson plans and assessments. To a lesser extent, some educators cited AI use for grading, emails, and project suggestions. The results show that teachers are already using AI as a support tool, thus the introduction of one that caters specifically to their classroom would be beneficial. The absence of AI use for feedback, grading, and personal correspondence exhibits that AI does not hinder individuality in the classroom, but instead, supplements the teacher's ability to instruct. Furthermore, it is notable that a majority of teachers employ AI as a generative tool, using it to create questions, assignments, or lesson plans, instead of as a supportive tool, within the parameters of amplifying their own thoughts.

One of the primary goals of the survey was to gauge teacher's opinions on student usage of AI tools. When asked about their experiences with student's use of generative AI platforms, the vast majority of teachers surveyed did not feel students were using it in an ethical way. A high school business teacher said *"Students do not know how to use ChatGPT-generated content as a resource. They use it to replace their own original, critical thinking and, as such, the quality of student work has suffered."*

When asked about their biggest concerns regarding programs like ChatGPT, nearly 90% of educators responded with a concern about student plagiarism and originality (see Figure 3 below). Later in the survey, teachers were asked to define plagiarism when put into the context of AI usage. The results showed that most teachers believed entering student-created prompts into AI tools such as ChatGPT is acceptable, however copying and pasting the asked question or generated responses is what qualifies as cheating. It was found that two-thirds of teachers were concerned with the long-term impacts AI has on their student's learning. Additionally, 39% of teachers were concerned about the accuracy of AI-generated results, as well as the lack of training on AI research tools, as shown in Figure 3.

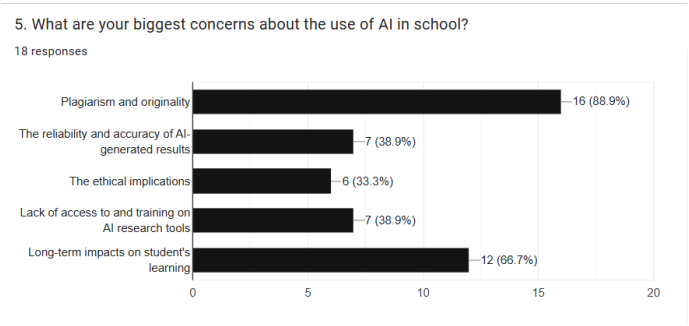

Fig. 3. Results from teacher survey showing the primary concerns for student use of generative AI tools

Furthermore, two-thirds of educators responded "most likely" or "absolutely" when asked if professional development or training on AI would be beneficial, as shown below in Figure 4. By introducing education about how AI tools function, there will be increased confidence when using AI tools within the classroom.

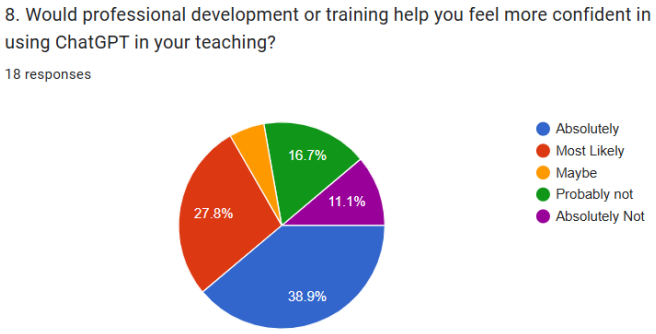

Fig. 4. Results from teacher survey showing the amount of teachers who feel that AI training would make them feel more comfortable introducing it to the classroom.

Educators were also asked what they thought was the biggest impact AI has had on education throughout their careers, whether it be positive or negative. A university instructor in Media Relations, Organizational Communications, and Research said *"So far negative. Students are simply using it as a shortcut to get assignments done more quickly. It takes quite a bit of instructor time to develop assignments that invite the critical thinking required to help students use it effectively."* A professor of Mathematics wrote *"The only positive I have personally seen is help in coding for students who are not deep coders. Negatives are far more outweighing - reinforces the idea that answers already exist to questions being asked; strips the human kernel of creative thinking."* Finally, an engineering professor wrote *"Outsourcing of one's critical reflection to a massive database is detrimental. On the other hand, if what one teaches is always obtainable by ChatGPT with reasonable accuracy, perhaps what one teaches is to be revised. AI, if applied reasonably, will do a fine enough job in generic and introductory training but not much beyond."*

The survey went on to collect teacher input into the incorporation of AI into schools and universities by asking how they would like to see current AI chatbots used by students. A common answer was that students must start citing AI use, even if it was only used to generate ideas, similar to how websites are cited within research projects. Another primary input point was solving the lack of fact-checking behind what ChatGPT outputs as a response, and eliminating the concern of AI providing students with misinformation. One professor went on to state that *"...one can create AI engines and neural networks specifically trained for a certain application, in this case university."* A tailored approach to the proposed AI tool in education could be used to minimize these concerns, by applying citation generation, citing the AI at the end of prompt answers and allowing teacher input into the AI guidelines.

2) Comparison of Results: To gain insight into what students and teachers feel is ethical regarding generative AI, a thought experiment was conducted in the survey. Both students and teachers were given the same assignment question and asked to select all the prompts they considered to be cheating if a student had asked ChatGPT the corresponding prompt.The question presented was, *"How did international alliances affect the onset of World War 1? Provide your opinion supported by historical examples."* Options to select in the survey are displayed below in Figure 5.

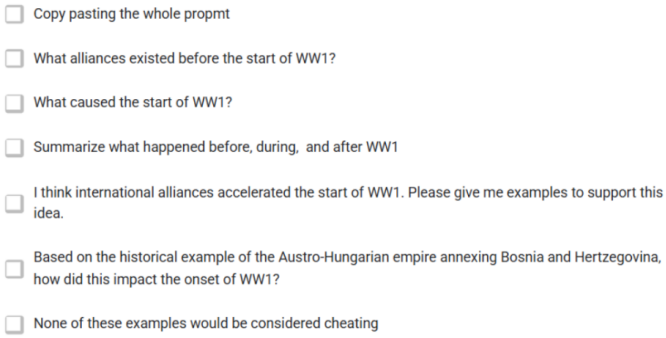

Fig. 5. Response options presented to both students and teachers to select all which they consider to be cheating if asked the prompt detailed above.

The discrepancy between what educators considered cheating versus the students was significant. As shown in Figures 6 and 7 below,the prompt most agreed upon to be cheating was copy-pasting the entire question verbatim. However, it is interesting to note that where 84% of students thought it would be considered cheating, only 61% of teachers felt the same way. Although students strongly felt this prompt would be cheating, it has yet to be determined whether or not feeling this way would dissuade them from doing it. A fairly small percentage of students and teachers alike (less than 14% that were interviewed) felt the second and third prompts would be cheating. These were mainly research-based prompts, as opposed to opinion-forming ones. Where 32% of students felt the second last sentence would be considered cheating, a significant increase of 44% of educators felt this way, showcasing a variance where teachers and students "draw the line". This prompt focused more on asking generative AI to connect the dots given a pre-decided historical example.

Teachers were asked to provide justifications for which prompts they deemed unethical. The common consensus was that when generative AI tools are used for research and compiling information, teachers are much less inclined to consider it cheating. When it is used to form opinions or creative thoughts, educators are much more likely to find the use of ChatGPT unethical. One teacher said, *"I believe AI results should not be tailored towards a specific conclusion. I believe the best use of AI [is] to have a wide range of information that can THEN be used by the user to create an idea or thought."*

Another common opinion was teachers were less concerned about what students input to ChatGPT, but instead what they do with the resulting output. One teacher said, *"Students are free to enter prompts. It's how they use the results that determine if it is cheating. Did they copy and paste the AI results and present it as their own work without proper*

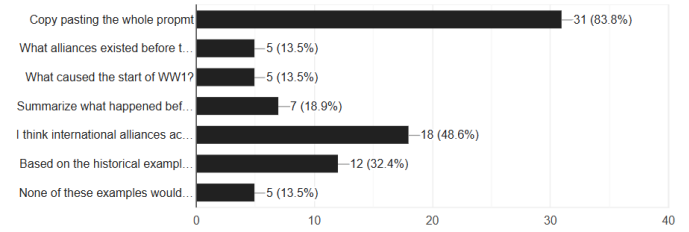

Fig. 6. Student survey results for which pasted prompts into a generative AI program would be considered cheating or unethical.

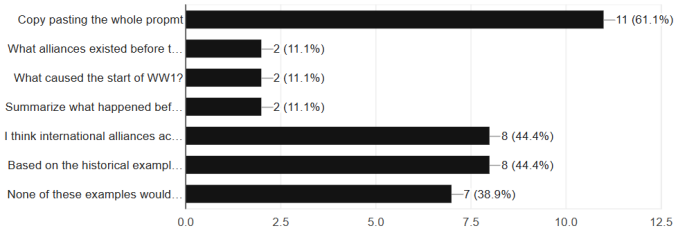

Fig. 7. Teacher survey results for which pasted prompts into a generative AI program would be considered cheating or unethical.

citations? If so, that is cheating. As instructors, we have to design assignments that help students learn to use AI ethically."

A common opinion shared by the teachers interviewed was they did not trust their students to simply use ChatGPT to support their own preconceived ideas. Instead, they fear students use generative AI tools to do the critical thinking for them. A teacher said, *"Most students would just copy the response from any of those prompts without understanding"*. Thus, it is evident that any proposed generative AI model that would be education-friendly must not feed students the answer or suggest new ideas, but rather help students to come to their own conclusions and build on what they have learned.

IV. Ethical Analysis

Future advancements in AI education tools must prioritize giving the students the fishing rod and not the fish. An ethical tool must guide students as a teacher would, instead of outright giving students the answer. Many educators highlighted their fear of AI tools in the classroom giving students the answer without any context or true learning being provided. For AI use in school to be considered ethical, it must encourage critical thinking by offering resources instead of answers, by prompting students with guiding questions, and by helping them refine their reasoning so that creativity is encouraged. In STEM subjects, AI should identify specific mistakes in a student's work in place of providing solutions, map out steps to approach the problem without outright providing the answer, and encourage students to engage with the material more deeply [5].

Platforms like Khanmigo have already demonstrated the effectiveness of hint-based learning rather than direct answers, ensuring students actively participate in problem-solving [11]. Additionally, AI should be integrated with safeguards, such as teacher oversight, the ability to pre-approve resources, and built-in citations to combat misinformation and bias [12]. Transparent warnings about privacy risks and AI limitations such as bias would further ensure ethical and responsible use.

A. Supporting Educators

To support teachers, AI can be customized to track student interactions, helping educators identify learning gaps and struggling students. By analyzing student queries and response patterns, AI could provide insights into classroom misconceptions, allowing teachers to tailor their instruction more effectively [13]. AI-driven tools should also adapt to different learning styles, offering varied explanations and information-delivery techniques to accommodate diverse student needs.

Moreover, AI can enhance teacher efficiency by consolidating course materials, generating interactive learning resources to fill gaps in student comprehension, and automating administrative tasks. With controlled access to course-specific materials, such as lab manuals or assignment guidelines, AI could serve as a valuable supplement for both students and substitute teachers [8]. Ultimately, AI should be designed to enhance, not replace, human instruction, making sure that students remain engaged and develop independent problem-solving skills while receiving the support they need. Generative AI has shown the capacity to create convincing false, but GPTeach would ensure credible and trustworthy answers, supervised by teachers [14].

B. Teacher Analysis

Programs modelled after GPTeach ease the burden on teachers and administrators by shifting the focus from constant regulation to meaningful technological integration in the classroom. The system's feedback functions provide teachers with real-time evaluations of student understanding, allowing for more targeted instruction. Unlike unrestricted AI tools, GPTeach prevents students from simply copying AI-generated responses while still offering structured support to enhance learning. By making each student's learning process visible, the platform enables educators to assess individual progress and differentiate instruction accordingly.

While generative AI has the potential to support teachers, GPTeach extends its impact by offering alternative learning methods tailored to specific educational needs. A major concern with general AI tools is their tendency to produce uniform responses, which can reduce the personalization of learning. GPTeach, however, is designed to align with individual courses and curricula, preserving the connection between teachers

and students while maintaining the integrity of personalized education.

Administrators, as key decision-makers in education, must navigate the challenges of AI integration thoughtfully. While generative AI expands the range of learning tools available, it also requires oversight to ensure students engage with content critically rather than passively absorbing AI-generated information. Schools and administrators will need to establish clear policies on AI usage, balancing accessibility with safeguards that promote genuine learning and critical thinking.

C. Student Analysis

The introduction of a specialized, education-focused generative AI engine provides students with a new learning tool which is accessible and redirects students from misusing AI. The tool provides easy integration into existing student routines surrounding the use of technology. In the survey conducted for this project, one of the teachers was quoted "[the] outsourcing of one's critical reflection to a massive database is detrimental." By adding frameworks to the generative AI design, GPTeach can become a tool for learning instead of a crutch or regurgitator of information. The shift in mindset fosters a healthy relationship between imaginative and unique thought and use of a helpful tool, promoting a growth mindset for any students using the new tool.

However, the introduction of a new AI tool also brings a concern of reliance on AI for students. Artificial intelligence runs on a catalogue of information it is given. The overuse of current AI tools can lead to a lack of student creativity and the inability to create unique ideas without prompting. The goal of a program like GPTeach is to create a tool that promotes student-created thought, emphasizing student individuality in the presence of AI. Arguably, students could use a generative AI tool that is not monitored by their teacher and that just outputs the answer. Although nothing is banning them from doing so, students would ultimately be doing themselves a disservice, as there would be no access to these tools come examinations. Thus, this proposed tool is a happy medium between bridging the gap between the help students need, and the ability to be an independent learner.

D. Risk Assessment

Equity remains a major concern when integrating AI into education, as not all schools or students have the financial resources to access advanced technology. Ensuring that AI tools are both affordable and widely available is essential to preventing further disparities in learning opportunities. Unlike other generative AI programs, GPTeach would follow a different business model designed with student privacy and fairness in mind. Instead of relying on cookies, third-party data collection, or prioritizing partnered services (such as Bing over Google), GPTeach would be sold directly to school boards. This approach provides an additional layer of data protection for students while ensuring the information delivered is sourced from the most accurate and objective materials available, rather than being influenced by corporate partnerships. By prioritizing transparency and ethical AI use, GPTeach aims to support education in a way that fosters equal access, unbiased learning, and student privacy.

Privacy is one of the biggest concerns associated with the use of AI [2]. This issue is further complicated for tools like GPTeach being used by children, who cannot give consent. All AI systems require vast amounts of data in order to train their decision-making algorithms and improve their capabilities. As students use the tool, their learning patterns, age-appropriate use of language, and preferences continue to "teach" the AI model. As with internet use, children are prone to input sensitive information because they lack the cognitive abilities to understand the long-term consequences that might arise from their inputs. They have a harder time understanding how these AI systems collect, process, and store their information, which leaves them vulnerable to data exploitation.

One of the most pressing challenges regarding the storage of sensitive information is the potential for this data to be shared, sold to third parties, or exposed as a part of a data breach [15]. Unlike adults, children cannot fully consent to how their data is to be used because they do not understand the full extent of their actions. The data collected during their childhood could later be used for identity theft, targeted advertising, or more nefarious reasons, following them throughout their lives. The lack of government policy in this area means that children are vulnerable to the potential dangers of data misuse [16]. The creation of AI that can be implemented into schools must take into account this concern. AI tools in education must prioritize privacy, such as implementing safeguards against storing sensitive information or containing data retention periods. Child-friendly disclaimers and active monitoring from educators and administration is crucial in controlling the potential privacy risks of generative AI tools.

Another key factor when considering AI in education is the potential for bias in AI-generated responses. As established, AI models are trained on large sets of data and human feedback and are inherently subject to human biases or prejudices. An under-representation of certain groups or an overreliance on flawed sources could be reflected in responses. The result can be biased or altogether untrue responses. Unfortunately, this goes beyond incorrect math answers or made-up historical events. Google Gemini, one of the biggest AI tools currently used by millions of students, responded to a student's homework inquiry with a deeply troubling response telling the user to "die" amongst other threats [17]. Ethical concerns surrounding AI continue to arise with the introduction of new tools, and these challenges are likely to escalate over time. This is especially worrying because of the context in which this AI is being implemented.

Children are particularly vulnerable to the influence of biased AI responses because many are still developing their cognitive abilities and critical thinking skills. They might lack the skill to fact-check or question the information that is being provided by the AI, especially in a learning environment. If they receive an AI response that has biases or inaccurate information, they are more likely to adopt these viewpoints

and shape their understanding. Even on a smaller scale, students could be subtly pushed towards specific perspectives or conclusions, which hinders their skill to think independently and critically. To address this concern, when implementing AI in schools, the AI model should be trained with diverse datasets, regularly audited responses, and clear disclaimers for children about its potential for bias.

Beyond those two factors of concern, there are also other risks associated with AI in children's education. Being exposed to AI at a young age could lead to an overreliance on AI tools and a reduction in human interaction, both of which are concerning for children's social and emotional development [18]. AI systems must be used sparingly, and investing in teaching meaningful connections and critical thinking is important to maintain a balance. Tools like GPTeach address some of these concerns by guiding student inquiry rather than regurgitating an answer.

V. The Solution: GPTeach

GPTeach was created to fit the requirements aforementioned to make the learning and teaching experience more effective, more efficient, and more ethical. Figure 8 demonstrates the student's homepage, which outlines a clear disclaimer to teach students how the program works. This outline is important as it sets clear guidelines for how students should engage with GPTeach, but also AI as a whole. Early AI interactions set the standard for how students will use these technologies later in life. Therefore,by providing constant disclaimers, students are more likely to develop a critical understanding of AI's role in their education and foster a responsible mindset when approaching AI both within and beyond the classroom.

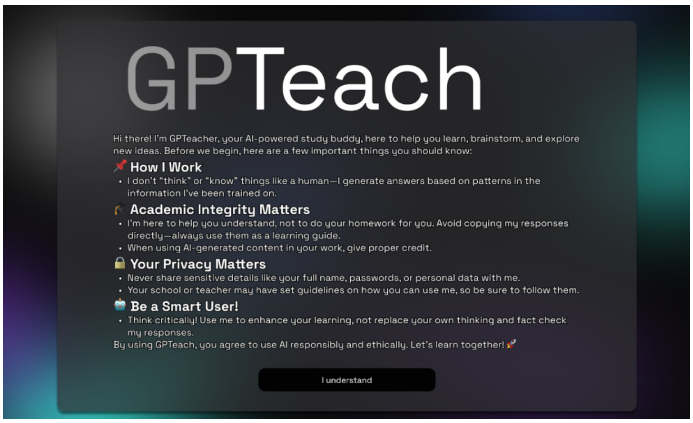

Fig. 8. Example homepage of proposed GPTeach tool, created using FIGMA.

This proposed AI framework would not give students explicit answers, but instead hint and push them towards the right solution. By referencing the provided classroom material uploaded in advance by the instructor, students have tools at their disposal that are reliable, accessible, and relevant to their particular curriculum. For students, GPTeach can act as a personalized tutor that aligns with the specific coursework and available classroom resources given by their teacher as well as catering to their learning style. It provides guidance on their assignments, essays, and worksheets in a way that gives them space to solve the problems themselves. Figure 9 demonstrates an example conversation between a student and GPTeach.

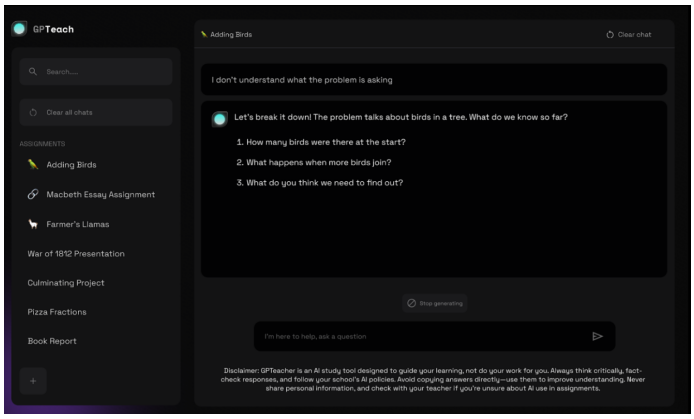

Fig. 9. Example conversation between the GPTeach program and a student using it for an addition exercise provided by their teacher, created using FIGMA.

The program summarizes what the student has learned so they can treat it like course material. It highlights the largest areas of need for the student and supplements with specific problems of similar form. It also has guidelines in place to avoid explicitly answering assignment questions and instead uses an open-ended, conversational approach to encourage students to generate their own opinions. By promoting a growth mindset and independent thought with AI answers to prompts, students will be able to analyze and explore their opinions on lesson topics without compromising their learning.

GPTeach is a tool for educators as much as for students. For an assignment uploaded by the teacher, the program analyzes conversations with all students and presents its findings, including which question students struggled with the most, suggested resources to remedy this, and a follow-up assignment to ensure student understanding. Figure 10 below shows an example of teacher support provided by GPTeach. Additionally, conversations with the student are accessible by the teacher at all times, ensuring transparency.

Furthermore, as the student uses GPTeach, the program creates a profile accessible by the teacher, which summarizes the student's learning style, largest areas of struggle, and suggested tools to use when assisting the student on a topic. In an age where class sizes are only increasing, this tool allows for teachers to keep on top of their students' needs, while also managing the class as a whole. This is demonstrated below in Figure 11. This tool would be incredibly beneficial for educators as it takes the difficulty out of analyzing and remembering each student's particular needs, and instead allows them to focus more on personalizing the class content once this information has already been determined.

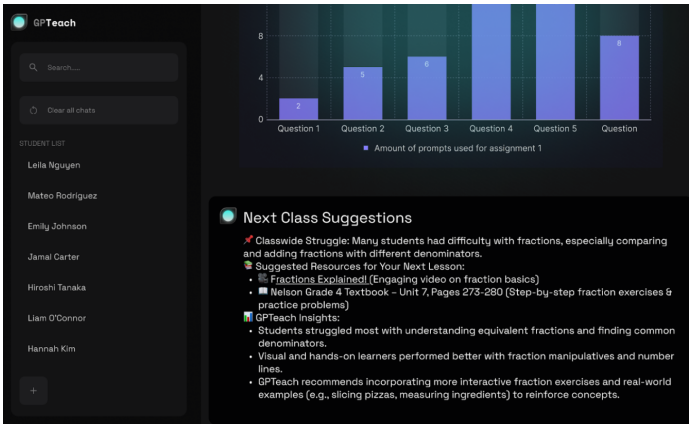

Fig. 10. Example conversation between the GPTeach program and a teacher to summarize assignment questions that students in their class found the most difficult, followed by suggested resources to share with the class to address the issues. Created using FIGMA.

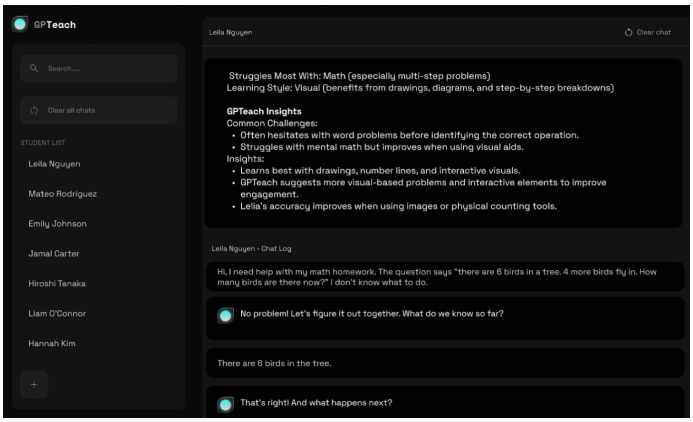

Fig. 11. Example of a student's profile visible to the teacher to provide insight on the student's learning patterns and conversation history to ensure transparency. Created using FIGMA.

VI. Discussion

The results show a clear pattern. The current status quo surrounding AI in education is ineffective for both students and educators as a tool for education. The vast majority of students clearly recognize the problems with using AI tools, but are reliant on them nonetheless. While GPT models can offer accessible help in a student's learning, they introduce problems of over-reliance, academic integrity, and the erosion of critical thinking skills.

One of the most striking points is how often students use AI software compared to traditional academic support services because of their convenience and accessibility. This is evidence of how much potential there is in education for AI. There is a clear change in how students are approaching learning now, and it is important to have technology and tools that change at pace. Today's AI tools hinder students' learning in the long run rather than supporting it. This is evident in the response from educators, a majority of whom have seen a decline in the quality of student work since the introduction of AI tools.

Students' increased AI reliance raises broader questions about equity. Students who have strong foundational skills are likely to greatly benefit from AI-assisted learning, but those who struggle may fare worse because it fails to teach them the basics. This can potentially exacerbate achievement gaps and hurt students who would benefit most from additional help.

A key takeaway from the results is the need for intersectional perspectives in creating AI education tools. Policymakers, educators, and developers must collaborate to ensure that the software would be able to meet the unique demands that education tools require. Implementing effective AI tools in the education system will protect learning and support students of varying ages, abilities and learning styles.

VII. Conclusion

As artificial intelligence continues to transform industries, it is essential for education systems to keep up and ensure students are prepared for the future. Simply avoiding AI is not a solution—it will only delay its inevitable presence. The research and survey results from this study show both the potential benefits and concerns surrounding AI in education, highlighting the importance of creating ethical guidelines that preserve academic integrity while encouraging flexibility, adaptive teaching styles and innovation.

To address these concerns, the GPTeach model was developed as an AI tool designed specifically for educational purposes. Unlike general AI tools, GPTeach focuses on responsible use, offering structured guidance, transparency, and safeguards to prevent misuse. Summaries of student difficulties and learning styles for educators, and personalized resource suggestions for students create an ethical yet effective tool to streamline learning in and outside of the classroom. By incorporating AI tools like GPTeach, schools can provide students with the necessary skills to thrive in an AI-driven world, all while maintaining the values upon which education was built. When used responsibly, AI can become a valuable resource that enhances learning while supporting, rather than replacing, critical thinking.

VIII. Acknowledgements

The team would like to acknowledge all the help provided to them, including Paul Wu for editing, QMIND for the provided resources, and all those who took part in the survey.

References

[1] A. Johnson, "Chatgpt in schools: Here's where it's banned and how it could potentially help students," Forbes, Jan. 2023, accessed: 2025-03-20. [Online]. Available: https://shorturl.at/GoPUp

[2] L. Labadze, M. Grigolia, and L. Machaidze, "Chatgpt in education: Opportunities and challenges," *Educational Technology Journal*, vol. 10, no. 1, pp. 1–17, 2023. [Online]. Available: https://educationaltechnologyjournal.springeropen.com/articles/10.1186/s41239-023-00426-1

[3] N. E. Association, "Class sizes a growing issue among educators," NEA Today, 2023. [Online]. Available: https://www.nea.org/nea-today/all-news-articles/class-sizes-growing-issue-among-educators

[4] W. E. Forum, "The future of jobs report 2023," 2023. [Online]. Available: https://www.weforum.org/reports/the-future-of-jobs-report-2023

[5] A. Bozkurt, A. Karadeniz, D. Baneres, A. E. Guerrero-Roldán, and M. E. Rodríguez, "Artificial intelligence and reflections from educational landscape: A review of ai studies in half a century," *Sustainability*, vol. 13, no. 2, p. 800, 2023. [Online]. Available: https://doi.org/10.3390/su13020800

[6] J. F. Allen and M. L. Witbrock, "Intelligent tutoring systems and their application to complex problem solving," *ACM Computing Surveys*, vol. 28, no. 3, pp. 322–350, 1996. [Online]. Available: https://doi.org/10.1145/503506.503539

[7] J. R. Anderson, C. F. Boyle, and B. J. Reiser, "Intelligent tutoring systems," *Science*, vol. 228, no. 4698, pp. 456–458, 1986. [Online]. Available: https://doi.org/10.1126/science.228.4698.456

[8] X. Zhao and Y. Yang, "Artificial intelligence in education: A systematic review," *IOP Conference Series: Earth and Environmental Science*, vol. 693, p. 012019, 2021.

[9] O. Onesi-Ozigagun, Y. J. Ololade, N. L. Eyo-Udo, and D. O. Ogundipe, "Revolutionizing education through ai: A comprehensive review of enhancing learning experiences," *International Journal of Advanced Research in Social Sciences*, vol. 6, no. 4, p. 1011, 2023. [Online]. Available: https://fepbl.com/index.php/ijarss/article/view/1011

[10] R. Lampou, "The integration of artificial intelligence in education: opportunities and challenges," *Revista de Inteligencia Artificial en Educación*, vol. 4, no. 00, p. e15, Aug 2023. [Online]. Available: https://educationai-review.org/revista/article/view/15

[11] A. M. Perry and N. T. Lee, "Ai is coming to schools, and if we're not careful, so will its biases," *Brookings*, 2023. [Online]. Available: https://www.brookings.edu/articles/ai-is-coming-to-schools-and-if-were-not-careful-so-will-its-biases/

[12] R. F. Mello, E. Freitas, F. D. Pereira, L. Cabral, P. Tedesco, and G. Ramalho, "Education in the age of generative ai: Context and recent developments," *arXiv preprint arXiv:2309.12332*, 2023. [Online]. Available: https://arxiv.org/abs/2309.12332

[13] R. H. Mogavi, C. Deng, J. J. Kim, P. Zhou, Y. D. Kwon, A. H. S. Metwally, A. Tlili, S. Bassanelli, A. Bucchiarone, S. Gujar, L. E. Nacke, and P. Hui, "Chatgpt in education: A blessing or a curse? a qualitative study exploring early adopters' utilization and perceptions," *Computers in Human Behavior: Artificial Humans*, vol. 2, no. 1, p. 100027, 2024. [Online]. Available: https://www.sciencedirect.com/science/article/pii/S2949882123000270

[14] S. Liao. (2023) Chatgpt is lying. here's why that matters. Accessed: 2025-03-20. [Online]. Available: https://www.washingtonpost.com/technology/2023/04/05/chatgpt-lies/

[15] A. Gomstyn and A. Jonker, "Ai and privacy," https://www.ibm.com/think/insights/ai-privacy, 2023.

[16] J. Irwin, A. Dharamshi, and N. Zon, "Children's privacy in the age of artificial intelligence," https://www.csagroup.org/article/research/childrens-privacy-in-the-age-of-artificial-intelligence/, Canadian Standards Association, Toronto, ON, Tech. Rep., 2021.

[17] M. Taheri, "Google's ai chatbot tells student seeking help with homework: 'please die'," https://www.newsweek.com/googles-ai-chatbot-tells-student-seeking-help-homework-please-die-1986471, 2023.

[18] C. Zhai, S. Wibowo, and L. D. Li, "The effects of over-reliance on ai dialogue systems on students' cognitive abilities: a systematic review," *Smart Learning Environment*, vol. 3, no. 1, p. Article 316, 2024. [Online]. Available: https://slejournal.springeropen.com/articles/10.1186/s40561-024-00316-7