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An Overview of ChatGPT: Impact on Academic Learning

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Abstract: This paper explores the potential applications of ChatGPT and its ethical implications. The potential applications of ChatGPT are vast and varied, and they can potentially transform various industries, such as customer service, healthcare, education, and entertainment. However, the development of ChatGPT also raises several ethical concerns, such as the potential misuse of the technology for malicious purposes, the privacy and security of chat logs, job displacement, and bias and fairness. Therefore, responsible use of ChatGPT is crucial to prevent misuse and ensure its benefits are realized without infringing on an individual's rights and privacy. The paper discusses possible solutions to address these ethical concerns, such as responsible development and deployment of the technology, training workers in new skills, ensuring data diversity, and testing for biases before deployment. The paper concludes that ChatGPT has the potential to transform society positively, but its responsible use is critical to ensuring that its benefits are realized without adverse effects.

Keywords: ChatGPT; Academic Study; Profession Ethics; Academic Learning; Artificial intelligence (AI); Transform Society; Potential Misuse; Customer Service; Healthcare; Entertainment.

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1. Introduction

ChatGPT is an upcoming conversational AI technology developed by OpenAI that is expected to revolutionize how we interact with machines. Based on the GPT architecture, ChatGPT will have over 10 trillion parameters, making it four times larger than its predecessor. This increase in size will allow for more nuanced and context-aware responses and the ability to handle more complex queries. Furthermore, the model will be trained on diverse data sources, including social media, news articles, books, and scientific publications, enabling it to understand various topics, dialects, and cultural references. The potential applications of ChatGPT are vast and varied, and they can potentially transform various industries. One of the most significant applications is in the customer service industry. ChatGPT can provide personalized and context-aware responses to customers, handle complex queries, and improve the overall customer experience. For example, ChatGPT can help customers troubleshoot technical issues, provide recommendations based on their previous purchases, and even help them place orders.

In the healthcare industry, ChatGPT can be used to assist doctors in diagnosis and treatment. By analyzing medical records and symptoms, ChatGPT can provide personalized recommendations to doctors, enabling them to make more informed decisions. This can lead to faster diagnoses, more effective treatments, and ultimately, better patient outcomes. In the education sector, ChatGPT can provide personalized learning experiences to students. ChatGPT can provide targeted recommendations and feedback to help students achieve their academic goals by analyzing students' performance data and adapting to their learning styles. Additionally, ChatGPT can assist teachers in creating more engaging and interactive learning materials and assessments.

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ChatGPT can also be used in the entertainment industry to create more engaging and interactive user experiences. For example, ChatGPT can power virtual assistants in video games, enabling players to interact with non-player characters more naturally and effectively. However, the development of ChatGPT also raises several ethical concerns, such as the potential misuse of the technology for malicious purposes and the privacy and security of chat logs. Therefore, responsible use of ChatGPT is crucial to prevent misuse and ensure its benefits are realized without infringing on an individual's rights and privacy.

2. Literature Review

Because it gives students an interactive learning environment, ChatGPT has become popular in academia. It is far more interesting than conventional teaching techniques since it enables students to ask questions and receive responses from an AI-powered chatbot [5]. ChatGPT can be used as an addition to current teaching resources, giving students more chances to deepen their understanding of a particular subject. ChatGPT is an effective tool for both educators and students. It enables teachers to immediately respond to students' inquiries and offer extra materials in a time-saving manner. This is particularly helpful in large courses where it would be challenging for the teacher to respond personally to every student's inquiry. Additionally, it enables teachers to give each student a tailored lesson plan, which can enhance learning outcomes.

ChatGPT can offer students an interactive and interesting approach to study. For those who are timid or find it difficult to talk in front of their peers, it enables them to ask questions without worrying about being judged or embarrassed. Additionally, since ChatGPT encourages students to evaluate the responses they receive critically, it can be a chance for students to practice problem-solving techniques. Additionally, ChatGPT might cut down on time needed for class preparation. Teachers can use ChatGPT to provide students with resources, including videos and articles, to aid in preparing for forthcoming assignments [6]. Thanks to this, students can save time by not having to look for materials independently. Finally, ChatGPT can support students' organizational efforts. Students can refer to earlier information by recording previous conversations [6].

Artificial intelligence (AI) and natural language processing (NLP) technologies have been making significant strides in recent years [7], transforming various industries, including education. One of the most significant developments in NLP is the ChatGPT, an advanced language model capable of generating coherent and contextually-relevant text. In this literature review, we examine the potential of ChatGPT in academic learning and student assessments, as well as the ethical implications that arise with its integration into these areas. ChatGPT's ability to generate coherent and contextually-relevant text has the potential to revolutionize academic learning. One application of ChatGPT in this field is its integration into virtual learning environments (VLEs) and online courses. ChatGPT can act as an intelligent tutor in these settings, providing students with personalized feedback on their work and answering their questions conversationally and naturally. This technology can also automatically create educational content like lecture notes, summaries, and assessments.

One example of ChatGPT's application in academic learning is the research conducted by developing an AI-powered automated writing evaluation system for Chinese as a second language. The system uses ChatGPT to provide feedback to students on their writing assignments, focusing on grammatical and syntactic errors. The researchers found that the system significantly improved students' writing skills, with students showing a 35% improvement in their scores on a post-test compared to the pre-test. This demonstrates the potential of ChatGPT to enhance students' learning outcomes. Another area where ChatGPT has the potential to make an impact is in student assessments. Recently, there has been a growing interest in using AI-powered assessments to provide a more personalized and efficient evaluation of student performance. ChatGPT can automatically generate questions, provide feedback on answers, and evaluate the quality of responses.

One example of ChatGPT's application in student assessments is the research conducted using AI-powered assessments [5] for measuring students' critical thinking skills. The researchers developed an assessment tool that used ChatGPT to generate questions and evaluate students' responses based on their reasoning and argumentation quality. They found that the tool provided reliable and valid measures of students' critical thinking skills, with a high level of accuracy compared to traditional assessments. While the potential of ChatGPT in academic learning and student assessments is promising, ethical implications also need to be considered. One of the primary concerns is the potential for bias in the language model's training data, which can result in discriminatory or unfair evaluations of students. Additionally, using AI-powered assessments [5] may raise concerns about data privacy and potential errors and inaccuracies in the evaluation process.

To address these ethical concerns, it is important to ensure that ChatGPT is trained on diverse and representative datasets and that its evaluation criteria are transparent and fair. Additionally, there should be clear guidelines and regulations around using AI-powered assessments in educational settings [5], focusing on ensuring that student data is protected and evaluations are conducted fairly and accurately. ChatGPT has the potential to revolutionize academic learning and student assessments [4] with its advanced language generation and processing capabilities. However, there are also ethical implications that need to be considered, particularly around issues of bias, privacy, and accuracy.

3. Models and Architecture

ChatGPT is an upcoming conversational AI technology [5] designed to improve upon the successes of its predecessor, GPT-3. The model is based on the popular GPT (Generative Pre-trained Transformer) architecture that has become a popular choice for various natural language processing (NLP) tasks due to its exceptional performance. While GPT-3 had 175 billion parameters, ChatGPT will have over 10 trillion parameters, four times larger than its predecessor. This massive increase in size will allow the model to generate more nuanced and context-aware responses and handle more complex queries. The architecture of ChatGPT is similar to GPT-3 but with some notable changes. The model comprises a stack of transformer layers, each with a multi-head self-attention mechanism and a feed-forward network. The self-attention mechanism allows the model to focus on different parts of the input sequence and capture long-range dependencies, while the feed-forward network facilitates non-linear transformations.

One of the significant changes in ChatGPT is the use of a new training technique called prompt engineering. This method involves creating prompts or natural language statements that guide the model's response generation process. The prompts can be general or specific and are tailored to various tasks, including question-answering, summarization, and translation. Another significant change in ChatGPT is the use of diverse training data sources. The model is trained on various data sources, including text corpora, Wikipedia, scientific papers, etc. This diverse training data allows the model to understand various topics, dialects, and cultural references. Moreover, ChatGPT is trained using a new training objective known as the maximum marginal relevance (MMR) objective. The MMR objective aims to maximize the relevance of the model's response to the input query while minimizing redundancy. Overall, ChatGPT is a highly advanced and complex model designed to improve upon the success of its predecessor. With its diverse training data, prompt engineering, and MMR objective, it aims to generate human-like responses to text inputs that are more accurate, efficient, and versatile. These changes will significantly boost the chatbot industry by enabling more natural and realistic conversations between humans and machines.

4. Data Pre-processing

We have used different datasets to analyze the ChatGPT usage and trend:

4.1. ChatGPT sentiment analysis

For our review, we have used a Kaggle dataset - ‘ChatGPT sentiment analysis’ [10]. Only valid records having the “academic” keyword have been considered. The ChatGPT sentiment analysis Kaggle dataset consists of a large collection of conversations labeled with sentiment labels. The dataset includes conversations on various topics such as travel, finance, academics, work, business, profession, and relationships. Each conversation is labeled with a sentiment label indicating whether the conversation was positive or negative. In addition, the dataset includes some additional data, such as the length of each conversation, the topics discussed etc. This dataset can be used to train machine learning models to identify sentiment in conversations. Hence, this data has been used to acknowledge how well the students in academics have accepted ChatGPT compared to those who have used ChatGPT in work or profession.

4.2. ChatGPT - the tweets

Another Kaggle dataset has been used [12] to understand how trendy ChatGPT is. A compilation of tweets with the hashtag #chatgpt can give an insight into the conversations around the ChatGPT language model. These tweets may include personal experiences using ChatGPT [1], requests for help with ChatGPT-related matters, links to articles or websites about ChatGPT, and media such as images and videos. All in all, a collection of #chatgpt tweets can show what is being discussed about the language model. Total Records 39054 have been found with 12 columns. The features include ‘user_name', 'text', 'user_location', 'user_description', 'user_created', 'user_followers', 'user_friends', 'user_favourites', 'user_verified', 'date', 'hashtags', and ‘source.

5. Evaluation

5.1. ChatGPT sentiment analysis

There is a total of 199813 records in which 14825 records have been used for work or profession, while 4099 records are related to Academics, and 557 have been used for academic and work-related purposes. A tabular representation of the tweet keywords and frequency of tweet keywords repeated is given below:

Table 1: Tweet Keywords and Count of Occurrence in Public Tweets

Tweet Keywords	No. of Times
Total Records	199813
Academics	14825
Work or Profession	4099
Academics + Work or Profession	557

Table 1 provides insight into the frequency of certain keywords used in tweets related to Chat GPT.

Table 1 includes four categories: "Academics," "Work or Profession," "Academics + Work or Profession," and a total count of all tweets. Table 1 indicates that "Academics" was mentioned 14,825 times, "Work or Profession" was mentioned 4,099 times, and the combination of both keywords was mentioned 557 times. The total number of tweets analyzed was 199,813. Based on the information in Table 1, it can be inferred that more Twitter users used Chat GPT for Academics-related content. This also suggests that academic-related topics were a popular subject among Twitter users. The keyword "Work or Profession" had a relatively lower frequency, with a count of 4,099. However, the combination of both keywords was used in 557 tweets, suggesting some overlap between academics and work/profession discussions. Additionally, the total number of tweets analyzed was 199,813, indicating a large sample size for analysis. This information can be used to gain insights into the topics that interest Twitter users and identify trends related to academic and professional use of Chat GPT via a microblogging site.

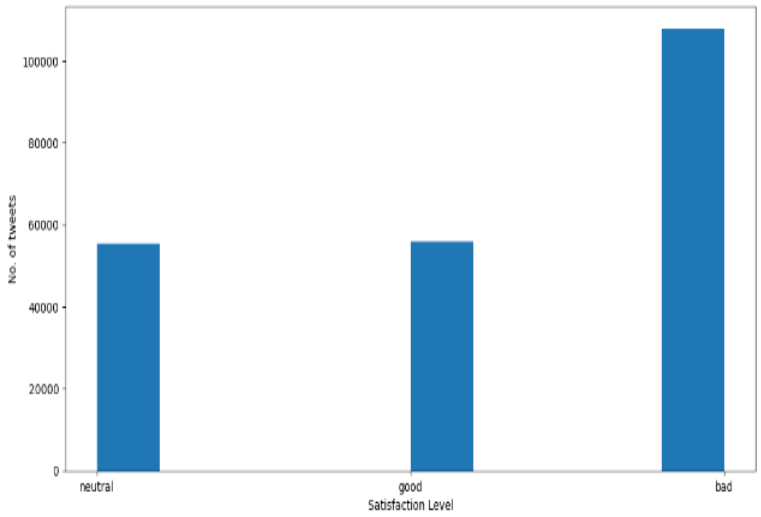

Figure 1: Bar Chart representation of ChatGPT use for Academic and Professional purposes.

Figure 1 displays the tweets mentioning the use of ChatGPT for Academics and Professional use. The tweets related to ChatGPT were analyzed, and three different satisfaction levels were generated. The vertical axis represents the count of tweets mentioning ChatGPT for Academics and Professional use, while the horizontal axis displays the satisfaction level in the analyzed tweets. Based on the chart, we can draw several conclusions.

The number of times users were unsatisfied with Chat GPT or found ChatGPT useless was high. This could be due to the nascent application stage since ChatGPT has not been around for long and is based on conversational AI Learning technology [12]. The tweets displaying good and neutral satisfaction levels are mostly equal, indicating that several people found ChatGPT useful and felt good about the usage. At the same time, some were indifferent and had a neutral feeling.

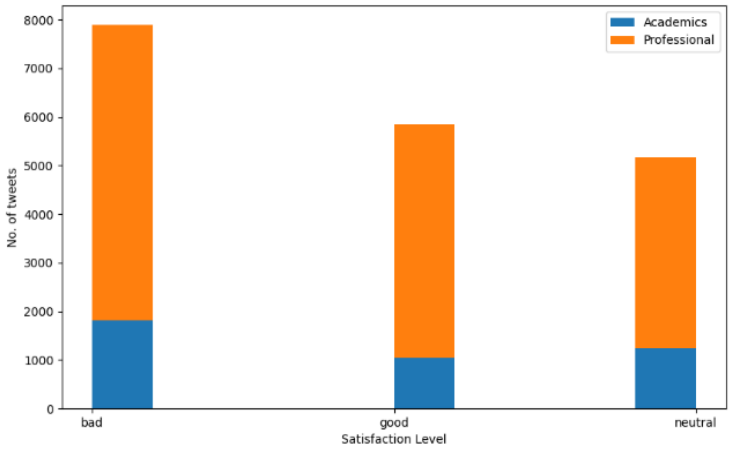

Figure 2: Bar Chart showing the usage of ChatGPT for Academic and or Professional Purposes

Figure 2 represents the usage of ChatGPT for Academic and or Professional purposes. The graph has a vertical axis representing the number of tweets, while the horizontal axis represents the Satisfaction levels. The bars are divided into segments representing the categories of Academics and Professional use, labeled on the right-hand side of the graph. It displays a significant trend that is immediately noticeable.

The bar representing the sum of academic and professional use of ChatGPT that failed to satisfy the users is higher than those who were happy or neutral with the ChatGPT usage. This could indicate ChatGPT's inability to understand users' queries or insufficient information and training for the AI model. Another trend observed in the graph is that more professionals are inclined to use ChatGPT than students.

The number of satisfied professionals who have a good feeling about ChatGPT is also higher than the students who feel good about ChatGPT. It can also be observed that the count of professionals who felt indifferent or neutral to ChatGPT is also high compared to Students. Overall, the stacked bar graph provides a clear and concise overview of the distribution of Professional and Academic use of ChatGPT.

5.2. ChatGPT - the tweets

Table 2 has two columns: "Features" and "No. of Times". The "Features" column describes the different features that have been analyzed, which includes "HashTags: #ChatGPT, #AI" and the "Keyword 'ChatGpt'. The "No. of Times" column indicates how many times each feature was found or counted, which is 7342 for the "HashTags: #ChatGPT, #AI" feature and 39049 for the "Keyword 'ChatGpt'" feature. The total number of records that were analyzed is 39054.

Table 2: Distinct Features and The Count of Their Occurrence in Tweets

Features	No. of Times
Total Records	39054
HashTags: #ChatGPT, #AI	7342
Keyword "ChatGPT"	39049

From this information, we can draw some conclusions about the dataset. The fact that the "Keyword 'ChatGpt'" feature appeared significantly more times than the "HashTags: #ChatGPT, #AI" feature suggests that the keyword "ChatGpt" is more commonly used or searched for than the specified hashtag. This information could be useful for marketers or social media analysts interested in tracking the popularity of certain topics or keywords.

5.3. ChatGPT – Exam Results

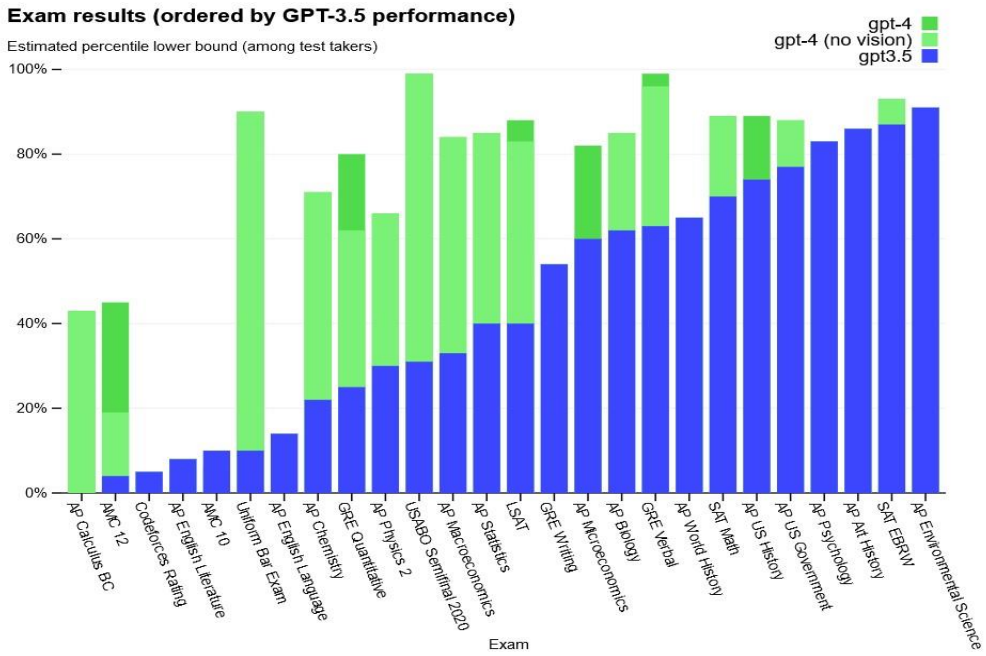

Figure 3: ChatGPT Exam Performance [11]

Figure 3 represents the percentile estimated to be achieved by exam takers based on the performance of three different versions of ChatGPT in various competitive exams. The graph has a vertical axis representing the estimated percentile among test takers, while the horizontal axis represents the various exams. We can observe a trend in multiple-choice exams that were math-related advanced versions of ChatGPT performed better and showed more probability of achieving a higher percentile for the exam takers.

We can see how ChatGPT is performing better with each new version, and soon it can greatly impact academia, either in a good way or bad way, depending on the choices made by the user, which will be discussed next.

6. ChatGPT-Ethical Implications

While the development of ChatGPT holds tremendous potential to transform various industries, it also raises several ethical concerns that must be carefully considered. One of the significant ethical implications is the potential misuse of the technology for malicious purposes. ChatGPT's ability to generate human-like responses to text inputs could be used to impersonate individuals, spread disinformation, and manipulate public opinion. Therefore, responsible use of the technology is crucial to prevent such misuse.

Another ethical concern is the privacy and security of chat logs. ChatGPT's interactions with users will be stored as chat logs, which could contain sensitive information about users. Therefore, measures must ensure these chat logs are secure, and user privacy is protected.

Moreover, the use of ChatGPT in customer service and other industries raises concerns about job displacement. As ChatGPT can handle complex queries and provide personalized responses, it could replace human workers in certain industries. Therefore, it is essential to ensure that workers are trained in new skills and have access to job opportunities in emerging industries.

Finally, the development of ChatGPT also raises concerns about bias and fairness. As with any AI technology, ChatGPT's training data could contain biases, affecting its responses and perpetuating discrimination. Therefore, ensuring that the training data is diverse and that the model is tested for biases before deployment is crucial.

Responsible use of ChatGPT is essential to ensure its benefits are realized without infringing on individual's rights and privacy, contributing to job displacement, or perpetuating discrimination. Therefore, developers and policymakers must work together to address these ethical concerns and ensure that ChatGPT is used for the betterment of society.

GPT-powered chatbots have the power to upend the structure of conventional academic learning. OpenAI's GPT natural language processing (NLP) system can produce virtually identical writing that humans write. With the aid of this technology, virtual tutors might be developed to offer students individualized, automatic support as they complete their homework. Additionally, GPT could create practice exams, summaries, and personalized lecture materials for each student. Additionally, GPT could be used to automate grading, giving students feedback on their work more quickly. GPT has many possible applications in the academic learning process [4], which could greatly impact how students learn and interact with learning materials [3].

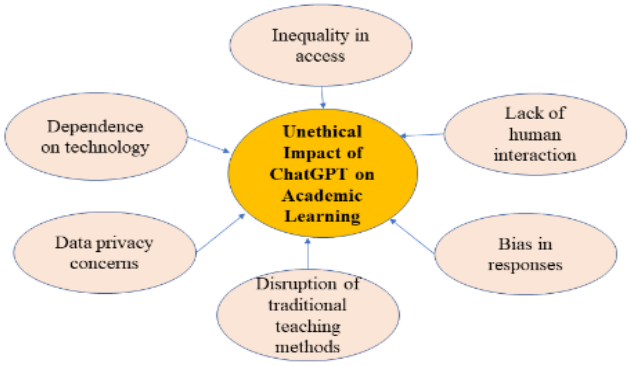

Figure 4: Unethical Impact of ChatGPT on Academic Learning

Because it is a cutting-edge approach to customer service that is more effective and affordable than conventional techniques, ChatGPT is popular today. ChatGPT uses artificial intelligence (AI) to comprehend consumer inquiries and deliver automatic responses in real-time, eliminating the need for human customer support representatives [7]. This improves the effectiveness and efficiency of customer service while saving businesses money and time [13]. Additionally, ChatGPT is growing in popularity due to its capacity to comprehend natural language, which enables users to converse with the AI as if they were conversing with a real person. Customer satisfaction increases due to more organic and interesting customer service interactions. With the aid of an online chatbot, students can create academic essays using ChatGPT, an artificial intelligence (AI) application. Students can use this application to produce essays swiftly and with little effort. However, its use in academic writing is unethical because it encourages copying and cheating.

While ChatGPT can benefit academic learning in many ways, some potential ethical concerns should be considered. Figure 4 shows some examples of how ChatGPT could have a negative impact on academic learning:

6.1. Inequality in Access

ChatGPT is an advanced technology that requires internet access and specific software. This means that students and educators who lack access to these resources could be left behind. This could disadvantage students who cannot afford the technology required to use ChatGPT, leading to unequal access to educational resources.

6.2. Lack of Human Interaction

ChatGPT can be useful in detecting plagiarism and providing feedback on writing assignments. However, it does not replace the value of human interaction in the learning process. Students benefit from working with educators who can provide personalized feedback and support, which ChatGPT cannot provide.

6.3. Bias in Responses

ChatGPT's responses may be influenced by the data it has been trained on. If the training data contains bias, this could result in biased responses from ChatGPT. This could result in unfair grading or feedback, negatively impacting students' academic performance.

6.4. Disruption of Traditional Teaching Methods

ChatGPT can be used to automate some aspects of grading and feedback, which could lead to a disruption of traditional teaching methods. This could result in a loss of personalization and creativity in the teaching and learning process.

6.5. Data Privacy Concerns

ChatGPT requires access to students' writing, which could raise concerns about data privacy. Students may be uncomfortable sharing their writing with an AI-powered tool, especially if they are unsure how their data will be used or stored.

6.6. Dependence on Technology

ChatGPT's use in academic learning could lead to an over-dependence on technology. This could result in a lack of critical thinking skills and a diminished ability to learn without technology. Additionally, if the technology fails or is unavailable, students and educators may be left without a reliable tool for grading and feedback. The generated essays can be copied and pasted into the students' writing using ChatGPT. They can bypass the labour and effort necessary to write a quality essay in this way. This app encourages students to write mediocre essays that don't demonstrate their comprehension of the subject. Additionally, it discredits the effort put forth by students to write original essays with care and consideration.

Additionally, ChatGPT does not give students a thorough understanding of the subject. It gives them a broad perspective, which does not reflect how well they comprehend the topic. This indicates that the quality of the essays produced by ChatGPT is unlikely to be high. Students might not learn anything from the essay that will help their academic performance. Additionally, using ChatGPT is dishonest.

7. ChatGPT - Helpful in Maintaining Ethics

An AI-driven computer application called ChatGPT can spot academic dishonesty. It uses NLP approaches to spot patterns in text, including plagiarism, inappropriate citation, and factual misrepresentation. ChatGPT can spot potential problems with a trained human expert's correctness by examining a pupil's or researcher's writing. A severe issue that can result in academic dishonesty, plagiarism, and other misconduct types is unethical classroom behaviour. Engaging in unethical behaviour can have detrimental effects on the student, the educator, and the organization. A deterioration in academic integrity and a lack of confidence in the academic system can result from unethical actions.

Before submission for review or grading, academic work can be checked for potential problems using ChatGPT. Plagiarism, inappropriate reference, and misrepresentation of facts or ideas can all be caught by the application. It can also tell whether a researcher or student has copied or pasted text from another source without properly attributing it [2]. It can also identify instances where a student has fabricated information or made misleading assertions to manipulate facts or concepts. ChatGPT can spot potential issues with a trained human expert's correctness by examining a student's or researcher's writing in a limited way.

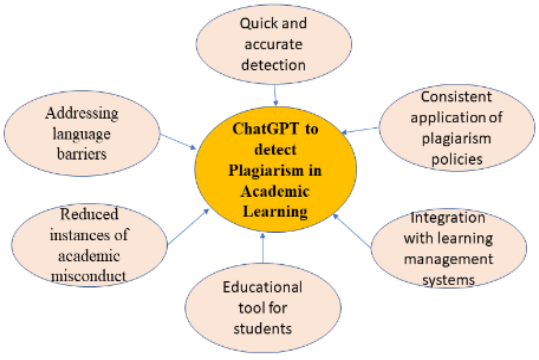

Figure 5: ChatGPT to Detect Plagiarism in Academic Learning

ChatGPT has several potential uses in plagiarism detection in academic learning. Figure 5 are some ways in which it can be applied.

7.1. Consistent Application of Plagiarism Policies

ChatGPT can help ensure the consistent application of plagiarism policies by providing a standard tool for detecting plagiarism. By using the same tool across the board, educators and academic institutions can ensure that plagiarism is detected and addressed consistently and fairly.

7.2. Integration with Learning Management Systems

ChatGPT can be integrated with learning management systems to streamline the plagiarism detection process. This integration can make it easier for educators to detect and address plagiarism promptly without switching between multiple tools or platforms.

7.3. Quick and Accurate Detection

ChatGPT can quickly and accurately detect plagiarism, helping educators identify potential academic misconduct and take appropriate action. This can save educators time and effort by automating the detection process and allowing them to focus on other aspects of their work.

7.4. Addressing Language Barriers

ChatGPT's natural language processing capabilities can help address language barriers in plagiarism detection. It can be used to identify instances of plagiarism even if the original text was written in a different language than the target language.

7.5. Reduced Instances of Academic Misconduct

By providing a consistent and effective tool for detecting plagiarism, ChatGPT can help reduce instances of academic misconduct. This can help maintain academic integrity and promote a culture of honesty and integrity in academic learning environments.

7.6. Education Tool for Students

ChatGPT can be an educational tool for students to help them understand plagiarism and learn how to avoid it. ChatGPT can help students improve their writing skills and develop a deeper understanding of academic integrity by providing feedback and highlighting potential plagiarism.

8. Conclusion

Students' potential application of ChatGPT for academic assignments has raised significant ethical and educational concerns [8]. Although the technology promises the ability to produce high-quality, human-like text with exceptional accuracy, it also raises concerns about plagiarism, academic integrity, and the role of technology in education. On the one hand, ChatGPT could be viewed as a valuable tool for improving students' writing and research skills by providing instant feedback and generating high-quality text [2]. The technology could also assist students with learning disabilities or language barriers, allowing them to complete assignments more effectively. However, this usage also raises concerns about academic integrity, as students may rely heavily on technology to generate their assignments without fully understanding the material [9]. Moreover, using ChatGPT for academic assignments could lead to an uneven playing field, where students with access to technology have an unfair advantage over those without access. This disparity could devalue academic degrees and undermine the purpose of education. Furthermore, using AI technologies in education raises broader questions about the balance between technology and human interaction. Excessive reliance on technology potentially compromises the social and interactive aspects of learning critical to personal growth and development [3]. In conclusion, while ChatGPT presents numerous benefits, its potential use for academic assignments like coding [9] also poses risks and challenges that require careful consideration. Educators and policymakers must develop guidelines and best practices for using AI technologies in education, ensuring they are implemented to enhance student learning while upholding academic integrity. By striking a balance between technology and human interaction, we can harness the full potential of AI in education while preserving the crucial role of critical thinking and social interaction in learning.

8.1. Future Work

Future work could involve collecting and curating high-quality datasets representing different linguistic styles, dialects, and cultural contexts. Working with experts in linguistics and anthropology could help identify and collect relevant data sources. Another way to enhance ChatGPT is to incorporate contextual information when generating responses. Currently, the model does not use contextual information, which may generate grammatically correct but nonsensical responses. To overcome this limitation, future work could focus on developing techniques to incorporate contextual information. For instance, memory networks or attention mechanisms could keep track of previous dialogue and use it to inform the generation of new responses. ChatGPT could also benefit from enhanced emotional intelligence. Future work could focus on developing techniques to enable

the model to recognize and respond to emotional cues in the input text. This could involve identifying and responding to sarcasm, humour, or irony. The model could generate more empathetic and nuanced responses by incorporating emotional intelligence, which is useful in applications such as mental health counseling or customer service. Personalizing responses could also enhance the user experience. Techniques such as reinforcement learning or multi-task learning could train the model to adapt to the user's needs and preferences over time. The model could provide users a more engaging and satisfying experience by personalizing responses. As ChatGPT becomes more advanced and capable, developing techniques to make the model more interpretable and explainable is important. Developing visualization tools or generating explanations for the model's responses could help users understand how it is making its predictions. Users can trust the model and feel more comfortable using it in critical applications by making it more transparent.

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Conflicts of Interest Statement: Authors collectively produce this work where they all agree with the work's points, issues and findings.

Ethics and Consent Statement: Authors of the work unanimously consent to make this publication available to all interested people for reading, teaching and learning.

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