# TOWARDS ENHANCING THE EDUCATIONAL PROCESS BASED ON THE ADOPTION OF CHATGPT: SYSTEMATIC REVIEW STUDY

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**ABSTRACT:** *In recent years, a significant number of enhancements have been observed in the field of artificial intelligence. ChatGPT is one of the growing technologies that are trained to provide a better understanding of several aspects. ChatGPT can assist the learners with their projects, homework and detailed briefing about different topics with an interactive learning experience. This systematic literature review aims to identify the opportunities and challenges of ChatGPT among students specifically for tutoring and education. As part of a systematic literature review, the study accesses various research databases and filters them to identify the opportunities and challenges of ChatGPT among students. The study provides a comparison of current literature to examine the existing limitations and suggests countermeasures to overcome the identified challenges. The findings of the study provide a detailed explanation of the potential benefits and the limitations of implementing the ChatGPT in the educational environment, in addition to this significant insight into its most effective use for students via an in-depth examination of current literature. Finally, the goal of this systematic review is to add to an extensive understanding basis that can educate teachers, researchers, and administrators on the successful use of ChatGPT in tutoring and education, enabling enhanced learning experiences for students in the digital era. Despite these valuable insights, the study has an impediment in that the study completely relies on the systematic literature review which gives a scope for future researchers to accomplish a quantitative study by using a real-time database.*

**Keywords:** ChatGPT, students, education, tutoring, artificial intelligence,

## 1. INTRODUCTION

ChatGPT is an innovative instrument that answers questions about almost anything present in today's digital age based on the dataset it was programmed on. These days, ChatGPT is inventive in producing rational, coherent, relevant, and fluid responses that resemble actual writing of the content that appears on our monitors. To customise the educational process for their students, educators can use ChatGPT in their courses. However, text completion, interpreting, and text summarization tools can improve pupils' writing skills. The features of ChatGPT can be used to detect bias in content and address issues with resources for education. ChatGPT can help the state develop and execute an unbiased and equitable course of study, given the increasing demand for up-to-date instructional resources. This could serve as an agreement to relieve some of the strain on an overburdened educational system if it is executed properly [1].

ChatGPT provides a helpful resource that teachers can use to enhance their classes and students' learning. Teachers won't be replaced by it. Rather, provide them with better practical resources to make them more strong. Educators can enhance academic outcomes by employing ChatGPT to facilitate discussions, offer customized feedback, and enhance their language and literacy skills. ChatGPT can be used to provide individualized guidance and criticism to particular students [2]. The online tool can offer in-depth feedback on a student's written work along with suggestions for improvement and inspiration. Pupils could experience an increase in confidence and motivation to continue learning and growing. After reviewing a text, like a phrase or a prompt, ChatGPT comprehends the issue with the expression and produces a reaction. The model is trained to anticipate what comes next in a sentence based on the context of the words that precede it.

Articles can be randomly graded by ChatGPT with logic and possibly better answers. Educators can use this feature to mark written assignments and offer feedback on spelling, framework, copying and pasting and topic. Creating concepts, synopses, and even entire speeches can help with speech writing. By helping students find and arrange material for articles and various kinds of study, it might support research. ChatGPT can help language learners improve their pronunciation and grammar instantly, which can help them become more fluent speakers more quickly. Offering tips on how to make their sentences and paragraphs better, might assist kids who struggle with learning to read and write [3, 4].

The ChatGPT linguistic model can produce writing that resembles that of a human writer. It is capable of carrying out several activities related to natural language processing, such as dialogue systems, text production, summarization, and translations. A sizable dataset of internet information, including internet pages, documents, studies, social media posts, and talk, was used to train it. When referring to physical, emotional, and cultural experiences in the training data, speaking in human language, recollecting past provides within a single dialogue, and continually addressing queries by drawing from a pool of technical and scientific information, ChatGPT generally works at its best [5]. Because ChatGPT has trained on such a large data set, it can generate material that is similar to what humans compose.

The ability of ChatGPT along with other big models of language to create information may help marketers become more profitable and effective. This makes it possible for businesses to expedite the formerly laborious process of material personalization. It has long been employed in a variety of applications, such as analyzing data, digitization, and interactive chatbots. Teachers of today should consider how ChatGPT could assist their pupils with composition. Using this tool, learners can evaluate their work right now without having to wait for feedback from their teachers. The AI tool might then be used by learners to request particular actions to be conducted to modify or revise their work. It serves as a very powerful word organizer for innovative material [6]. The core purpose of this article is to deliberate the important applications of ChatGPT in education.

## 2. ChatGPT

OpenAI's ChatGPT is driven by AI chatbots. A language neural network training on vast amounts of information to generate language that mimics human language is referred to as a "Generative Pre-trained Transformer (GPT)". ChatGPT is an artificial intelligence (AI) natural language processing system that can answer queries. Because of this, it generates data more communicatively, absorbs data gathered from those conversations, and can deliver increasingly customized responses. When delivering information and directions to users, ChatGPT acts human. This technology is capable of composing articles and emails, collecting papers, programming, and producing poetry, among other things. Unlike previous chatbots, ChatGPT can react instantaneously, which leads to more vibrant and diverse conversations on nearly any topic [7].

It explores how ChatGPT can help learners become more proficient by helping them ask questions and formulate them precisely, helping them learn more through ChatGPT's solutions, and instructing them how to evaluate the accuracy, dependability, and correctness of ChatGPT's responses as well as how to sift via the pertinent data that is collected in for them. Because it can adapt to varied environments and circumstances, this sort of technology is suitable for a wide range of purposes. A versatile tool for a range of natural language processing applications is ChatGPT. It requires a deep comprehension of the globe and the capacity for human-like thought to react to suggestions with a high degree of precision and efficiency [8].

An AI-powered technology called ChatGPT facilitates engaging and sincere conversations with individuals. It can interpret text-based data and use ML and AI techniques to respond to it. It can therefore hold conversations that are closer to those between two humans. It is therefore a useful tool for companies in the advertisement, service to customers, and material creation domains. ChatGPT serves as a virtual assistant that mimics human conversation and responds to our queries [9]. Deep learning algorithms are used by ChatGPT to produce conversational conversations between humans and machines.

## 3. ChatGPT's necessity for educational purposes
ChatGPT has the potential to impact multiple facets of learning such as written form, instructional strategies, and methodology. Since ancient times, writing has been vital for developing imaginative and analytical thinking since it helps to organize knowledge and tell stories. Even in the era of artificial intelligence, it is still very important for education. As such, our focus should be on providing information that AI cannot understand. Students must compose essays, projects, and theses that are brief, introspective, and based in a specific context. AI and education are crucial subjects to discuss while discussing the future of our culture. Writers, marketers, and other professionals who frequently need to create text will find ChatGPT to be a useful tool. Producing content for websites, social media networks, advertising materials, and chatbot responses are just a few applications for this [10].

By incorporating ChatGPT into educational institutions, the focus may shift from lecturers to artificial intelligence (AI), which could reduce the necessity for human interaction and interactions between people. ChatGPT can help children by checking their pieces for grammatical and structural errors and offering insightful feedback to help them write better. Students can also receive customized comments depending on the way they write, which will help them identify and focus on the areas where they need to improve. With ChatGPT, computers can simulate human dialogue [11]. Understanding the user's intentions and information can reply to user inquiries and personalization with accuracy [12]. With ChatGPT, learners could experiment with a variety of tasks, including composing essays, creating computer programs, and resolving problems with mathematics. With ChatGPT, all of these things might be feasible.

ChatGPT, like conversational tools like bots and virtual assistants, is made to connect faster and reply more coherently. Businesses can enhance their present products and services and create unique AI-powered chatbots that can swiftly comprehend and react to customer needs thanks to this connectivity. ChatGPT allows for the privacy and security of online conversations. It uses artificial intelligence (AI) to detect spam, censorship, and dangerous content, providing an environment that's free from exploitation or intrusion. Furthermore, ChatGPT never transmits or keeps personal data for third parties. Therefore, every correspondence is encrypted and stored locally to protect users' privacy [13].

## 4. Research objectives
ChatGPT is an artificial intelligence (AI) driven natural language processing program that lets users engage in text-based conversations using AI-powered software that mimics human speech. It might offer data, assist in writing letters and papers, and create webpages and code. The way we teach and learn could be completely transformed by ChatGPT. Using ChatGPT in the classroom allows teachers to give learners instant assistance in advancing for the improvement of their skills. Educators can focus on presenting more useful courses by automating repetitive tasks and freeing up their time with ChatGPT. ChatGPT can completely transform the way we communicate with chatbots. By utilizing AI, ChatGPT can comprehend natural language, decipher context, and provide replies to have productive discussions with persons. Furthermore, by presenting tenable arguments and counterarguments on a certain topic, ChatGPT can help students get ready for debates. It might offer creative writing prompts to inspire pupils and help them improve as writers [14]. The following are the article's main research goals:

*Research objectives 1*: - to determine which educational requirements ChatGPT can meet;

*Research objectives 2*: - to research ChatGPT's important attributes concerning the educational institution;

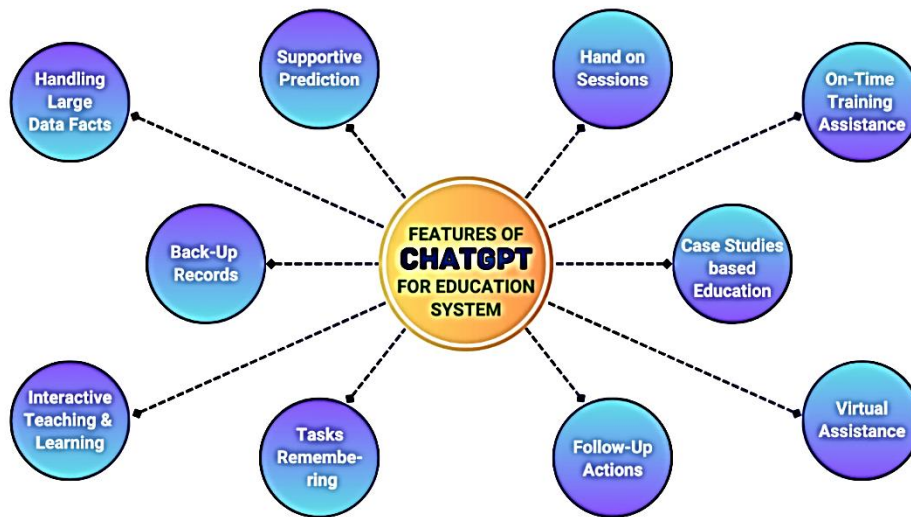*Research objectives 3:* - to research ChatGPT's educational process components;

*Research objectives 4*: - to list and talk about the important ways that ChatGPT is used in learning;

## 5. Important aspects of ChatGPT's approach to learning institutions

The numerous related abilities, features, and programs of ChatGPT assistance for education are examined in Fig. 1. It has functions like language generation, projection help, and aspect recall. Additionally, Fig. 1 clearly illustrates and elaborates on several related additional features and traditional viewpoints of ChatGPT.

Within the field of instruction, new technologies come and go frequently, with very few innovations becoming deeply embedded in the system. Learners can collaborate on a great

create those issues on their own. Exercises like this assist students in comprehending possibilities even if people may have acquired them via practice. They encourage collaboration between pupils as they work in different ways, test their hypotheses, and develop them. When a gap is discovered, these types of issues could arise quickly. Both educators and pupils can generate a wide range of materials with ChatGPT, such as writing prompts, subjects for discussion, puzzles, and much more[15]. Students can self-direct their study and practice, as well as create these as necessary.



collection of challenges created by ChatGPT, or they can

**Fig. 1: ChatGPT's significant impact on the educational system.**

Compared to Google's answer, ChatGPT offers a more comprehensive summary that includes visual examples and common hazards. Once more, ChatGPT's invasion of colleges and universities across the world shocked them. ChatGPT has the potential to be the greatest teacher and learner together. Additionally, just as they did with mathematical computers in the past, teachers and learners may be able to expand their capabilities and opportunities with the use of technology like artificial intelligence (AI). Like a logical learning staff member, an AI chatbot can be employed to give students quick answers to their most frequent questions. Students who maintain their studies outside of and after the lecture may find this encouragement useful tutors can be used to guide and support learners in their education by improving search and providing personalized recommendations on content as well as additional instructional materials.

Making drawings is only one of the many ways ChatGPT may be used in the learning environment. It might provide ideas for assignments in class and create plans for lessons that are tailored to each learner. It might serve as an after-hours instructor or argument partner. It could be used as the foundation for in-class activities or as a tool to assist students of English in honing their foundational writing skills. The digital revolution era presents a dilemma when it comes to data that is unorganized. The problem is that managing, organizing, sorting, and analyzing them has to be more

difficult [16]. Because ChatGPT can transform unstructured information into data with structure, it is useful. Identifying and fixing coding problems may be made easier with ChatGPT's clarifications, suggestions, and examples. You can utilize ChatGPT to attract individuals with the material. By learning a model with a set of subscriber data, companies may use it to create personalized content such as messages, posts to social media, and purchase suggestions.

With its complex language model, ChatGPT has the power to fundamentally change the way we work and learn. delivering the data in a matter of seconds as opposed to With its ability to generate text that both feels and appears like spoken language, it is a useful tool for experts, instructors, and learners. With all of the continuing research and advancements in natural language processing, ChatGPT's future is virtually endless. With ChatGPT, users can have conversations that are almost exactly like those of a human being to discuss a wide range of topics, including creating vocabulary lists, writing essays, creating software for computers, creating pop quizzes, and a whole lot more. It is expedient, advantageous, and yields extraordinarily high-calibre results. Reactions from ChatGPT are prompt, free, and frequently a great location for folks to start making their own.

Regardless of ChatGPT's place in educational settings, it is widely agreed that children ought to be maintained safe

online. It is especially important for programs like ChatGPT, whose filters occasionally block offensive content. While filtering mechanisms on educational devices do shield pupils from possibly dangerous content, they are easily circumvented. We might use Chat GPT to create live presentations or classes. In one example, we may ask the chatbot queries and ask the students to respond. It's a great way to maintain kids' interest in the material. Following extensive training on a vast amount of content, ChatGPT reacts under patterns to understand and communicate in human language. In addition to correcting mistakes made by users, ChatGPT can teach fresh languages in the environment and clarify grammar-related topics.

The ability of ChatGPT to generate text borders is a further significant feature. After pasting your initial text into the editor, give a brief explanation of the intended outcome. The most crucial information will be included in a well-organized paragraph that is produced by chatGPT. ChatGPT generates text that looks like human responses by using the latest version of the GPT system and a large amount of data collected from the web. Human input optimizes the system by assisting the bot in producing better responses that are consistent with human correctness and natural language norms. To prove a pupil's writing ability, more than just the standard essays and other tasks will be needed. ChatGPT already finishes assignments in computing and creates top-notch essays on philosophy and history. AI can already perform current duties, therefore judging students will need to change significantly.

Natural language processing, or NLP, and deep learning algorithms are used by ChatGPT to generate text dialogues that resemble human-to-human talks by understanding input from users in the way humans speak. Strengthening Using a technique called Learning from Human Feedback (RLHF), large-scale language models have been trained to talk and answer queries as though they were coming from real people. As a result, in reaction to feedback from real people, the computer may analyze and alter its responses. Based on its understanding of the phrases' meaning and setting, ChatGPT can identify the right responses. By utilizing ChatGPT, developers may create chatbots that engage in lively and realistic conversations with users.

## 6. ChatGPT's process components for educational institutions

Fig. 2 shows key components of the ChatGPT framework with requests in the field of education. The chatGPT operating model requires optimized data and understanding flow. It also considers several other relevant factors, like database characteristics, processing stages, operations and learning procedures, etc. The various functions and stages that the chatGPT system goes through to assist with the regular requirements of the social structure are shown in Fig. 2.
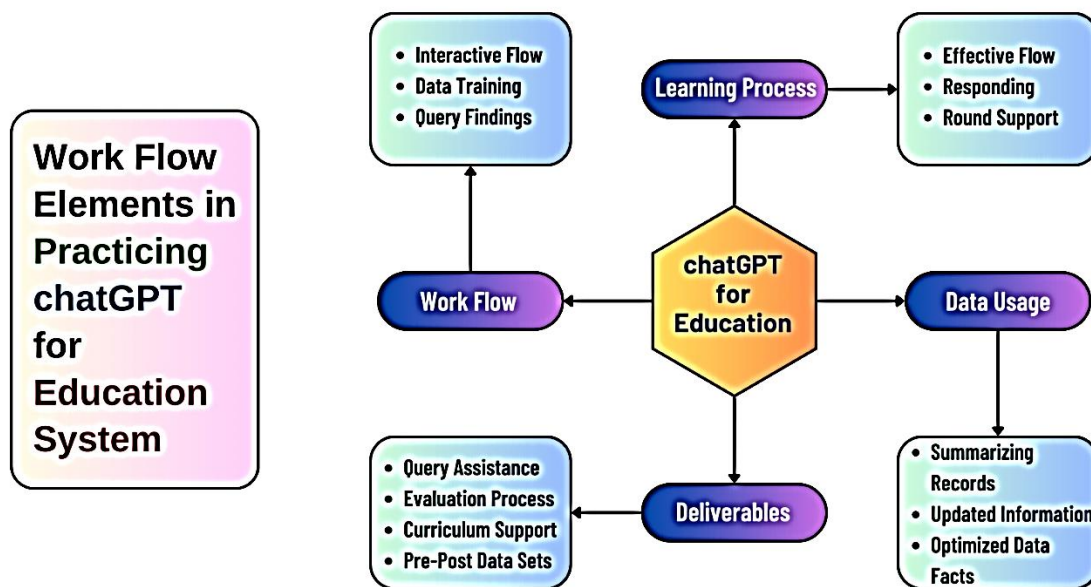


**Fig. 2: Common ChatGPT foundation components for the education sector.**

Teachers can use ChatGPT to create inquiries for learners that center around a book, topic, idea, history occurrence, etc. This would make it easier for teachers to quickly think of thought-provoking questions for discussions on many facets of the subject. If each student may benefit from learning at a different pace, this might be helpful. ChatGPT may offer a range of instances and additional practice experiences to help students grasp a concept or subject. Because ChatGPT can adapt material for various ages, the teacher can ask ChatGPT to explain anything to younger learners or rephrase the text and provide new examples. Students can broaden their understanding or learn new terms with the help of ChatGPT. It is also a useful tool for picking up new vocabulary in that manner. With ChatGPT's comprehensive clarifications of numerous concepts, students may find it advantageous. When

a trainer is not easily available to resolve issues, this might be very helpful for projects for homework or other situations.

Compared to search engines, ChatGPT is significantly more effective since it can translate materials, produce partial responses, solve mathematical problems, make those concepts clearer, and produce more practice-friendly information. Numerous uses for ChatGPT have been created, such as virtual assistants with intelligence, automated customer support, photo captions systems, summarization algorithms, and story development for game titles and movies. The remarkable ChatGPT language model has the potential to fundamentally alter how people communicate with technology [17]. For enterprises, its capacity to comprehend and produce content could have far-reaching effects. ChatGPT processes written and verbal communication and delivers the appropriate responses by utilizing the most recent advancements in machine learning. It facilitates more efficient human-AI communication and better decision-making.

Instead of trying to avoid it, a lot of teachers are now thinking about employing ChatGPT and other AI-based solutions. Students can accomplish this by asking a query on ChatGPT, and then going over and analyzing the language the bot produces to determine its advantages and disadvantages. ChatGPT can write anything from intricate computer programs to high school essays with minimal human involvement. Educational administrators can create great content for their websites with ChatGPT. It might facilitate more predictability and quicken the process of invention. This gives precise instructions, assesses and modifies the result, and makes use of ChatGPT as a tool to maximize its potential. Client care and assistance can be offered at a very low cost with Chat GPT. Companies can utilize Chat GPT to lower the amount of customer service representatives needed to respond to consumer inquiries, which lowers the cost of overhead [18].

When implemented properly, ChatGPT has a lot of growth potential and can increase a company's overall performance. Another potential application of creative AI-based ChatGPT in learning is the creation of online tutoring programs that can respond to a student's questions and offer real-time guidance and evaluation. In the end, generative AI can enhance learning by increasing its effectiveness, personalization, and interactivity.

ChatGPT is an AI-powered platform that communicates with users through natural language processing and machine learning. ChatGPT excels with its smart and lifelike exchanges. It can comprehend common English and give precise answers to questions. Teachers can use this technology to deliver students individualized education based on their specific needs, desires, and learning styles. This might entail giving learners immediate feedback and help while they work, as well as leveraging AI to produce original activities or resources [19]. When teachers use artificial intelligence (AI) technology to facilitate interactions and collaboration, students can work together on projects, share ideas, and gain knowledge from their peers.

ChatGPT is a state-of-the-art language creation model that could change the way companies interact with their clientele. The ChatGPT is used in numerous tasks within educational

settings. Committed educators are creating resources and hosting webinars. For those who learn online, ChatGPT might be a useful tool, but it shouldn't be the main source of information or support. Online students should actively seek out different sources and use ChatGPT to supplement their other learning materials to receive an adequate education. Many people have begun to think about utilizing ChatGPT for educational purposes as opposed to risk control. It is already a popular teaching tool among educators [20].

## 7. Academics can utilize "ChatGPT: opportunities:
1. Emerging text

ChatGPT is an invaluable resource for giving learners an interesting and productive instruction. It can assist educators in coming up with concepts for lesson plans, exercises, and homework that center on certain learning objectives and pedagogical tenets. Educators can also utilize ChatGPT to create and organize learning materials, such as assignments, quizzes, demonstrations, and other elements tailored to the needs of pupils.

2. Grammar as well as Spelling check

Using artificial intelligence's capacity to comprehend human language is another technique to take advantage of ChatGPT. It is beneficial for assessing and improving text quality. There are several ways you may employ ChatGPT:

• Correction and proofreading: Teachers can use ChatGPT to proofread and edit their written materials, such as lesson plans, handouts, or emails, for spelling, grammar, punctuation, and syntactic mistakes.

• Giving comments to learners: Every day, students turn in essays, reports, and other written assignments. However, identifying mistakes in every piece of content might take a lot of effort. By pinpointing the areas of the documents that need work and providing detailed feedback on grammar, sentence structure, and word choice, ChatGPT can help teachers save time.

• Imparting writing abilities: ChatGPT may provide comprehensive illustrations of grammatical rules, rules, spelling, etc. They are useful for teachers to assist students improve their writing abilities.

3. Assessment

ChatGPT can function as an autonomous evaluator and grader for papers. It is capable of closely examining the writing style, organization, and content. Artificial intelligence is capable of evaluating the claim or research put out and providing feedback on the syntax, vocabulary, spelling, and phrasing. However, grading papers shouldn't be done solely through ChatGPT. Alternatively, educators can utilize ChatGPT to customize the assessment criteria.

4. Designing syllabus outline

Instructors can incorporate ChatGPT by making the most of AI's ability to help with the reasonable and efficient development, organization, and writing of course material. ChatGPT can help with:

• Creating goals and objectives for the course
• Developing topics;
• Mapping lessons;
•     Identifying and classifying relevant documents and sources

## 8. Learners have access to "ChatGPT: opportunities:

If learners utilize ChatGPT for some objectives, they might locate "ChatGPT: possibilities and obstacles for education"

1.      Help with the assignments you have.

Learners can get help with assignments via ChatGPT in a variety of ways:

- Providing answers: Learners can ask ChatGPT questions regarding particular topics or subjects that are causing them anxiety. Artificial Intelligence will then provide resources, examples, or explanations to help them better understand what they have learned.
- Addressing problems: ChatGPT can help students become more adept at resolving issues. They will follow the processes of the artificial intelligence tool to solve problems in areas like chemistry, physics, and mathematics. Additionally, they can help kids identify the basic ideas and procedures.
- Idea reinforcements: ChatGPT provides additional examples, analogies, and explanations to help students better understand complex ideas or subjects they are studying. This assists in reinforcing the students' understanding of the subject matter.
- Strengthening one's writing abilities: Students can utilize ChatGPT to receive suggestions on how to improve their papers, essays, and other written assignments as addition to guidance on word choice, grammar, and syntax. Students can use the application to jot down essay ideas and draft their academic papers. Perfecting the small details and overall quality of work may conserve time.

 2.  **Research Study**

ChatGPT may explain and improve study techniques for a range of tasks, initiatives, and private interests. It can enable the following steps to be taken in the study process: Selecting a topic; providing background information; identifying pertinent sources; organizing the study; and helping with reference

 3. Understanding a language

With its interpretations, grammar explanations, lexical exercises, and dialogue mock-ups, ChatGPT can be an invaluable resource for language learners. It helps students practice and improve their language abilities. Additionally, students can utilize ChatGPT to choose a course that will improve their language proficiency.

**9.  What Exactly Educational Opportunities Could ChatGPT Provide?**

Next, learn about the three main advantages of ChatGPT in the classroom.

1. Velocity

ChatGPT and other artificial intelligence tools are agile and fast in developing data. As a result, pupils and educators both save time and become more competent. Additionally, it automates prompt feedback and quick access to information. It allows for automated delivery of immediate feedback and fast retrieval of details, giving students plenty of time to focus on other assignments.

Additionally, it helps educators with lesson planning, grading, and content creation.

As a result, ChatGPT maximizes teachers' time so they may focus more on providing direct instruction and assistance to students.

B. Accessibility

An easily accessible source of advice and knowledge is provided via ChatGPT. As a result, it is available to educators and pupils whenever needed, wherever they may be.

C.  Personalized Education

ChatGPT facilitates the creation of individualized learning experiences for each learner based on their unique needs, health, and proficiency levels, enabling more targeted instruction and improved learning results.

**10. Difficulties while utilizing ChatGPT for instruction and tutoring:**

1. Reliability and Accuracy: Although ChatGPT is a useful tool, it cannot always offer precise answers or information. Teachers and students need to confirm its answers.
2. Overreliance: Students run the danger of being overly dependent on ChatGPT, which could impair their ability to think critically and solve problems.
3. Confidentiality and Security of Data: When using ChatGPT for educational purposes, educators and pupils should be aware of privacy and data security risks.
4. Absence of Human Interaction: ChatGPT is not a substitute for the social and emotional growth that is derived from interacting with classmates and instructors in person.
5. Participation: ChatGPT exchanges may not be as captivating as conventional teaching techniques, which could cause students to get disengaged.
6. Conflict and Controversy: Similar to other AI models, ChatGPT may display biases derived from its training set, which could result in the dissemination of contentious information or the reinforcement of stereotypes.

In order to fully profit from ChatGPT in coaching and schooling, it should be utilized in conjunction with conventional teaching techniques as an additional tool. Teachers should advise kids on how to utilize technology responsibly and impart analytical and data assessment skills to them. Several of the model's shortcomings can be addressed with regular upgrades and enhancements.

**11. CONCLUSION:**

In this situation, a careful and considerate strategy is needed for the effective incorporation of ChatGPT into education. It should be viewed as an enhancement to human instructors instead of an alternative, resolving its drawbacks and maximizing its advantages to establish a more effective, open, and welcoming learning environment. To successfully navigate these potential obstacles and make sure that ChatGPT enhances students' learning experiences, working together among educators, researchers, and developers is essential. Artificial intelligence in education should be continuously evaluated and adjusted to meet the changing needs of both teachers and students and the larger technology environment.

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