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Full length article

Unlocking the opportunities through ChatGPT Tool towards ameliorating the education system

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ABSTRACT

Artificial Intelligence (AI)-based ChatGPT developed by OpenAI is now widely accepted in several fields, including education. Students can learn about ideas and theories by using this technology while generating content with it. ChatGPT is built on State of the Art (SOA), like Deep Learning (DL), Natural Language Processing (NLP), and Machine Learning (ML), an extrapolation of a class of ML-NLP models known as Large Language Model (LLMs). It may be used to automate test and assignment grading, giving instructors more time to concentrate on instruction. This technology can be utilised to customise learning for kids, enabling them to focus more intently on the subject matter and critical thinking ChatGPT is an excellent tool for language lessons since it can translate text from one language to another. It may provide lists of vocabulary terms and meanings, assisting students in developing their language proficiency with resources. Personalised learning opportunities are one of ChatGPT's significant applications in the classroom. This might include creating educational resources and content tailored to a student's unique interests, skills, and learning goals. This paper discusses the need for ChatGPT and the significant features of ChatGPT in the education system. Further, it identifies and discusses the significant applications of ChatGPT in education. Using ChatGPT, educators may design lessons and instructional materials specific to each student's requirements and skills based on current trends. Students may work at their speed and concentrate on the areas where they need the most support, resulting in a more effective and efficient learning environment. Both instructors and students may profit significantly from using ChatGPT in the classroom. Instructors may save time on numerous duties by using this technology. In future, ChatGPT will become a powerful tool for enhancing students' and teachers' experience.

1. Introduction

ChatGPT is a revolutionary tool that responds to inquiries on nearly anything available in the contemporary digital environment to the dataset it has been trained. Now, ChatGPT is innovative in generating logical, cohesive, pertinent, and fluent replies, giving the sense that someone is physically typing what we see on the screen. In education, instructors may use ChatGPT in their courses and utilise it to tailor the learning experience for their students. On the other hand, students' writing abilities may be enhanced by using text completion, translation, and text summarising tools. ChatGPT's capabilities may be used to identify content bias and fix problems with educational materials. Given the growing need for updated teaching materials, ChatGPT can assist the state in creating and implementing an impartial and fair curriculum. If implemented appropriately, this might act as a bridge to lessen the pressure on a stressed-out educational system [1–3].

ChatGPT is an effective tool for instructors to improve their lessons and students' learning. It will not replace teachers. Instead, make them more powerful with better hands-on resources. Teachers may help their students learn more effectively by utilising ChatGPT to stimulate conversations, provide tailored feedback, and improve their language and literacy abilities. Individual students may get tailored feedback and coaching using ChatGPT [4,5]. The application may provide detailed comments on a student's writing project, offering recommendations for development and motivation. Students may feel more self-assured and inspired to keep studying and developing. ChatGPT generates a response by reading a text, such as a phrase or a prompt, and then understanding the problem statement. Given the context of the words before it, the model is trained to predict the next word in a phrase.

ChatGPT may be used to grade essays automatically with reasoning and even better solutions. With the help of this function, instructors

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may mark written assignments and provide comments on grammar, structure, plagiarism and content. Producing ideas, summaries, and even whole talks, may also aid with the composition of speeches. It may aid with research by guiding students in locating and organising data for papers and other types of study. ChatGPT may provide students learning a language immediate feedback on their pronunciation and grammar, assisting them in swiftly and effectively developing their language abilities. It may help students with trouble reading and writing by suggesting ways to improve their phrases and paragraphs [6,7].

The ChatGPT language model has the power to create writing that is similar to what a person would write. It can perform various natural language processing tasks, including language translation, text summarisation, text creation, and conversation systems. It was trained on a large dataset of online content such as webpages, research articles, books, social media posts and chatter. ChatGPT typically performs best when conversing in human language, remembering previous exchanges within the same conversation, referring to physical, emotional, and cultural experiences in the training data, and dynamically drawing from a scientific and technical knowledge pool to address queries [8–10]. ChatGPT can produce language comparable to how people write by training on such a broad dataset.

ChatGPT and other big language models' capacity for content development may aid marketers in becoming more productive and successful. This enables marketers to scale up content personalisation, which was previously time-consuming. It has long been used in various ways, including conversational chatbots, automation, and data analysis. Today's teachers can think about how ChatGPT might act as a writing tutor for their students. Students might use this tool to quickly assess their writing without waiting for an instructor's response. The students could then request specific actions from the AI tool to be taken to edit or revise their work. In terms of creative content, it functions as a super-effective word organiser [11,12]. The main aim of this paper is to discuss the significant applications of ChatGPT in education.

2. ChatGPT

An AI-powered chatbot is called ChatGPT by OpenAI. The term "Generative Pre-trained Transformer (GPT)" refers to a language processing model trained on massive data to produce writing that resembles a person's. ChatGPT is a natural language processing technology that uses AI to respond to quarries. As a result, it creates information more conversationally, picks up knowledge from those talks, and then can provide ever more specifically customised replies. ChatGPT behaves like a person while giving instructions to users and providing information. This technology can do various activities, including creating poetry, coding, answering inquiries, writing emails and essays, and translating documents. ChatGPT differs from other chatbots in that it can respond instantly, resulting in more varied and lively discussions on almost all topics [13–15].

ChatGPT is discussed as a tool for improving students' skills by fostering their ability to ask questions and formulate them precisely, expanding their knowledge through ChatGPT's answers, and teaching skills to assess the accuracy, reliability, and quality of ChatGPT's answers as well as to filter the pertinent information gleaned from answers. This technology suits various applications since it can adjust to different conditions and situations. ChatGPT is a flexible tool that may be used in various natural language processing applications. It can respond to instructions with high accuracy and fluency, but it needs a thorough understanding of the world and the ability to think like a person [16,17].

ChatGPT is an AI-based tool for having exciting and genuine talks with people. It can comprehend text-based input and react to it using AI and ML methods. As a result, it can have discussions that are more comparable to those between two people. As a result, it is an effective tool for businesses in the customer service, marketing, and content development sectors. ChatGPT functions as a virtual assistant that can converse with us and respond to our inquiries like an actual person would [18,19]. ChatGPT uses deep learning algorithms to generate human–machine natural language discussions.

3. Need of ChatGPT in education

ChatGPT can affect several aspects of education, including writing, instruction method and teaching pedagogy. Writing has been essential to fostering creative and critical thinking for ages through organising information and creating narratives. It continues to play a crucial role in education, even in the age of AI. Therefore, we should concentrate on offering insights that are incomprehensible to AI. Students' thesis, assignments, and essay writing should be condensed, reflective, and grounded in a particular setting. Education and AI are essential topics in conversations about our society's future. ChatGPT is a valuable tool for writers, marketers, and other professionals that often need to produce text. This has several uses, including producing content for websites, social networking platforms, marketing materials, and chatbot replies [20–22].

Integrating ChatGPT into higher education might result in a shift towards AI, diminishing the need for professors and possibly lowering opportunities for interpersonal relationships and human engagement. In order to assist students and improve their writing abilities, ChatGPT may check for grammatical and structural problems in their work and provide valuable comments. In order to understand and concentrate on the areas they need to improve, students can also receive personalised feedback based on their writing style. Computers may imitate human conversations using ChatGPT [23,24]. This can accurately respond to user inquiries and personalisation by comprehending user intent and context [25,26]. The students could explore several things with the help of ChatGPT, such as developing a computer program, writing an essay and solving a mathematical problem. All these things could be possible with ChatGPT.

ChatGPT is designed to connect quickly and respond more cohesively, like conversational tools like bots and virtual assistants. Because of this interoperability, businesses may expand on their current offerings and develop distinctive AI-powered chatbots that can quickly comprehend and respond to consumer demands. Conversations may be held in a private and secure environment using ChatGPT. It offers a secure environment free from intervention or manipulation by using AI to identify harmful information, spam, and censorship. Moreover, ChatGPT never stores nor sends personal information to other parties. Thus, to preserve users' privacy, all correspondence is encrypted and kept locally [27,28].

4. Research objectives

ChatGPT is an AI-driven natural language processing application enabling users to participate in human-like text-based discussions with AI-based software. It may provide information, help write essays and letters, and produce code and websites. ChatGPT has the potential to complete transformation the way we teach and learn. Teachers may provide students with immediate feedback and aid their knowledge growth by using ChatGPT in the classroom. ChatGPT may be used to automate monotonous routines and save up instructors' time so they can concentrate on teaching more insightful courses. ChatGPT can change how we interact with chatbots entirely. ChatGPT can understand natural language, interpret context, and generate responses to engage in fruitful conversations with people by utilising the power of AI. Moreover, ChatGPT may be used to assist students in preparing for debates by producing plausible arguments and counterarguments on a particular subject. It may provide innovative writing ideas to motivate students and assist them in enhancing their writing abilities [29–31]. The primary research objectives of this article are as under:

RO1: - to identify what needs of education can be fulfilled by ChatGPT;
RO2: - to study the significant features of ChatGPT towards the education system;
RO3: - to study the workflow elements of ChatGPT for the education system;
RO4: - to identify and discuss the significant applications of ChatGPT in education;

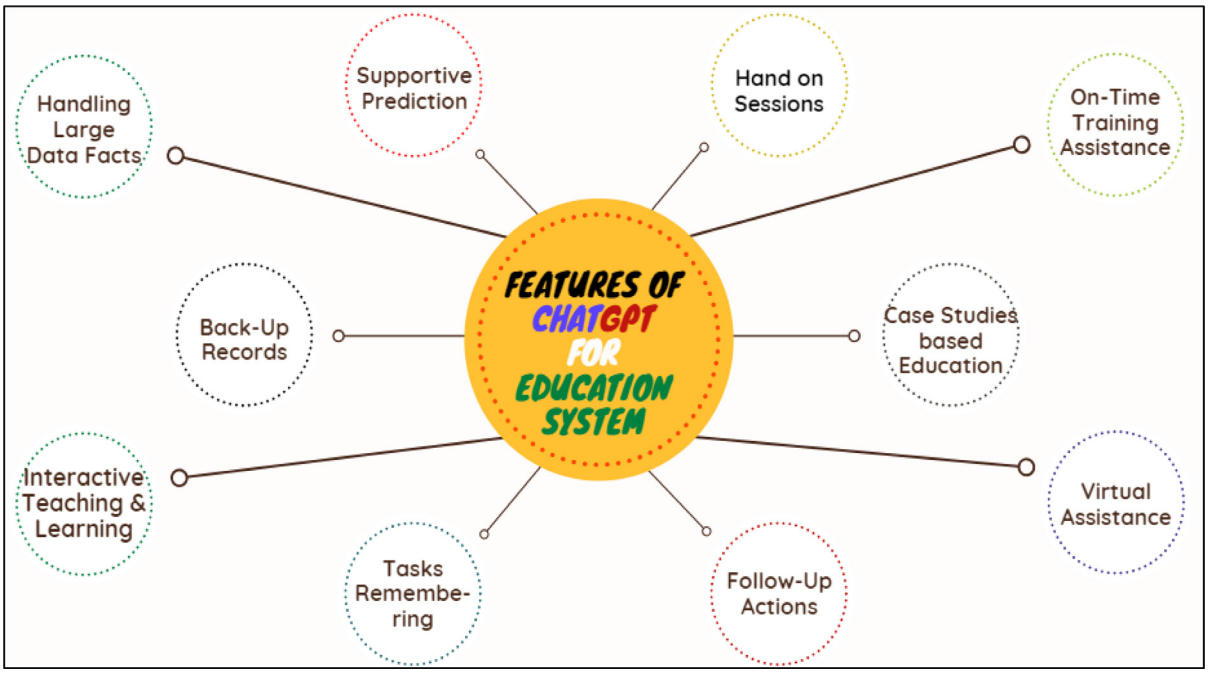

Fig. 1. Influential capabilities of ChatGPT for education system.

5. Significant features of ChatGPT towards education system

Fig. 1 explores the various associated typical capabilities, features, and applications of ChatGPT support for education. It includes the features like remembering aspects, prediction support, translation creation, etc. [32,33]. In addition to this, several associated other characteristics and classical perspectives of ChatGPT are further represented and elaborated in Fig. 1.

In education, new technology constantly emerges and often vanishes over time, while only some innovations are ingrained in the system. ChatGPT generates a fantastic set of issues for students to work together on, and of course, students may build these problems independently. Even though they may have learned about probability via experience, activities like this solidify their understanding of the subject by encouraging students to work together on various approaches, test their theories, and refine them. These kinds of problems may be quickly created when a gap is found. ChatGPT enables teachers and students to create various materials, including writing prompts, discussion topics, puzzles, and much more [24,33]. Learners may produce these as needed, and they can also self-direct their research and practice.

ChatGPT provides a step-by-step explanation, which includes visual examples and common pitfalls and is far superior to Google's response. The irruption of ChatGPT shocked educational institutions around the globe once again. ChatGPT would be both the best instructor and the best student. In addition, with the help of technologies like AI, instructors and students may increase their powers and opportunities, just like they did with maths calculators in the past. An AI chatbot may be hired to provide students with rapid answers to frequently requested topics, much like a learning assistant with reasoning. This support may be helpful as students continue their education outside and after the lesson. By enhancing search and offering individualised suggestions on material and other learning resources, AI-powered learning assistants may be utilised to direct and help students with their learning [34,35].

One of the numerous ways ChatGPT might be utilised in the classroom is to create outlines. It could come up with lesson plans personalised to each student and come up with suggestions for class projects. It might be used as a debate partner or an after-hours tutor. It might serve as the basis for class exercises or as a tool to help English language learners develop their fundamental writing abilities. Unstructured data is a challenge in the age of the digital revolution. The issue is that they need to be more challenging to manage, arrange, sort and analyse [36,37]. ChatGPT is helpful since it can convert unstructured data into structured data. By offering clarifications, recommendations, and examples, ChatGPT may help in locating and resolving coding issues. ChatGPT may be used to target specific people with the content. Businesses may use the model to generate personalised content like emails, social media posts, and product recommendations by training the model on a collection of user data [38,39].

With a sophisticated language model, ChatGPT has the potential to alter the way we work and learn thoroughly. Providing with the information in seconds instead of It is a helpful tool for professionals, educators, and students since it can produce text that looks and sounds like human speech. The potential of ChatGPT is limitless, given the ongoing research and breakthroughs in natural language processing. ChatGPT enables users to conduct virtually human-like dialogues to address issues as diverse as making vocab lists, writing essays, generating computer programs, producing pop quizzes, and so much more. It is beneficial, quick, and produces exceptionally high-quality findings. ChatGPT replies are quick, free, and often a wonderful place to start for people to create their own [40,41].

Whether ChatGPT belongs in the classroom or not, it is simple to concur that students should be kept securely online. It is crucial in programmes like ChatGPT, where the filters sometimes exclude harmful material. Although content filters on school computers do prevent students from viewing potentially unsafe information, they are simple to get around. We may construct interactive lectures or classes with Chat GPT. For instance, we may pose questions to the chatbot and invite students to react with their responses. It is a fantastic technique to keep students interested in the subject matter. ChatGPT responds based on patterns after being trained on massive quantities of material to comprehend and converse in human language. The ChatGPT can explain grammar-related concepts, teach new language in context, and correct users' errors [42–44].

Another significant capability of ChatGPT is its ability to produce text outlines. Copy the original text into the tool, then briefly explain the desired result. The chatGPT will create a paragraph with excellent organisation and the most important details. Using a vast quantity of data gathered from the internet, ChatGPT uses the third generation of the GPT model to produce text that resembles human answers.

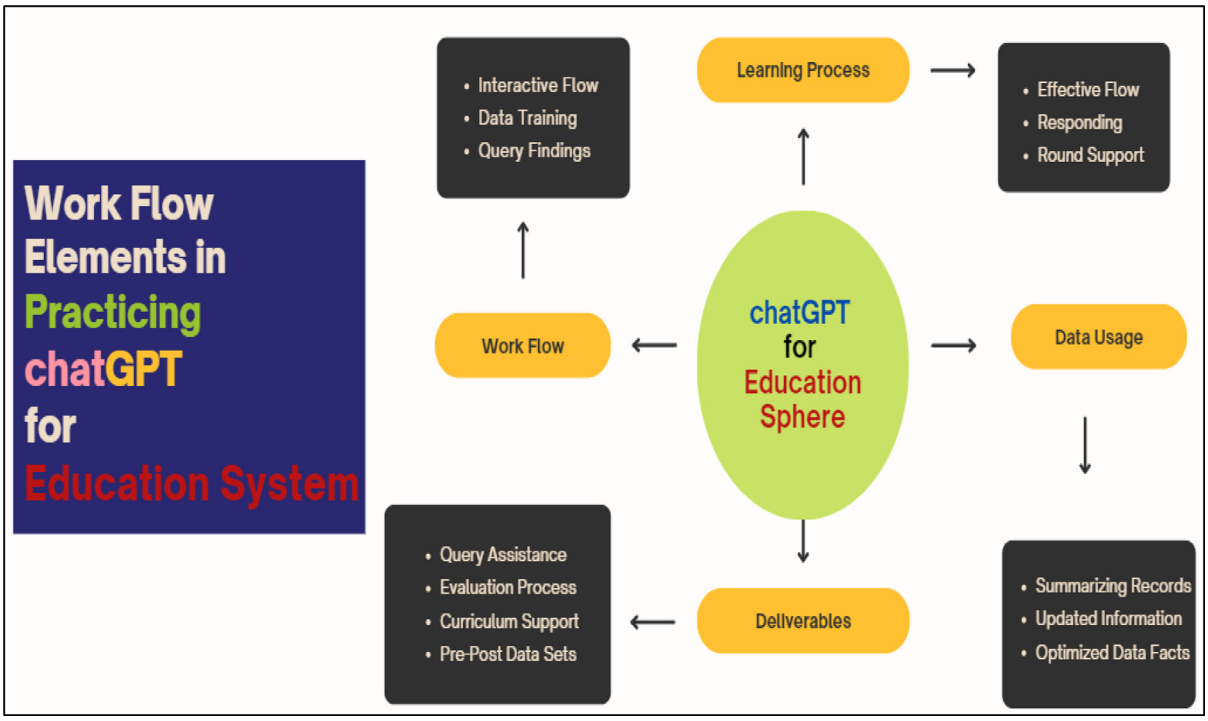

Fig. 2. Typical elements of ChatGPT framework for education domain.

Human feedback helps the bot create better replies that align with human accuracy and natural language standards, thus optimising the system. More than traditional assignments like essays will be required to demonstrate a student's writing prowess. ChatGPT already completes programming homework and produces excellent historical and philosophical writings. Since AI can already do present tasks, evaluating students must drastically alter [45,46].

ChatGPT uses natural language processing (NLP) and deep learning technologies to understand user input in natural human language and produce text exchanges that are human-to-human conversations. Reinforcement Learning from Human Feedback (RLHF) is a technique that has been used to train a big language model to converse and respond to questions as if users were speaking to a natural person. As a result, the computer may analyse and modify its replies in response to input from actual individuals [47,48]. ChatGPT can comprehend the context and meaning of those words and provide the correct answers based on that knowledge. Building chatbots that can have exciting and lifelike discussions with users is achievable using ChatGPT. By training it on data related to that area, ChatGPT may be tailored for specific domains or jobs, such as customer service. As a result, the chatbot may provide replies to user input more precisely and relevantly [49,50].

6. Work flow elements of ChatGPT for education system

Fig. 2 depicts distinguished elements related to ChatGPT structure towards the solicitations in the education domain. To process the chatGPT working structure, a streamlined flow of information and knowledge is a must. It further reflects on several related criteria, services and learning processes, database traits, workflow progress stages, etc. Fig. 2 exemplifies the different working and progressive steps of the chatGPT system for supporting the routine needs of the social structure [51,52].

Instructors may utilise ChatGPT to develop questions for discussion with their students based on a book, subject, historical event, idea, etc. This would allow instructors to swiftly come up with interesting questions for discussions on various aspects of the topic. This may be particularly useful if each student could gain from a different speed. For students to better understand a subject or idea, ChatGPT may provide a variety of examples as well as extra practice opportunities. ChatGPT can modify text for various age groups, so the instructor might either rewrite and provide other examples or ask ChatGPT to clarify it for a younger audience. With the aid of ChatGPT, students may increase their knowledge of new terms or add them to their vocabulary. In this way, it is also a helpful tool for learning new terms. Many ideas are explained in ChatGPT, which might benefit students by giving them in-depth explanations. This can be particularly useful for homework assignments or other circumstances when an instructor is not readily accessible to address quarries [53,54].

ChatGPT is a far superior alternative to any search engine because it can translate documents, regenerate incomplete answers, solve mathematical problems, clarify those concepts, and generate more similar content for practice. Many applications of ChatGPT have been developed, including automated customer service, intelligent virtual assistants, narrative creation for video games and movies, picture captioning systems, summarisation algorithms, and others. The language model ChatGPT is impressive and can completely change how humans interact with computers [55–57]. Its ability to understand and generate text could have significant implications for businesses. ChatGPT uses the most recent developments in natural language processing to process spoken and written language and provide the correct replies. It helps people to communicate with AI systems more effectively and make more informed decisions.

Many instructors now consider using AI-based tools such as ChatGPT rather than trying to avoid it. Students may do this by entering a question into ChatGPT, then reviewing the language the bot generates and evaluating its merits and demerits. With little human input, ChatGPT can compose everything from a high school essay to complex computer programs. Education leaders may utilise ChatGPT as a very effective tool to produce website content. It may speed up the creative process and boost consistency. This provides clear and explicit directions, evaluates and adjusts the output, and utilises ChatGPT as a tool to get the most out of it. With Chat GPT, support and customer service may be provided very cheaply. Businesses may use Chat GPT to reduce the number of customer support agents required to address client inquiries, which leads to cutting down on overhead expenses [58,59].

ChatGPT may provide much potential for development and boost a company's general effectiveness when used correctly. Developing interactive tutoring programmes that can reply to a student's inquiries and provide real-time feedback and direction is another possible use of generative AI-based ChatGPT in education. Ultimately, generative AI has the potential to improve learning by making it more individualised, interactive, and effective [60–62].

ChatGPT is an AI-based tool that uses ML and natural language processing to interact with users. With its intelligent and realistic-sounding interactions, ChatGPT shines. It can understand everyday language and provide accurate responses to queries. Based on each student's unique requirements, interests, and learning preferences, teachers may employ this technology to provide individualised learning experiences for them. This might include using AI to create unique resources or exercises and providing students with real-time feedback and assistance while working [63–65]. Students may collaborate on projects, exchange ideas, and learn from one another when teachers employ AI technology to ease communication and cooperation.

ChatGPT is a cutting-edge language generation model that has the potential to alter how businesses communicate with their customers. Many tasks are used in educational contexts where the ChatGPT is used. Dedicated instructors are doing webinars and producing materials [66, 67]. While ChatGPT may be a helpful tool for online learners, it should not be depended upon as the only source of knowledge or assistance. To achieve a well-rounded education, online learners should actively seek various sources and utilise ChatGPT to complement their other learning materials. Several individuals are already considering using ChatGPT to improve education rather than using it for risk management. Many instructors already use it as a teaching tool [68–70].

7. ChatGPT applications in education

ChatGPT can be used as a tool to help students with their studies by creating relevant content and sources on a specific subject. It may also be used to provide students feedback that helps them to improve their knowledge. This might help ensure that students are given the right amount of challenge and material they find interesting and relevant. The ChatGPT model has the potential to be used as a tool for developing summaries, flashcards, or quizzes based on a particular topic or subject area [71–73]. By providing individualised, flexible, and exciting learning opportunities, ChatGPT has the potential to enhance student's educational experiences. The education sector has welcomed this technology as a game-changer. Personalised learning experiences may be supported, as can knowledge gained via research and automation of testing. ChatGPT may be used to create chatbots and virtual assistants that can respond to client inquiries in a conversational manner [74–78]. Further, the significant applications of ChatGPT for education are discussed in Table 1.

ChatGPT may generate text for various uses, such as chatbots and virtual assistants, content production, customer support, language translation, and automated decision-making. ChatGPT utilises many text data to "train" itself, and it then uses that training data to create new text depending on the input. An extensive volume of material from books, papers, and the internet was used to deep-train the model. It uses training data to produce new language that is cohesive, pertinent, and context-aware when given a beginning text as a cue. ChatGPT may be used as a writing assistant to help produce fresh material that is cohesive, pertinent, and aligned with the context. By using plagiarism detection software, educating students, offering resources, and enforcing stringent norms and measures for usage, colleges and institutions are actively combating ChatGPT [79,80]. ChatGPT is intended to look and sound like human interaction. The chatbot can converse on any subject and can even come up with answers to queries. Applications for creative writing might take advantage of ChatGPT's text-generation capabilities. It might come up with writing prompts, offer comments on rough drafts, or even come up with fresh material. This could change how creative writing is taught and practiced [81,82].

ChatGPT has the potential to be a valuable educational tool. It might be used to create course materials, provide task comments, and respond to student inquiries. ChatGPT has a strong command of the English language and can pick up new knowledge, making it a valuable tool for teachers and students. ChatGPT is a tool for rapidly constructing an outline for an article. With its AI-driven natural language processing, it can learn the structure of any post and build an ordered and thorough outline in only a few clicks. The performance and ethical performance of GPT are analysed by DIKWP [83,84]. Language translation may undergo a revolution through the ChatGPT's capacity to comprehend and produce text in various languages. Without human translators, it might enable communication between people and organisations that speak different languages. ChatGPT is an effective technology that may support instructors in personalising instruction, enhancing language proficiency, and facilitating research and writing [85–88]. Educators must keep up with the most recent advancements and consider how they may be utilised to enhance their students' learning as AI develops and becomes more common in the classroom [89,90].

8. Discussion

ChatGPT uses a massive amount of data that it gathers, analyses, and transforms into written sentences. It can write regardless of its kind, structure, or subject. For a variety of disciplines, ChatGPT may provide students with study tools like study guides and flashcards to help them remember key concepts and facts. It may also be used to create examinations and quizzes to ensure students fully comprehend the subject matter. It may also include translations, resources for learning new languages, and tools for enhancing grammar and vocabulary. It may also provide sample test questions and answers, study resources, and flashcards to help students prepare for exams. Incorporating AI into education can improve learning outcomes, make learning more dynamic and exciting and provide students with new learning and development possibilities.

ChatGPT is ideal for its portability, human-like responses, flexibility, and versatility. Due to these features, it is a valuable tool for anybody interested in problems requiring natural language processing. It may be a massive assistance to students doing research, helping them with their assignments, and giving them comments on their work, and it can raise students' knowledge levels across the board. With natural language processing, the bot can understand input from human voices or write without needing menus or programming. By responding to questions about specific subjects, giving prompt and accurate answers, providing additional explanations and clarifications, and developing customised learning plans based on a student's learning preferences, strengths, and weaknesses, this technology can help students in their academic pursuits. It can provide every student with tailored help via individualised learning and interaction.

Students of all ages can easily use ChatGPT as a writing assistant. It can help active learners throughout the writing process by offering suggestions for writing topics, flow ideas, sentence structures, and vocabulary. The interface of ChatGPT makes it possible for students to access thorough and accurate information with their search results. In contrast to most search engines like Google, which give a massive quantity of information with limitless results, ChatGPT provides clear and crisp answers that immediately address the relevant inquiry. Instructors may instruct the programme to generate a variety of phrases, including a new term that the students are unfamiliar with, and then instruct the students to infer the word's meaning from the context of the various sentences.

The programme may produce interesting writing assignments for learners based on age and grade. Instructors might ask ChatGPT to provide a writing exercise or story starter that encourages students to express their creativity to complete the assignment. Students may enhance their reading and comprehension abilities by using ChatGPT. Instructors may instruct the programme to produce passages on various

Table 1
Significant applications of ChatGPT in education.

S No	Applications	Description
1.	Enhance critical thinking and communication abilities	• ChatGPT has the potential to become a crucial tool for writers who wish to improve both their critical thinking and communication abilities. • Students can also use ChatGPT for class assignments and even utilise the bot to create an initial plan. • Subsequently, students may discover how to improve their writing by going beyond the initial draft. • With a wealth of literature supporting its responses, ChatGPT successfully addresses common, basic inquiries on general knowledge, historical events, scientific principles, coding, and fundamental languages. • ChatGPT has exposed many of us to a vast array of opportunities. • In light of this knowledge, it is clear that technology can significantly help students in higher education. • With careful design and implementation, AI can improve student learning outcomes and learning experiences.
2.	Provide instructional material	• ChatGPT will help colleges and universities to provide instructional material. • This system will be able to create customised projects for each student while considering their preferred learning style and current skill level. • Although some students may learn better by visually employing examples, others may need definitions in written form. • This technology may direct students to the proper online materials, such as an e-book, course modules, and assignments, to assist them in improving their understanding of a particular subject. • Depending on their knowledge, they may suggest extra tutoring or advanced preparatory programmes to the student's instructor or school. • ChatGPT quickly gained popularity and was among the top online searches once it was introduced. • ChatGPT can create sentences that are many paragraphs lengthy, correct, comprehensive, and highly exact, as well as tailored to the user's request. • The quality of its responses and the speed at which it interacts with the user are astonishing. • Moreover, it accomplishes it quickly and in several languages.
3.	Conversations with students	• ChatGPT has the potential to start conversations with students in a virtual learning environment. • It may aid in identifying areas of weakness in knowledge and comprehension and assist by recommending workarounds, responding to inquiries, and assisting with content- and context-based search, text creation, and completion to help students get back on track. • It is capable of carrying out operations that typically require human intellect. These operations need language processing, pattern recognition, learning, and decision-making. • As a chatbot or talking computer program, ChatGPT comprehensively creates text. • Every question we have when we visit the site may be asked, whatever comes to mind, and an answer will be given immediately. • The possibilities are endless; it might be information, ideas, or even current affairs. • It is a trained model that may be customised for specific educational jobs. • It has several applications, and the degree of flexibility and precision of its responses is astounding.
4.	Enhance reading and abilities	• Educators may use ChatGPT to develop assignments, question papers, and other learning materials. • Students may enhance their reading and comprehension abilities by using ChatGPT. • Instructors may instruct the programme to produce passages on various subjects, combine its output in classroom assessments, and build questions for students. • This will allow teachers to evaluate how well their students comprehend the subject or topic and pinpoint any areas that need more study. • ChatGPT is a conversational bot that responds to user questions in a way that enables it to search massive databases and to produce well-structured essays, legal briefs, poetry, computer code, or Rogers and Hammerstein song lyrics. • ChatGPT is the greatest AI chatbot ever made available to the general public. • ChatGPT is primarily being met with awe and apprehension, much like the telephone.
5.	Virtual teaching assistants	• ChatGPT may also be trained to serve as virtual teaching assistants to lighten the workload on teachers. • It may be programmed to carry out various educational tasks, including providing onboarding services, helping students, acting as a tutor or mentor, giving feedback, and grading students. • Now, educators, public intellectuals, and academics are having a passionate debate regarding ChatGPT's implications. • There is growing agreement that academics and educators might fall for tricks. The usage of this new technology is already familiar to students. • ChatGPT has a remarkable ability to structure queries and obtain reliable responses. • Observing how quickly teachers adapt to this brand-new classroom situation and appreciate deeper, more engaged learning is encouraging.
6.	Allows students to ask better questions	• ChatGPT may help parents and kids by allowing them to ask questions, start the enrolling process, and encourage further action. • ChatGPT may be further taught to respond to common questions from students and point them in the direction of appropriate resources. • This technology may gather student comments and other valuable data, which instructors can evaluate and utilise to enhance their teaching and learning strategies and development goals. • ChatGPT is a powerful AI technology that enables voice or full-sentence web searches. • Instead of the usual Google Search results, the searcher is presented with the results in detailed, in-depth phrases by using this technology. • The tool has gained popularity in education since it can write essays, provide in-depth answers to queries, and close learning gaps by utilising digital resources and AI. • ChatGPT is a potent language model that may be utilised to produce text for chatbot applications that sounds like human speech. • Businesses may enhance customer service, simplify processes, and provide clients with individualised advice using ChatGPT's features.
7.	Understands complex problems	• ChatGPT understands complex problems better than other contemporary, accessible AI systems, making it the popular choice for handling complex queries. • Technologies like ChatGPT may aid in creating chatbots and virtual assistants for use in education. With its ability to reimagine teaching and learning, • ChatGPT offers a chance to influence the future of the classroom. • Conversational AI is expected to alter how parents, instructors, and students communicate. • By handling routine tasks, an AI tool similar to ChatGPT may significantly improve the learning experience on our digital learning platform. • From facilitating the onboarding of new students or teachers to offering individualised, self-paced instruction depending on the learning preferences of each student. • In addition to these tasks, this may help resolve frequently asked questions, gather information and feedback to enhance teaching methods, and monitor class and student performance.

(*continued on next page*)

Table 1 (*continued*).

S No	Applications	Description
8.	Straightforward response	• ChatGPT can respond to queries straightforwardly; it can write code, make lists, react to emails for us, and even answer our queries. • It can produce detailed and human-like text, interpret human speech, correct grammatical errors, and question false premises. • The programme may produce interesting writing assignments for students based on age and grade. • For instance, instructors might ask ChatGPT to develop a writing exercise or story starter that encourages students to express their creativity to complete the job. • It may be a first step in teaching students how to write. • By introducing new words and helping them become the foundation of sentences, ChatGPT may aid students in growing their vocabulary. • Instructors may instruct the programme to generate a variety of phrases, including a new term that the students are unfamiliar with, and then instruct the students to infer the word's meaning from the context of the various sentences.
9.	Topic brainstorming and creativity	• It can assist students with grammatical correction, topic brainstorming, and creativity when developing project ideas. • Writing lesson plans, emails, or even letters of recommendation for other teachers may assist instructors in lightening their burden. • ChatGPT may increase instructor productivity and facilitate student learning. • Although a ChatGPT cannot replace a teacher, it may allow instructors to interact more with students. • By offering ideas and questions for students to reflect on, ChatGPT may aid in facilitating dialogues and fostering critical thinking. • For instance, we may list open-ended questions on a specific subject using ChatGPT and then ask students to debate and react to these questions in small groups or as a class. • Students' critical thinking abilities and comprehension of the subject matter may benefit from this. • ChatGPT can automate repetitive tasks like delivering product details and question responses.
10.	Enhance learning personalisation	• ChatGPT will enhance learning personalisation and ultimately become an essential component of the learning process. • We must give students the tools they need to harness this power to better prepare them for the future. • ChatGPT information may be used by businesses to improve their offerings and meet client requirements. • Because of its natural language processing capabilities, which enable it to ascertain what clients believe about a product, ChatGPT may generate leads by talking with prospective customers and learning about their requirements. • Based on the interests and preferences of each consumer, we may utilise this information to tailor our marketing efforts. • Depending on the student's preferences, ChatGPT may provide tailored suggestions for each.
11.	Text analysis	• ChatGPT can often provide us with some entirely accurate replies to our inquiries. • It is both exciting and terrifying. • In essence, it is a learning engine that has been "trained" to spot patterns in text collected from websites worldwide and combined with AI to produce responses that seem authentically human. • Language translation is one of ChatGPT's most potential uses. • The model is an effective machine translation tool since it can comprehend and produce text in various languages. • The algorithm can learn to accurately translate text from one language to another by being fine-tuned on a large dataset of bilingual material. • This may be used for various purposes, including translating chatbots, websites, and documents. • Text summary, which extracts the most crucial details from a lengthy text, is a function of ChatGPT. • This may be helpful for several uses, including summarising news, product reviews, and research papers. • It may also be used for text analysis tasks, including named entity identification, topic modelling, and sentiment analysis.
12.	Craft essays	• ChatGPT can develop essays, poems, questions, answers, and computer code. • AI text systems may rapidly generate text, and it is often difficult to tell them apart from human-written text. • ChatGPT can produce writing that resembles that of a person. • This model is capable of responding to a prompt with a comprehensive answer. • The model can comprehend and reply to various subjects and inquiries since it has been trained on vast text data. • The field of education, especially in college-level learning, is one of ChatGPT's most important effects. • With the increased technology usage in the classroom, ChatGPT may be a potent tool for improving students' learning experiences. • As a learning aid, ChatGPT can be utilised in higher education. • Students may get prompt and precise information by creating query replies using the model. • This might be very helpful for students with trouble grasping a particular idea or subject.
13.	Enhances the learning environment	• This enhances the learning environment in the classroom. • Using the bot to administer tests is the best method a teacher may utilise ChatGPT in the classroom. • Thus, to test students' understanding, the AI chatbot may provide straightforward yes/no or more difficult multiple-choice questions on a subject. • Teachers may devote more time to lesson preparation and student engagement by utilising ChatGPT to construct exams and quizzes. • As a writing assistance, ChatGPT may also be used in higher education. • Those who struggle with writing or need to generate a lot of written work quickly may find this extremely beneficial. • ChatGPT may be utilised in various businesses, including journalism, customer service, and more, in addition to education. • The methodology may be used to produce software code, news articles, and even customer support routines. • This makes it an essential tool for enterprises since it enhances productivity and speeds up the completion of activities.
14.	Understand and communicate languages	• With the help of ChatGPT, students may easily understand and communicate in other languages. • Moreover, it may provide resources like dictionaries and grammatical rules for learning other languages. • ChatGPT can respond to most computer science questions and tasks studied in school. • The teachers can suggest a variety of ChatGPT-based tasks that can be assigned to computer science students to emphasise that computer science thinking skills have not become obsolete. • It may improve students' computer science thinking abilities and expand their comprehension of computer science topics. • ChatGPT is one of the most effective chatbots because it can learn in real-time and recall user indications from past talks. • This technology already has a wide range of uses beyond simple question–answering. For instance, ChatGPT has been required to provide scholarly papers, code, and emails.

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subjects, combine its output in classroom assessments, and build questions for students. This will allow teachers to evaluate how well their students comprehend the subject or topic and pinpoint any areas that need more study.

ChatGPT can respond to follow-up inquiries, acknowledge errors, refute unfounded assumptions, and reject improper requests throughout the conversation. This technology can generate text and translate it across languages. Its primary characteristic is the capacity to generate

Table 1 (*continued*).

S No	Applications	Description
15.	Boost exam preparation	• ChatGPT may be a helpful resource for students to assist with homework and other tasks, practice language skills, and boost exam preparation. • It may help students save time and effort by quickly summarising books and articles, providing arguments and examples, and aiding in research and writing. • By having it produce arithmetic problems or questions for students to work on together, we may utilise ChatGPT to support group collaboration. • This is an excellent technique to promote teamwork and problem-solving abilities. • This may be an entertaining and exciting approach to studying the content while fostering competitiveness. • ChatGPT could respond to questions with remarkable fluency and coherence using AI, and among other things, it might pass muster as a well-written answer to a class assignment. • ChatGPT might increase the time spent writing in class as the instructor coaches and consults rather than merely discouraging or monitoring AI help. • ChatGPT provides a mechanism to broaden the focus and complexity of its courses.
16.	Exact information	• Students may get exact information and receive results right away using ChatGPT. • Students may need assistance narrowing the scope of the information they initially needed due to the abundance of Google results. • The replies given in the instance of ChatGPT are logical and comprehensive. • For instance, ChatGPT may assist a student with maths problems by solving the issue, illustrating the underlying ideas, and producing other issues based on the same idea for practice. • Critical thinking instruction might be enhanced with the use of ChatGPT. • Today's teachers include listening, talking, and engaging in constructive arguments while teaching writing and English. • Writing, however, only assists sure students in organising the knowledge they acquire. • Instructors could collaborate with Chat GPT to enhance kids' cognitive abilities. • Students should eventually be able to use AI technologies to learn new facts.
17.	Save instructor time	• To save time and energy, instructors may ask ChatGPT to produce assignments that fill the knowledge gaps before introducing specific ideas or to develop longer lessons for better understanding. • ChatGPT is merely developed to produce words in response to input. • It can spout lengthy responses, indicating that the depth and insight in its responses are likely to be lacking. • Technology can be used for good deeds and constructive social change. • ChatGPT and related language models will become more common and powerful. • They should be viewed as tools that supplement and improve human expertise rather than as a replacement for it. • With ChatGPT's ability to type almost anything, it is debatable if students still need to learn how to write. • Many may be curious whether AI technology will ever entirely replace writing. • With ChatGPT's assistance, educators can emphasise creative idea organisation, revision, debate, and critical thinking.
18.	Research tool	• ChatGPT may be used as a research tool to come up with answers to questions or prompts on a particular subject. • Use ChatGPT, for instance, to come up with answers to open-ended questions or prompts on a particular subject of study, such as psychology, history, etc. • This could help develop ideas or research many viewpoints on a particular subject. • The enormous potential of ChatGPT may be assessed by its capacity to reply to particular messages and adjust to ongoing conversations. • The messages become improved to a more significant extent over time as the system continues to engage with the user. • Also, it has enormous potential to provide improved customer service by efficiently responding to client inquiries. • ChatGPT and related technologies are potent language models that have the potential to change how humans communicate with computers entirely.
19.	Summarise large documents	• ChatGPT may be used to summarise large documents or articles. • This may be used to quickly get a broad idea of a book without reading it. • ChatGPT may be used to assess the emotional content of a text. • It can be used to evaluate the tone of customer reviews and ascertain the overall mood and emotion of a piece of writing to raise customer satisfaction. • ChatGPT is a conversational language model that produces text that resembles human speech depending on input using deep learning algorithms. • It has been trained on various online content and can provide high-quality, coherent responses to various inquiries and prompts. • With access to millions of online repositories and resources, ChatGPT can provide a solution to the quarries. • A substantial amount of text data was used to create the ChatGPT language model. • The model may produce remarkably accurate and fluent responses in response to various natural language processing tasks.
20.	Evaluation of student performance	• Other areas where ChatGPT may have a significant impact include assessing and evaluating student performance. • Once trained, the AI chatbot can grade lengthy essays according to predetermined standards like content, style, and organisation. • Further, it also provides students feedback to help them become better writers. • Due to its ability to interpret natural language and provide meaningful replies, ChatGPT could be used to create more effective assessment and evaluation methods. • ChatGPT provides perceptive thoughts on current events or other fascinating subjects. • ChatGPT can swiftly resolve any level of mathematical problems we provide it because of its AI algorithms and mathematical expertise. • We may ask the chatbot to do integral or derivative calculations, simplify algebraic phrases, or compute complex formulae. • It is also helpful for instructors who need additional tools to successfully and efficiently teach mathematics to their students. • ChatGPT uses AI to create conversations that resemble those between people automatically. • ChatGPT has a variety of functions, including intent detection, emotion identification, answer customisation, and others.

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text that resembles human writing in response to predetermined cues. Students learning a new language might benefit from conversation practice and feedback via ChatGPT. In order to encourage students to engage in conversations and cooperate, ChatGPT or other models can offer instructions for group projects and assignments. ChatGPT is a newly developed language model that can provide human-like replies to various queries and prompts after being trained on a massive quantity of text data from the internet. As a result, ChatGPT may be used for various purposes, such as chatbots, text production, and language translation.

As one of ChatGPT's primary characteristics, it can produce text based on patterns identified in the data it has been trained on. This

Table 1 (*continued*).

S No	Applications	Description
21.	Automatic grading systems	• ChatGPT may be used to create automatic grading systems, reducing the workload on instructors and providing students with faster, more precise feedback on their performance. • As a result of ChatGPT's real-time comprehension and response capabilities, interactive tests may be created where feedback can be tailored to the needs of students. • This makes learning more engaging and interactive and identifies areas where students want further support and guidance. • ChatGPT can grade assignments more accurately than a busy instructor who is only sometimes compensated for doing it, which is good. Instead of just marking assignments, teachers should concentrate on engaging and inspiring their students. • When given pertinent terms as first instructions, it can generate fresh ideas, which might help us unleash our creative talent. • Because of the massive data, ChatGPT can help you think creatively and outside the box. • ChatGPT is an ML model that can generate reactions to various signals that resemble those of humans. ChatGPT excels in natural language processing tasks, such as text summarisation, response generation, and language translation.
22.	E-learning	• In the world of e-learning, ChatGPT has fundamentally transformed the game's rules. • It can give students fast and accurate information, increasing the effectiveness and efficiency of e-learning platforms and virtual learning courses. • This implies that Ed-tech businesses are adopting ChatGPT to support students as they progress through e-learning courses and to offer more details and explanations when there are few opportunities for student-teacher interactions. • ChatGPT can compile all the knowledge needed to resolve the issue, saving the student from doing additional research. • In-depth explanations and examples for various concepts and topics may be provided through ChatGPT, assisting students in understanding challenging material. • Students needing more support or having difficulty with a specific topic may find this extremely beneficial. • ChatGPT can help students with their research by providing relevant information and resources. • Also, it may help students edit and revise their written work, which helps them progressively become better at writing.
23.	Interactive experience	• ChatGPT's natural language understanding might create a more engaging and interactive e-learning experience. • ChatGPT might provide virtual instructors and study tools, fostering a more individualised and exciting learning environment. • Using ChatGPT, instructors may experiment with innovative approaches to streamline their job and lighten their burden through advancements in AI and ML. • It enables students to share knowledge organically in a social media setting. • ChatGPT may help students improve their grammar and vocabulary by describing grammatical concepts and providing practice challenges. • It also helps students find and correct common grammar mistakes in their written work. • Students may prepare for tests and hone their test-taking skills using ChatGPT to generate practice test questions and answers for different courses and exams. • ChatGPT can produce highly relevant responses to the question and exhibit a degree of understanding and knowledge comparable to a human's. • This makes the paradigm particularly useful for activities like authoring documents and translating across languages.
24.	Online education	• ChatGPT is particularly beneficial in the context of online education. ChatGPT is a tool that can provide individualised, interactive learning experiences in the age of growing online learning. • For instance, students may utilise ChatGPT to ask questions and instantly get answers regarding subjects they are learning. • It may lessen the need for conventional teaching techniques and enable students to progress at their learning rate. • ChatGPT can tackle the minor issues that stop many students' learning in their tracks. • The tool may assist kids with their tasks, homework, and learning challenges. • For instance, because the tool can make essays, professors might instruct students to use it to create many essays on the same topic or subject and compare the ideas provided by the AI. • This would aid kids in developing critical and creative thinking abilities and working on comprehension, reading, and writing abilities. • ChatGPT can provide students with individual feedback and assistance, responding to inquiries and explaining various academic subjects.
25.	Assist in preparing debates	• It assists students in preparing for debates by coming up with arguments and refutations on a particular subject. • This creates ideas, outlines, and even finished speeches to assist students in preparing talks. • Using ChatGPT to write essays also has the advantage of producing grammatically sound and coherent sentences. • Students who need help with grammar and sentence structure may find this helpful. • The learner may use ChatGPT as a starting point and then edit and rewrite the content produced to fit their writing voice and style. • ChatGPT is an AI language model having access to a massive quantity of data that was trained on millions of pages of data. • By applying natural language processing algorithms, it may utilise this data to generate answers to questions and instructions people enter. • ChatGPT employs a wide range of possible applications, including aiding in the teaching and learning of languages. • ChatGPT often offers short responses quickly and roughly precisely, but a Google search might be frustrating due to the multiplicity of diverse voices.
26.	Enhance knowledge	• This might include assisting students in enhancing knowledge and abilities in meaningful ways by employing simulations, virtual worlds, or other interactive tools. • Instructors may design engaging, practical problem-solving tasks for students by using this technology. • Instructors may utilise their time with students to provide those who need the most customised feedback and help. • This might include giving students individualised support and direction while working with them one-on-one or in small groups. • ChatGPT could overlook inevitable mistakes when presented with a text that is full of them. • ChatGPT may be used in the classroom to provide students with individualised learning experiences to keep them engaged and inspired to finish their studies. • ChatGPT was created mainly for conversational and chat-based applications, and it can comprehend user inputs and produce text that resembles human speech. • This makes it helpful for applications like chatbots, virtual assistants, and other conversational AI systems.

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implies that although it may provide responses that resemble language found in the training data, it might not necessarily produce ethical or correct responses. Students should be aware of the limits of AI chatbots and critically assess the results produced. The usefulness of various chatbot interfaces or design elements may also be researched using ChatGPT. It may be beneficial for researchers to examine how users engage with ChatGPT and compare the findings to those of other chatbots to gain additional insight into how to create an efficient and

Table 1 (*continued*).

S No	Applications	Description
27.	Advice to students for better interview	• ChatGPT offers advice to students on how to be ready for an interview. • After practising using ChatGPT, they get feedback and suggestions for progress. Students question ChatGPT about life. • A student asks ChatGPT for advice and ideas on improving their communication skills. • ChatGPT can review their code for flaws and provide feedback for improvements for students learning how to develop a website. • A teacher must see ChatGPT as an additional tool to the other tools and abilities acquired through education and practice. • The ChatGPT model can be utilised as a tool for text translation across languages. • Students learning a new language might use the model to translate things written in another language into their mother tongue since the tool can recognise and create numerous languages. • The provision of accurate and accessible translation tools, which can aid students in better comprehending and engaging with foreign-language materials, has the potential to enhance the language learning experience.

exciting chatbot experience. Using ChatGPT as a source of knowledge may make students less likely to engage in independent learning and critical thought, making them more reliant on AI for solutions.

Although there is some debate on the usefulness of an AI chatbot, ChatGPT is undoubtedly growing in popularity since it offers more conversational responses than humans. The ChatGPT may also be used to learn about various subjects, summarise lengthy articles and papers, translate different languages, create tales and poetry, help with coding, and more. Creative tales and other text-based material may also be produced with it. ChatGPT is an excellent option for companies seeking to improve customer service and for developers who want to have more engaging interactions with their customers. ChatGPT helps create customer service chatbots, providing replies to questions in online forums and even developing personalised content for social media postings since it can create text responses that mimic those of people in response to instructions. The ChatGPT model can translate the information organically and adequately when given a text prompt in the source and target languages. ChatGPT can execute various jobs, including composing emails and tales, essays, making music, conversing with people, paraphrasing, computer coding and decoding, software programming, and much more, despite being preprogrammed to simulate human communication. It helps summarise, and depending on our demands, it could help us condense our projects and research into a certain number of words. This enables the model to perform several natural language tasks with high accuracy and fluency, including text creation and translation.

9. Limitations of ChatGPT in education

The evident face of ChatGPT, its ability to respond to questions, raises some concerns about the legitimacy of lessons and homework assignments. One of the most common worries in the education sector is that students will use ChatGPT to finish their homework and then copy and paste the solutions without the teacher having any control. Several colleges and institutions outlawed the use of this technology for writing tasks as students began utilising it to compose their homework, essays, and theses. It is harder and less reliable to find if this AI-generated material is the same or different from the plagiarised text. ChatGPT is a freakishly powerful instrument that works well across various chores and academic disciplines. AI-generated writing raises ethical issues, and there are worries regarding the veracity of ChatGPT's responses. Using ChatGPT and other language models raises crucial ethical issues about its effects on society.

ChatGPT may sometimes create inaccurate information and provide damaging instructions on biased material on its webpage. While creating text, a chatbot automatically adds words that are most likely to come after the previous words; nevertheless, it does not verify the truth of the information. The possible bias of the data the bot is trained on is a crucial ethical problem associated with using ChatGPT. Any biases in the chatbot's training dataset are reflected in the model's output, which might lead to incorrect or dangerous information. Although the opener has various safeguards to prevent users from abusing the conversation, the issue of unfair, sexist, racist, and other objectionable comments still exist. Due to a lack of practical applications and a limited grasp of the technology, institutions need help to define rules and procedures connected to ChatGPT.

The data is constantly being churned from the cloud, so it cannot receive information from a particular source. Its excellence resides in its capacity to synthesise data from several sources and provide mostly original answers to the same query. ChatGPT is similar to any expert system or information-limited mobile application if we depend on it to obtain data from a particular source. While it may compensate for the lack of employees by offering users a complete source of information, it is up to the individual user to make the most of this technology's potential and exercise prudence when using the knowledge. It works with a limited dataset that needs to reflect the present accurately. This raises the likelihood of producing inaccurate information. Concerns about privacy, data security, and intellectual property are among the moral and legal issues that the use of AI in education brings up. To guarantee adherence to laws and moral norms, it will be necessary to carefully evaluate these concerns before using ChatGPT in higher education.

ChatGPT users should be conscious of the potential for bias in their replies and take steps to minimise it. Some people are concerned that ChatGPT will eliminate jobs for writers, marketers, and other professionals who rely heavily on written communication, like when machines and computers replace human labour. Developers have used it to overcome coding difficulties. ChatGPT functions as an AI learning model and needs access to such data. Moreover, ChatGPT may give its customers incorrect answers since it is only as good as the data it was trained on. Students' and staff members' privacy may be in danger if the data used to train the model is not sufficiently anonymised or protected. Since ChatGPT communicates with users across a network, data from users may be intercepted, accessed, or altered by attackers. ChatGPT might be incorporated into a social engineering attack to access confidential data. The platform may assist attackers in gaining the user's confidence and gathering data that may be exploited for harmful purposes, such as creating credentials.

ChatGPT is an effective tool that can produce text replies to various queries, including some that can include sensitive or private information. As a result, utilising ChatGPT has several dangers, including the chance that it could produce inappropriate or offencive material, leak private information, or be influenced by nefarious individuals. The ChatGPT's response may differ depending on how the input is worded or how often the same prompt is issued. The model may only sometimes know the answer or may only sometimes provide the correct response. Due to biases in the training data and over-optimisation, the ChatGPT model may be wordy and misuse specific phrases.

10. Future scope

In the future, we can use ChatGPT web search to do in-depth market research online. It may work along with other technologies to create our website. ChatGPT can construct homework more effectively than a busy instructor who repeats publicly available online assignment templates. The future will be less frightening and more fascinating for instructors who comprehend AI and use it to their benefit. AI will have the potential to significantly reduce the amount of time instructors

spend grading assignments, customising lesson plans, and filling out reports. Instructors who spend time interacting with, encouraging, and helping students will have a more significant impact and maintain their enthusiasm for the subject.

Chat GPT, a highly sophisticated Al tool that can provide almost limitless and all-encompassing service and information on any topic following our desires, might be considered the future of Al in the world. In the future, any student may ask ChatGPT to write an essay on any subject, and the software will comply. Teachers would find identifying text produced by AI simpler if chatbots were trained to watermark their outputs somehow. ChatGPT is suitable for chatbot and conversational AI applications due to its natural language interpretation and creative ability. It might be better to train it on a conversational text dataset so it learns how to comprehend and respond to user input like a natural person.

11. Conclusion

ChatGPT employs deep learning and natural language processing to produce replies to text-based inputs that resemble a person's. ChatGPT is beneficial in education as it is used for various purposes, including language translation, discussion, summarisation, and text production. It is a technology becoming increasingly well-liked in various disciplines, including research and education, through its capacity to learn from vast volumes of data and provide high-quality results. The AI chatbot will influence tutoring and personalised learning in two critical areas. Since ChatGPT uses natural language processing to interpret and reply to inquiries in real-time, it may be utilised to provide students with on-demand, live tutoring. ChatGPT may serve as a virtual teaching assistant by giving students immediate feedback. Students may also use ChatGPT to ask questions to obtain clarification on certain course subjects or to have everything explained to them multiple times. ChatGPT may assist teachers in creating material, including numerous test versions, student learning evaluations, syllabi, rubrics, and more. This technology can provide a satisfactory answer to a challenge or assignment rapidly; it should be revised to enable students to apply their knowledge and abilities to accomplish the task effectively. GPT models may produce grammatically and structurally sound natural language text since they are trained on vast volumes of text data. ChatGPT has been taught to produce more conversational text for chatbot applications. It may start conversations, respond to user input, and provide users with information and support in a chatbot environment. ChatGPT is getting more intelligent and capable of managing complicated jobs as AI advances.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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