



Learning transformation and virtual interaction through ChatGPT in Albanian higher education

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Abstract

The integration of artificial intelligence (AI) in education has brought about significant improvements in the efficiency of the educational process, global learning promotion, personalized learning experiences, intelligent content creation, and the optimization of educational management. AI, as a technology, holds great potential in education, particularly in fostering personalized learning tailored to the individual needs and interests of each student. However, the implementation of AI in education presents challenges and ethical considerations, such as data privacy, equitable access to education, and the evolving role of educators. Striking a balance between technology and the essential role of educators is crucial to ensure a focus on holistic student development and preparation for a changing world. Despite the recent introduction of ChatGPT, there is a lack of systematic reviews on its impact on education. Therefore, the main objective of this paper is to analyze existing situation on the use of ChatGPT in higher education in Albania, addressing questions about the state of scientific research, benefits and challenges of implementation, and future trends in the field. An *online* questionnaire will be proposed and distributed to obtain this information. The collected data will be elaborated on and analyzed. The study includes 311 students from both bachelor's and master's programs. Importantly, the questionnaire encompasses students from various Albanian universities, including both public and private institutions. Overall, the study contributes valuable insights into the impact and potential of ChatGPT in higher education, paving the way for informed decision-making and future research in this dynamic field.

1. Introduction

Machine learning, inspired by the human brain's knowledge acquisition, generates new ideas and makes decisions. Neural networks, particularly in NLP, play a crucial role, categorized into supervised, unsupervised, semi-supervised, or reinforced learning. Chatbots, like ChatGPT, simulate human conversation and are widely used in education, especially language learning. ChatGPT, developed by OpenAI, is an advanced language model employing deep learning and NLP, building upon the success of earlier versions like GPT-3. With the ability to handle complex tasks requiring human intelligence, ChatGPT is recognized as an innovative learning tool, attracting researchers' interest. It supports multiple languages, offers natural conversational experiences, and adapts content based on user instructions, making it promising for language learning and teaching. In the era of profound digitization, we are moving through, the use of artificial intelligence technology has deeply influenced various fields, including higher education. This article sheds light on the extraordinary role that technology, with a particular emphasis on the ChatGPT model, has taken in transforming the learning paradigm. In this analysis, we will explore the advantages and challenges of using artificial intelligence in the educational process, examining the integration of ChatGPT with traditional teaching methodologies and the possibilities for improving the quality of learning [1-3].

Additionally, we have dedicated special attention to the use of ChatGPT in creating educational materials, evaluating the quality compared to that prepared by traditional educators. On another dimension, we investigate advancements in the use of ChatGPT to create virtual assistants, declaring a thorough analysis of students' experiences with these assistants and their role in individual learning. Furthermore, we examine the ethical challenges and considerations that arise with the integration of artificial intelligence technologies in the academic environment and provide concrete proposals for addressing them. Ultimately, we open a window into the future, discussing the prospects of using ChatGPT in higher education and interacting with the expected trends in the fields of artificial intelligence and automatic learning technology. This article aims to contribute a clear and well-argued perspective to the debate on the use of artificial intelligence technology in higher education, offering in-depth analysis and a framework for understanding the impact of these developments on current and future education. In this research, we construct an analytical journey aiming to understand how artificial intelligence technology, particularly the ChatGPT model, has the potential to transform the learning experience in higher education [4-5]. For this purpose, we will explore fundamental issues related to the integration of this technology into teaching, focusing on the changes it brings to how learning materials are prepared, delivered, and perceived. At the core of this analysis is the question of how the use of ChatGPT can empower educational enterprises and provide a more personalized and enriched learning experience. Special emphasis will be placed on assessing the quality of materials created through this technology and their impact on the level of qualifications and knowledge of students [6]. We also focus on changes in the roles of the teacher and student, analyzing how technology influences the dynamics of the classroom and the relationship between students and virtual assistants based on ChatGPT. This analysis will help us assess whether the use of artificial intelligence technologies in education has the capacity to improve student inclusion and outcomes. Through a detailed examination of the ethical challenges arising from this transformation, our efforts are directed towards defining boundaries and suggesting necessary guidelines for the ethical and sustainable use of artificial intelligence technology in higher education. At the end of this analytical journey, we aim to provide an overarching vision for the future use of ChatGPT in education, displaying a comprehensive overview of the current impact and hoping to assist in articulating the necessary guidelines for the advanced and sustainable use of this technology in the higher education environment (Figure 1) [7-9].

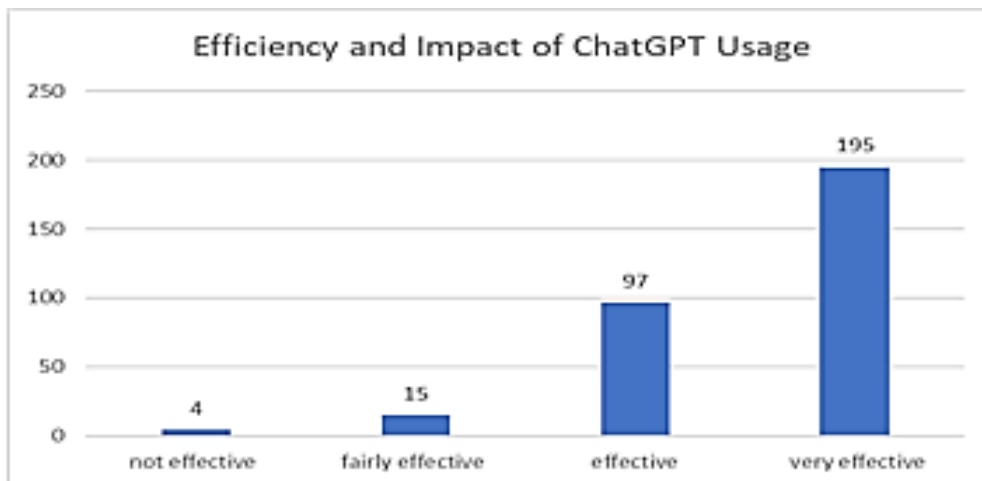


Figure 1. Efficiency and impact of ChatGPT usage.

ChatGPT, as a specialized variants of the Generative Pre-trained Transformer (GPT) language model designed to generate text in response to natural language inputs. Employing advanced machine learning algorithms and pre-training on extensive text datasets, simulates human-like conversation, finding applications in chatbots, virtual assistants, and language translation tools. The model's adaptability allows fine-tuning for specific applications, providing developers with customization options. In the realm of education, the GPT language model, including ChatGPT, offers transformative applications. These include language learning through chatbots and virtual language tutors that simulate real-life conversations and provide instant feedback on grammar, pronunciation, and vocabulary. GPT aids in writing improvement by analyzing students' writing styles, suggesting enhancements, and offering feedback on grammar, punctuation, and spelling errors. Furthermore, GPT automates essay grading, saving teachers time and providing prompt feedback to students. The model's capacity for personalized learning experiences is harnessed by analyzing students' learning patterns and preferences to recommend tailored resources such as articles, videos, and textbooks. The potential of GPT to revolutionize education lies in providing personalized learning experiences, enhancing language and writing skills, and automating time-consuming tasks for teachers. However, it is emphasized that GPT should serve as a supportive tool, complementing rather than replacing human teachers in the educational landscape. The text encourages exploration of GPT's role in education for its transformative potential and underscores the importance of ethical and responsible integration into pedagogical practices.

2. Problem statement and methodology

Over the years, the landscape of AI in education has undergone substantial transformations, evolving from rudimentary rule-based systems to sophisticated machine learning algorithms. In its initial stages, AI applications were limited, employing predefined algorithms to provide responses and feedback, particularly in simpler, rule-based tasks. Although promising, these early AI systems faced challenges in handling intricate tasks and catering to individual student needs. The progress of AI in education took a significant leap with advancements in machine learning techniques, leveraging extensive data analysis and pattern recognition. This evolution gave rise to intelligent tutoring systems (ITS), capable of delivering personalized instruction and adaptive learning experiences. These systems could dynamically adjust content and teaching strategies based on individual student performance, offering targeted support. Recent strides in natural language processing and deep learning have further propelled AI's role in education, exemplified by technologies like ChatGPT and language models such as GPT-3. These advancements empower AI to generate human-like text, engage in conversations, answer queries, and facilitate interactive learning experiences. The ongoing evolution of AI in education signifies a shift from basic rule-based systems to sophisticated machine learning algorithms, unlocking potentials for personalized instruction, adaptive learning, and interactive educational encounters. These continuous advancements hold the promise of revolutionizing education, providing more effective and tailored learning experiences for students and equipping educators with intelligent tools to enhance their teaching practices. As AI continues to progress, the educational landscape stands at the threshold of a transformative era, where personalized and interactive learning experiences become increasingly accessible and effective. The study aims to analyse the impact of using the ChatGPT tool in higher education in Albania through a developed online questionnaire. The data, obtained from the responses of 311 randomly selected students, have been collected and analysed. Using a quantitative methodology, the study shows that ChatGPT has a positive impact on the teaching-learning process. While ChatGPT has the potential to enhance the educational experience, successful implementation depends on teachers' familiarity with its operation. These findings serve as a strong foundation for future research and decision-making regarding the integration of ChatGPT in the educational context. The questionnaire aims to identify the advantages and challenges of using ChatGPT, comparing it with traditional teaching methodologies. To examine the possibilities of using ChatGPT in creating teaching materials, experiments and simulations have been conducted, including the creation of lectures, exercises, and other teaching materials. To assess the progress in using ChatGPT to create virtual assistants, a study focused on students' experiences with these assistants has been developed. The discussion on future perspectives is conducted through an assessment of recent trends in the field of artificial intelligence and automatic learning technology. Regarding the methodology used during analysis and research, it is primarily based on quantitative methods with practical, numerical, comparative data, and information obtained from an online questionnaire sent to a random group of students. A total of 311 students participated in the survey. From the collected and analysed data, the alpha coefficient, also known as the internal consistency coefficient, is found to be 0.83. This indicates a high consistency among the questions. The students included in the responses are students from both bachelor's and master's programs. Specifically, 32.7% of the students are in the master's program, while 67.3% are in the bachelor's program. The questionnaire includes students from all Albanian universities, both public and private [10-12].

2.1. Research and implementation examples in AI education

Despite the recent surge in the popularity of ChatGPT and other AI models, the presence of AI in education spans more than 25 years. Technological advancements have been swift, with evolving algorithms opening up new possibilities for both teachers and students. Numerous studies have delved into the impact of Intelligent Tutoring Systems (ITS) and Chatbots on student learning. An ITS, functioning as a computer-based tutoring system, acts like an informed teacher. Research in this area suggests that positive emotions, such as happiness and interest, play a role in fostering a flexible cognitive structure, enhancing learning by triggering higher brain mechanisms that aid in the formation and retention of long-term memory. Conversely, negative emotions like fear and sadness can impede a student's natural learning abilities. Recognizing the learner's emotional state, especially after an unsuccessful task or assessment, is crucial. If technology can gauge the learner's mood, a personalized approach can be tailored for each student. In the last two years, online learning has seen unprecedented global adoption by educational institutions. Despite this, student engagement remains a persistent challenge, exacerbated by factors like a lack of self-regulation and feelings of isolation. Studies have explored the potential of chatbots in addressing these issues. Utilizing the SMART goal-setting framework and specific communication strategies, it was concluded that chatbots could assist fully online students in setting personal learning goals and providing immediate feedback during listening exercises. The findings underscored the positive impact of incorporating theoretical frameworks into chatbot design for teaching and learning, enhancing students' overall learning experiences. In the realm of AI education, there is a noticeable gap in curricula and research focused on younger students, particularly at the primary level. Existing programs cover topics such as decision-making, machine learning, human roles in AI, learning from data, and programmability. However, there is a need for more attention to determine developmentally appropriate concepts and optimal learning structures for younger students.

2.2. Educational strategies, optimal methods, and professional growth and assistance for educators

The integration of AI technologies, such as ChatGPT, into education is explored to enable personalized and interactive learning experiences, emphasizing essential pedagogical approaches and best practices. Understanding these considerations is crucial for leveraging AI effectively in education, focusing on student engagement, personalization, collaboration, assessment, ethics, and human interaction. Incorporating AI enhances the learning experience for students, aligning technologies like ChatGPT with the curriculum to seamlessly integrate them into the instructional framework, fostering a cohesive and effective learning environment. For inquiry-based learning, ChatGPT and AI encourage students to ask questions, explore topics, and engage in self-directed learning. Open-ended prompts guide students in investigation and critical thinking, with personalized feedback and differentiation empowering teachers to cater to individual student needs, ultimately leading to improved outcomes. Collaboration is integral to successful AI integration, empowering students to actively engage with peers and AI systems, fostering social learning and critical thinking. Purposeful activities like peer-to-peer discussions, group work, and interactions with AI encourage exploring diverse perspectives and collectively constructing knowledge. Effective AI utilization requires monitoring and assessment practices, enabling teachers to provide timely support and interventions based on data-driven insights. Regular assessments, enhanced by AI-driven tools, gauge comprehension, identify areas for improvement, and adapt instructional strategies, creating a personalized and adaptive learning environment for overall academic growth. For effective utilization of ChatGPT/AI in instructional practices, educators need professional development, resources, and ongoing support to acquire necessary skills and knowledge. Continuous professional development ensures teachers stay updated on AI and ChatGPT advancements, engaging in ongoing training programs, exploring new pedagogical approaches, and collaborating with peers for effective technology incorporation into teaching practices [13 -16].

3. Results

The data obtained from the comprehensive questionnaire were evaluated through the mentioned analyses above. Findings from all participants were integrated together, instead of presenting results from each participant group, to avoid repeating specific points and to provide more clarity regarding the collected data. The following subsections present the key findings of the study.

3.1. Have you had experience with the use of ChatGPT technology in the learning environment?

Analyzing the responses to the question (Figure 2), we observe that the majority of users have had significant experience with the use of ChatGPT technology in the learning environment. The responses often and very often are higher figures, indicating a frequent or intensive experience.

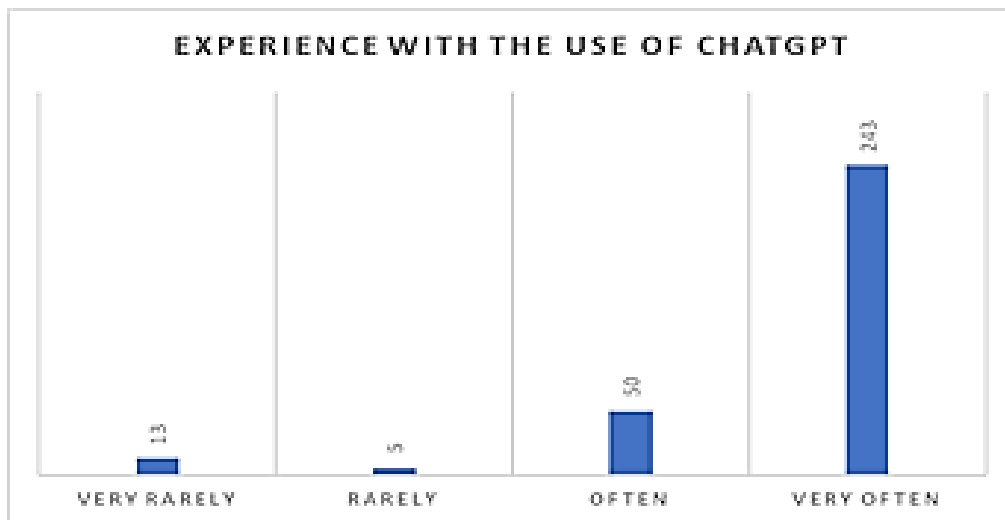


Figure 2. Experience with the use of ChatGPT.

3.2. How would you rate the efficiency of ChatGPT in assisting your learning?

This presentation indicates that the majority of users have assessed the use of ChatGPT as effective or very effective in assisting learning. Highlighting each value in this way can provide a more detailed and written overview of users' perceptions and experiences regarding the efficiency of ChatGPT in learning assistance (Figure 3). The numerical average of the responses shows about 3.50, indicating an average rating of the efficiency of ChatGPT technology in learning assistance according to responses given by users. This result indicates that users have rated the use of ChatGPT as effective in learning assistance.

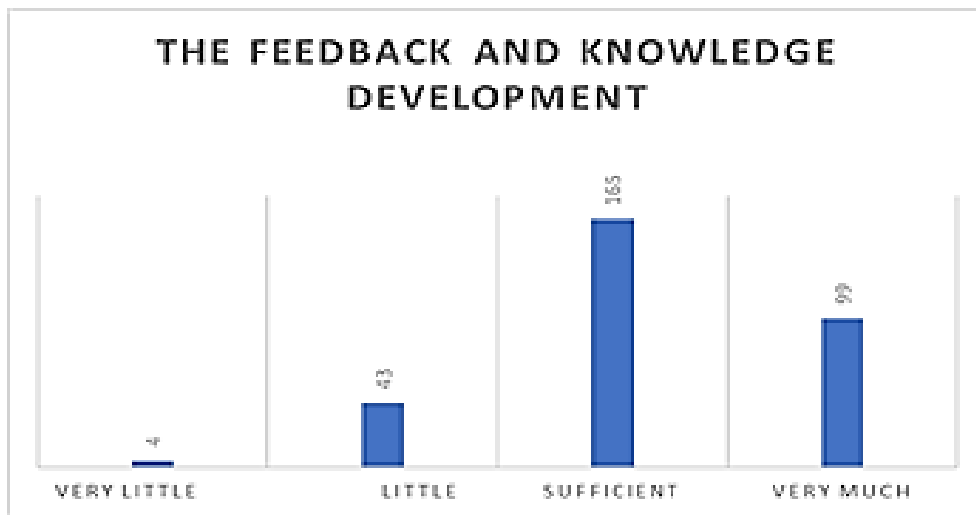


Figure 3. The feedback and knowledge development.

3.3. What are the major challenges you have encountered in using ChatGPT in your learning?

Here are some potential challenges that may have arisen in the use of ChatGPT in education:

-Lack of Personalized Responses: In general, technologies like ChatGPT may face challenges in providing personalized and individually tailored responses to the needs of each student.

-Risk of Misinformation: Content generated by ChatGPT may include inaccurate, unverified, or inappropriate information, especially if there is a lack of quality control processes.

Technical, Ethical, and Security Challenges. The use of artificial intelligence technologies may pose technical challenges and concerns regarding data security and privacy, especially in an academic environment.

The use of artificial intelligence technologies raises ethical challenges, including issues of information justice and its impact on the autonomy and self-determination of students.

-Mismatch with Traditional Methodologies. In some cases, the use of ChatGPT may not align with traditional learning methodologies, creating a mismatch between technology and established teaching practices.

3.4. How often do you use ChatGPT technology in general at your university?

Based on the given responses, we can interpret that the use of ChatGPT technology at your university is often or very often (Figure 4). These numbers indicate that the majority of users have determined that ChatGPT technology is used regularly or very often at your university. This assessment suggests a widespread and significant use of this technology in the university setting, perhaps for educational purposes, content creation, or assistance for students.

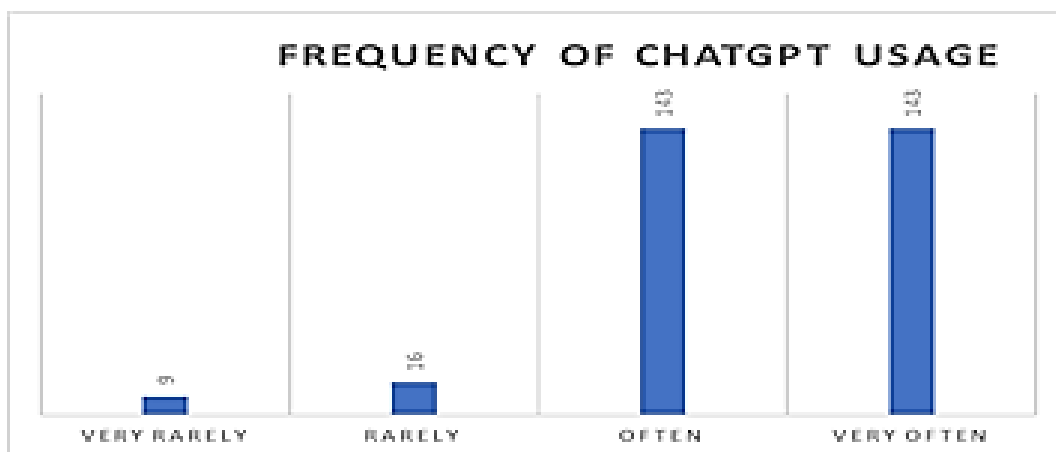


Figure 4. Frequency of ChatGPT usage.

3.5. Do you think that the frequency of using ChatGPT can enhance the effectiveness of learning in your classroom?

Based on the given responses, (Figure 5), we can interpret that the majority of users believe that the frequent use of ChatGPT can increase the effectiveness of learning in their class. These numbers show that a significant

portion of users appreciates that the repeated use of ChatGPT can bring about an improvement in the efficiency of learning in their class. This can be interpreted as a positive perspective regarding the potential of ChatGPT technology to enhance the learning experience and outcomes in the classroom. The calculation of the average value (mean) can be done by using the sum of the product of the numbers for each response and dividing it by the number of collected responses: Thus, the average of the responses indicates an average rating of 3, which can be interpreted as a positive consensus among users that the frequent use of ChatGPT can enhance the effectiveness of learning in the classroom.

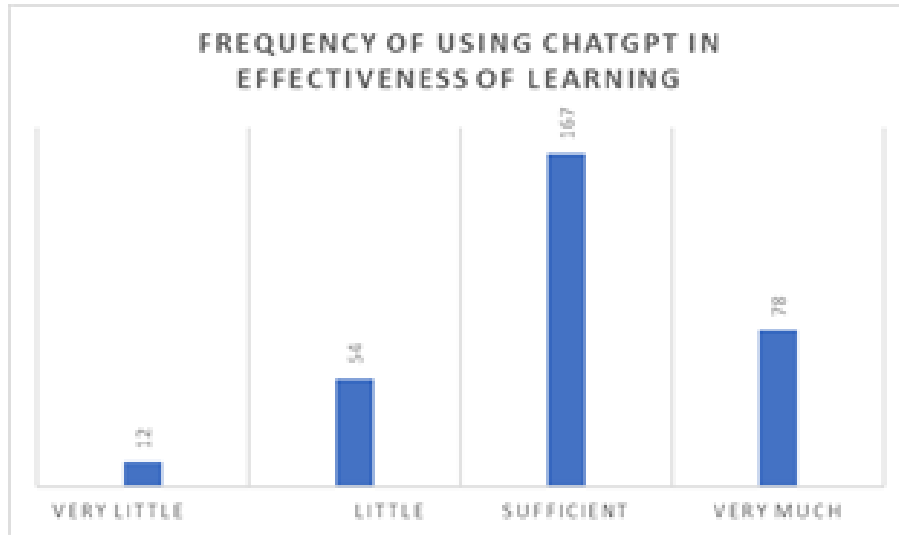


Figure 5. Frequency of using ChatGPT in effectiveness of learning.

3. 6. Have you ever received feedback from ChatGPT in your scientific work or exercises?

Based on the given responses, we can interpret that the majority of users have received feedback from ChatGPT in their scientific work or exercises. These numbers show a dominance of positive evaluations, indicating that users have benefited from the feedback provided by ChatGPT in their scientific work or exercises. This result suggests that this AI tool has had a positive impact on the process of creating scientific papers and exercises for users.

3. 7. How has this feedback influenced your work and knowledge development?

Based on the given responses (Figure 6), we can interpret that the majority of users have affirmed that feedback from ChatGPT has had a positive impact on their work and knowledge development.

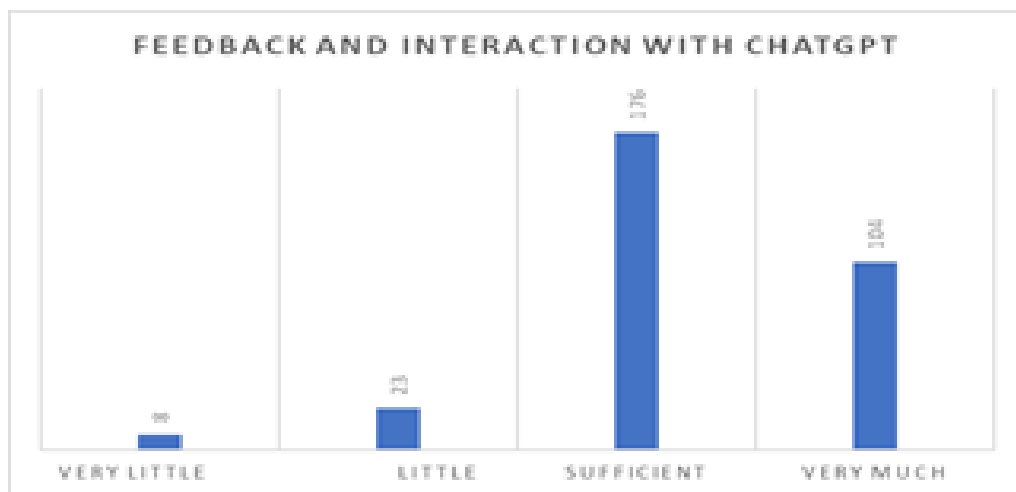


Figure 6. Feedback and interaction with ChatGPT.

"Descriptive statistics" present the collected information in a suitable, usable, and understandable form. After gathering the data, descriptive statistics allow us to calculate their frequency, measures of central tendency (such as mean, median, mode), etc., and to identify characteristics in the distribution of results. Table 1 describes the standard deviation from the average of the responses extracted from the questionnaire for specific variables. For

the variable of using ChatGPT in higher education in Albania, the deviation from the mean is 1.164, with an average of 2.12.

Table 1. Descriptive statistics.

	N	Minimum	Maximum	Mean	Std. Deviation
chatGPT	311	1.00	6.00	2.1254	1.6432
Valid N (listwise)	311				

The integration of ChatGPT in education has resulted in both positive and negative consequences, influencing students' learning approaches. In terms of positive outcomes, both students and faculty noted that ChatGPT serves as a remarkable time-saving tool. It provides immediate responses, eliminating the need for excessive hours spent searching for answers or grappling with complex concepts. Additionally, students highlighted two more positive consequences related to anxiety reduction and language skills improvement. ChatGPT acts as a non-judgmental and readily available resource, allowing students to practice and refine their language skills in a stress-free environment, alleviating anxiety associated with language-related challenges and enhancing confidence in expressing thoughts effectively. Furthermore, ChatGPT proves invaluable for language learners by offering grammar suggestions, vocabulary enhancements, and coherent sentence structures, contributing to the improvement of writing and communication skills.

An additional positive aspect highlighted by both students and faculty is the enhancement of self-confidence facilitated by ChatGPT. ChatGPT plays a pivotal role in elevating students' self-assurance by providing prompt and accurate responses to their inquiries and challenges. This consistent support fosters a sense of competence and mastery over the subject matter. Moreover, ChatGPT's assistance empowers students to tackle intricate problems and assignments, instilling a greater sense of capability and confidence in handling academic tasks. In terms of timely submission, faculty unanimously expressed that ChatGPT significantly enhances time management skills. Students can allocate more time to research, writing, and revising their work, contributing to improve on-time submissions. The efficiency gained by using ChatGPT for tasks like research and content generation enables students to concentrate on other aspects of their education, leading to a more balanced and manageable workload. Another noteworthy positive consequence is ChatGPT's AI system providing assistance and information to students for non-academic tasks, such as enrollment, course registration, scheduling, campus resources, financial aid, student services, and other logistical or procedural inquiries. ChatGPT offers prompt and helpful responses, simplifying students' access to information beyond academic coursework.

However, the swift integration of ChatGPT also introduces negative consequences, as highlighted by education leaders and faculty members. The primary concerns revolve around the overreliance on AI in education and academic integrity. While ChatGPT proves invaluable for learning, excessive dependence can potentially impede the development of critical thinking and problem-solving skills. Students might overly rely on ChatGPT for answers, bypassing their own exploration and analysis. Regarding academic integrity, ChatGPT may be misused by students for unethical purposes like plagiarism or cheating. Relying on ChatGPT to generate assignments without considering originality compromises the foundational principles of academic honesty. This lack of integrity not only undermines the credibility of educational achievements but also diminishes the intrinsic value of learning. Despite ChatGPT's remarkable capabilities, it is not immune to challenges related to the quality and accuracy of its responses. Like any AI system, ChatGPT depends on the data it was trained on, which may contain inaccuracies, biases, and inconsistencies. Consequently, there are instances where ChatGPT may generate incorrect or misleading information, posing challenges, particularly in educational or learning contexts. Additionally, the quality of ChatGPT's responses may vary based on the specificity and complexity of the query.

4. Discussion and conclusion

1. Efficiency of ChatGPT usage in learning: The majority of users evaluate the use of ChatGPT as effective or very effective in learning. ChatGPT has been instrumental in helping students improve their reading, writing, grammar, sentence-building, and conversational language skills. By engaging with ChatGPT, learners can practice their language skills in a low-pressure environment, enabling them to gain confidence and fluency. The effectiveness of ChatGPT utilization in the classroom is a critical aspect of the modern educational environment. A sophisticated language model called ChatGPT has shown to be a very useful tool for supporting learning in a variety of fields.

Its capacity to respond quickly and individually is one of the main factors boosting its effectiveness. The ability of ChatGPT to provide prompt responses and explanations is helpful for students who need help with questions, homework, or other educational matters. This immediacy creates a more dynamic and interactive learning environment and cuts down on the amount of time spent on problem-solving, which improves the learning process overall. Furthermore, a big part of ChatGPT's effectiveness comes from its adaptability. The approach provides assistance across multiple disciplines and can handle a wide range of themes and topics. This flexibility makes it possible for students to get help and knowledge on a variety of topics, which adds to a more thorough and well-rounded educational experience.

Another important aspect of ChatGPT for individualized learning is its versatility. The model can be adjusted to meet certain learning objectives, enabling a personalized strategy that complements unique learning preferences and styles. This flexibility makes the approach more effective at meeting the particular needs of every learner, encouraging a more interesting and customized educational experience. In conclusion, the efficiency of ChatGPT in learning is evident through its immediate responses, versatility across subjects, adaptability for personalized learning, and continuous availability. As technology continues to play a prominent role in education, ChatGPT stands out as a valuable tool contributing to the efficiency and effectiveness of the learning experience.

2. Impact on creating educational materials: Users see potential in using ChatGPT for creating lectures and educational materials. This tool allows content and activities to be customized to the specific needs of each student, improving the effectiveness of teaching and learning. In other words, it allows students to adapt to their learning pace and provides constant support in their knowledge acquisition process.

Using ChatGPT has a profound effect on the production of educational materials since it adds a revolutionary component to the content development process. Strong language model ChatGPT provides a variety of contributions that impact the development of learning resources in many fields.

The effectiveness and speed at which ChatGPT can produce content is one of its main benefits. Teachers and content developers can create lectures, exercises, and other types of instructional content more quickly because of the model's capacity to generate logical and contextually relevant language. Meeting deadlines and guaranteeing a steady supply of instructional materials can be made easier with this expedited content creation procedure.

Furthermore, ChatGPT helps to improve the caliber of content. The model helps ensure that educational materials are accurate, clear, and relevant because of its extensive knowledge base and fluency in multiple languages. To ensure that the contents are in line with educational standards and objectives, ChatGPT's content can be improved and tailored to fit certain learning objectives.

Another significant effect of ChatGPT is its capacity for collaboration. The concept can be used by educators as a collaborative writing tool, allowing them to create materials together. This cooperative function helps teachers work together more effectively by promoting idea sharing and content co-creation, which adds a variety of perspectives to the educational materials.

3. Virtual assistance and support for students: Users perceive progress in using ChatGPT for creating virtual assistants and providing support in individual learning. A webinar's ability to engage its audience is one of its most important components, and ChatGPT may greatly improve this area. ChatGPT offers students virtual help and support, which is a revolutionary aspect of the educational environment. A sophisticated language model called ChatGPT functions as a flexible virtual assistant that provides instantaneous answers and guidance in a range of educational areas. In this capacity, ChatGPT has a variety of effects that improve students' educational opportunities.

An important benefit is that responses are given instantly. ChatGPT gives students immediate feedback, answers their questions, and provides explanations in a timely manner. This quality comes in handy for students who need quick help with homework, problems, or other academic-related issues. Another important feature of ChatGPT is its accessibility. It becomes an easily available resource for students at any time, allowing for customized and adaptable learning experiences that go beyond regular school hours.

A crucial component of ChatGPT is language enhancement, which helps students improve their language abilities. With advice for grammar, vocabulary building, and well-constructed sentences, the language model helps students improve their writing and communication skills. Furthermore, ChatGPT promotes inquiry-based learning by motivating students to research subjects, pose questions, and take an independent approach to learning. It helps students with their research and critical thinking processes by providing them with open-ended questions and challenges.

The function of ChatGPT in lowering anxiety related to homework and assignments is a special contribution. Serving as a stress-free, nonjudgmental tool, it enables students to practice and advance their language abilities without the worry that is frequently associated with language-related difficulties. Additionally, ChatGPT helps students with administrative duties in addition to academic homework.

4. Challenges and ethical considerations: Users acknowledge the ethical challenges associated with the use of artificial intelligence technologies in education and suggest proposals for addressing them. It is critical to take into account the ethical implications of these technologies as the use of AI in our society grows. The application of big language models, such as ChatGPT, is one particular area of concern. The capacity of these models to produce writing that resembles that of a human raises concern about how they can affect matters like privacy and disinformation. We will examine various remedies to lessen any unfavorable consequences as well as the ethical issues surrounding ChatGPT and other AI technologies in this post. There are many issues to address, ranging from the potential for bias in the training data of the model to the usage of GPT-generated text for malevolent purposes. Now let's go in and investigate ChatGPT's and AI's ethical landscape.

5. Future perspectives and recommendations: Discussion of future possibilities for ChatGPT usage in higher education and interaction with expected trends in artificial intelligence and machine learning technologies. The potential for our interactions with robots is growing at an astonishing rate as artificial intelligence and technology develop. ChatGPT, a sizable language model trained by OpenAI, is one such instance. In the field of natural language processing, ChatGPT has already created a stir by enabling more human-like communication between humans and robots. According to estimates, ChatGPT has 100 million users in January 2023 and 173 million users in April 2023. What does this innovative technology's future hold, though? We shall examine ChatGPT's future prospects and projections in this post. The possible uses for ChatGPT are numerous and fascinating, ranging from improving customer service to completely changing the educational landscape.

6. Usage and distribution of technology: The majority of users confirm frequent use of ChatGPT at their university. Because of its inventiveness and ability to completely transform a multitude of industries, ChatGPT has gained significant traction in the technology sector. In addition to providing customer support, it can be utilized for product development, sales and marketing, research and development, security, and other purposes. ChatGPT has the power to transform how companies run and engage with their clientele.

ChatGPT is an AI-based language model that can produce logical and natural answers to a variety of questions because it has been trained on a big corpus of text. The generative pre-trained transformer (GPT), which forms the basis of ChatGPT, offers a robust framework for the creation of sophisticated AI applications.

7. Potential for enhancing learning efficiency: Users see potential to increase learning efficiency by utilizing ChatGPT more frequently. ChatGPT offers students a personalized and interactive learning experience that has the potential to completely transform education. ChatGPT's natural language processing skills enable it to comprehend student questions and deliver answers that are customized to their individual requirements. ChatGPT could be utilized as a virtual study buddy or tutor in the classroom. Students might post questions on ChatGPT regarding a specific subject and get prompt answers and clarifications. Additionally, ChatGPT can offer assignment feedback or assist students in creating study schedules that align with their unique learning objectives.

8. Receiving feedback from ChatGPT: The majority of users have benefited from feedback provided by ChatGPT in their scientific work or exercises. Getting feedback from ChatGPT entails asking the language model to provide ideas or answers in response to input from users. Typically, users enter prompts or questions into ChatGPT, and the model uses its pre-trained language skills to process this input. ChatGPT provides instantaneous answers, facilitating real-time communication.

Feedback on several kinds of material, such as queries, assertions, or information requests, can be sent to users. In response, the model may give details, respond to queries, or propose linguistic improvements like vocabulary or grammatical suggestions. This function is especially helpful for people who want to improve their communication or writing abilities.

It's crucial to remember that ChatGPT has limits even though it does a great job producing writing that seems human. There's a chance that the model will occasionally produce biased or absurd results, and it might not always give correct or contextually relevant answers. With ChatGPT, users can participate in an iterative process where they can improve their prompts or ask questions to gain more focused feedback. A dynamic exchange of information is made possible by this back-and-forth contact.

It is essential to strike a balance between using ChatGPT for feedback and human judgment. A more thorough and dependable feedback process is ensured by fusing the advantages of human understanding with AI-generated ideas. In conclusion, utilizing the model's language understanding abilities, entering prompts, and getting prompt replies are all steps in the ChatGPT feedback process. Users should use the feedback as a useful tool in addition to their own judgment, keeping in mind the model's advantages and disadvantages.

9. Impact of feedback on work and knowledge development: Users have assessed that feedback from ChatGPT has had a positive impact on their work and knowledge development.

ChatGPT feedback has a complex effect on work and knowledge growth that includes both advantages and disadvantages. Compared to other approaches, ChatGPT's instantaneous and easily available response facilitates a quicker feedback loop by giving users a means of prompt evaluation and clarification. This real-time interaction can help users learn more effectively by enabling them to make quick revisions to their work.

Furthermore, ChatGPT's feedback has the power to improve users' communication, language, and writing abilities. Providing constructive feedback on one's grammar, vocabulary, and overall coherence can greatly aid in the development of skills. The aid is individualized and made specifically for each user, which enhances the learning process even more.

Because ChatGPT is always open, feedback may be accessed whenever needed, increasing the flexibility and accessibility of knowledge acquisition outside of regular school hours. These advantages are, however, accompanied with a number of difficulties and factors. The dependability of ChatGPT's input is dependent on the quality and accuracy of the underlying data and training it receives; possible biases or inaccuracies could compromise its reliability.

Users run the danger of becoming unduly dependent on ChatGPT for feedback, which could impede their ability to think critically and analyze information. To prevent an excessive reliance on automated systems, it becomes imperative to strike a balance between human direction and AI-driven feedback. Furthermore, ChatGPT's comments may not fully comprehend larger contexts or particular user goals.

ChatGPT feedback has a complex effect on work and knowledge growth that includes both advantages and disadvantages. Compared to other approaches, ChatGPT's instantaneous and easily available response facilitates a quicker feedback loop by giving users a means of prompt evaluation and clarification. This real-time interaction can help users learn more effectively by enabling them to make quick revisions to their work.

Furthermore, ChatGPT's feedback has the power to improve users' communication, language, and writing abilities. Providing constructive feedback on one's grammar, vocabulary, and overall coherence can greatly aid in the development of skills. The aid is individualized and made specifically for each user, which enhances the learning process even more. ChatGPT's round-the-clock accessibility makes it easier to receive feedback at any time, which increases the flexibility and accessibility of knowledge creation [17-20].

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Author contributions

Besjana Mema: Conceptualization, Methodology, Software, Data curation, Writing-Original draft preparation.
Fatmir Basholli: Validation, Software, Visualization. **Dolantina Hyka:** Writing-Reviewing and Editing.

Conflicts of interest

The authors declare no conflicts of interest.

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