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A SWOT Analysis of Using Generative Artificial Intelligence in Education: Academics' Views on ChatGPT

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Abstract

ChatGPT is a large language model (LLM) based on deep learning that enables a neural network to interpret natural language and generate human-like responses to textual and visual inputs. SWOT analysis, which evaluates strengths, weaknesses, opportunities, and threats, was used in this study to explore various aspects of ChatGPT in education. A case study design was employed, and data were collected through a semi-structured interview form from 18 academics working at different universities in Türkiye. The collected data were analyzed using the MAXQDA qualitative analysis program, and findings were organized under four main themes. Results show that the primary benefits of using ChatGPT in education include accelerating academic writing and projects, supporting self-improvement, providing easy access to knowledge, and facilitating learning. Weaknesses include a decline in critical thinking, the spread of misinformation, cheating, and plagiarism. Opportunities were identified as creative content production, rich learning experiences, self-improvement, and enhancing the speed of learning and teaching. The primary threats are plagiarism, weakening of analytical skills, one-sided learning, and a decline in research competencies. The study highlights that users of generative AI should be well-informed about its appropriate use and remain cautious about potential risks and ethical concerns.

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Introduction

Human-machine interaction (or man-machine interaction) has progressed through several stages, marked by industrial revolutions. Starting with Industry 1.0 in the 1800s and ending (for now) with Industry 5.0 in the 2020s, industrial revolutions have gradually changed human-machine interaction from trains powered by steam to human-robot collaborations, customization and cognitive systems in recent years. Thus, two previously separate agents have begun to interact and collaborate at present. This transformation was not rapid in the initial stages; however, the intervals between the industrial revolutions have decreased to ten years as opposed to more than a hundred years at the beginning. Today, technology has reached a point where people are starting to worry about a potential conflict between humans and machines working on artificial intelligence, as some scholars claim that machines can become out of control if the necessary measures are not taken (Er & Demirbilek, 2023).

Human beings have long utilized technology to make life easier. Having such developed technology can help people cope with life's challenges more efficiently than in the past, and one of these challenges is education. Professionals involved in the realm of education have sought to determine the most effective way to teach the young generation. The introduction of a Generative Pretrained Transformer (GPT-3.5) by OpenAI in November 2022 has attracted extensive attention (as opposed to its earlier forms: GPT-1, GPT-2, GPT-3) and radically changed the views on employing technology in education. Since then, professionals have been discussing how to maximize the benefits of artificial intelligence in educational settings. As a large language model (LLM), ChatGPT is built on deep learning techniques, which involve training neural networks to process natural language and generate responses that resemble human communication (Aggarwal, 2023). Generating human-like responses was one of the main advantages of ChatGPT in the realm of education, as a human-like machine would always be ready to answer students' questions, assist them in processing information, and solve problems, thereby overcoming any challenges they may encounter during learning.

Artificial intelligence, developed in response to the desire to convert machines into thinking mechanisms like human beings, has demonstrated how a machine or system can model human intelligence (Xu et al., 2021). ChatGPT, a groundbreaking pioneer in this technology, was developed by OpenAI and has become one of the most widely used AI tools worldwide (Cardillo, 2024). Since its first iteration (GPT1) was introduced in 2018, the development of generative pre-trained transformer technology has been so rapid that a new format has followed the preceding one every year, significantly expanding its capabilities. This has led to ChatGPT increasing its user base by one million in just five days, an unprecedented rise in history. Users experience communication with ChatGPT that is similar to interacting with a human being (Susnjak & McIntosh, 2024), which contributes to its rapid growth in popularity. Education is a form of communication that guides students towards the desired direction, and that is why many students and teachers use ChatGPT. It is estimated that the number of users will increase in the future (Adesholi & Adeola, 2024).

Background of AI and ChatGPT

The development of ChatGPT began with the release of GPT-1 in 2018, followed by GPT-2 in 2019, which

attracted attention for its advanced capabilities. In 2020, GPT-3 marked a significant breakthrough in a natural language processing system with a capacity of 175 billion parameters. ChatGPT was officially launched in November 2022, based on GPT-3.5. In 2023, GPT-4 was released and integrated into ChatGPT Plus, along with new tools such as a code interpreter, file handling, and web browsing. By late 2023, ChatGPT could process images and documents. In May 2024, OpenAI introduced GPT-4o (Omni), capable of understanding text, images, and voice simultaneously. A month later, ChatGPT included real-time voice interaction and visual input processing. As of 2025, ChatGPT is widely used in education, business, and creative industries as an intelligent assistant and AI collaborator (Bai et al., 2023; Bakker et al., 2024; Kharbach, 2024). Figure 1 presents the developments in how ChatGPT operates within this historical timeline.

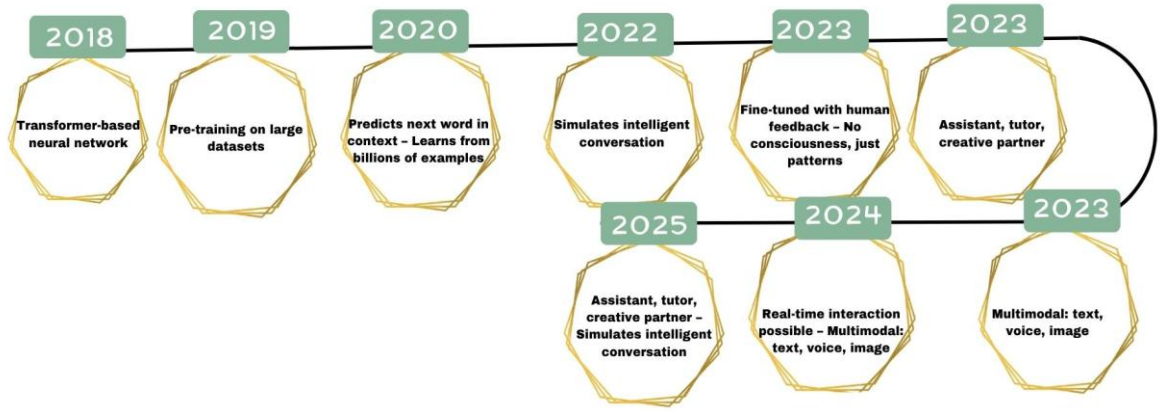

Figure 1. Developments in ChatGPT's Functioning Within Its Historical Timeline

Students' Use of ChatGPT

ChatGPT has been intensely popular since its release (Jo, 2023; Playfoot et al., 2024). The primary reason for this success is ChatGPT's ability to interpret, analyze, evaluate, and synthesize information, in addition to answering questions. Vazquez-Cano et al. (2023) support this ability, noting that summaries written by ChatGPT receive higher marks compared to those written by students. The fact that ChatGPT can provide information on any topic and process any given information has made it an indispensable companion for students while doing homework, preparing for presentations, conducting projects, and solving problems. Another reason for students' intensive use of ChatGPT is its contribution to individual learning experiences. Individualization and personalization of the learning process are regarded as crucial in modern learning approaches (Abbasi et al., 2025). Artificial intelligence is one of the most effective solutions for individualizing learning. The fact that ChatGPT enables students to learn anytime, anywhere (Gill et al., 2023), as a result of its integration with smartphones, has significantly contributed to the digital transformation of education. As it acquires additional abilities daily, ChatGPT is increasingly being utilized in the realm of education (Baig et al., 2024). However, there are some drawbacks to students' using artificial intelligence, specifically ChatGPT, in education, such as privacy concerns, a dehumanizing effect (Ampong et al., 2024), ethical considerations, and socio-psychological effects, including addiction, alienation, and isolation (Pisica et al., 2023). Therefore, it is essential to confirm the information provided by ChatGPT and to demand guidance from teachers (Hung & Chen, 2023).

Teachers' Use of ChatGPT

Teachers arrange various activities during classes and utilize different materials to enhance the learning experience. Using the same materials repeatedly may bore students, so it can be a good idea to diversify them as much as possible. As a result of the transition from conventional to digital course materials, ChatGPT has emerged as a tool to produce required materials with less effort and time compared to alternative means. Currently, teachers can create a variety of content, including texts, stories, images, sounds, videos, and more, tailored to their students' needs using different AI tools. Although educators have raised several concerns about the use of artificial intelligence in classrooms (Kasneci et al., 2023), ChatGPT is currently utilized by many teachers as a functional assistant in preparing course materials. It is becoming increasingly widespread in education, mainly because it provides rapid access to information, enables text analysis, and offers instant feedback to students. However, as a result of this widespread use, it is expected that job descriptions for educators will change (Stokel-Walker, 2023).

In this context, one of the effects of artificial intelligence programs on education is the question of whether they can replace educators in the future. Although ChatGPT stands out as a tool that supports individual learning (Baidoo-Anu & Ansah, 2023; Fuchs, 2023; Sok & Heng, 2023), there are different opinions on whether it can completely replace an educator. Research on this subject emphasizes that ChatGPT should be used as a tool to support learning processes under the guidance of human educators, rather than replacing them. For example, Ausat et al. (2023) demonstrated in their research that ChatGPT cannot entirely replace an educator but can be a helpful tool in the learning process. The study stated that effective use of artificial intelligence is only possible with the guidance of educators. Similarly, numerous studies have concluded that ChatGPT is a tool that supports educational processes (Baidoo-Anu & Ansah, 2023; Cooper, 2023; Deng et al., 2025; Gill et al., 2024; Rasul et al., 2023; Sok & Heng, 2023). Therefore, although AI-supported tools possess the potential to reshape education, they are considered complementary to the role of human educators rather than an alternative to replace them.

ChatGPT in Higher Education

In higher education, which is the highest level of education, artificial intelligence is increasingly preferred by both academics and students to make their jobs easier. The adoption of artificial intelligence in higher education has been on the rise, driven by its ability to provide rapid and convenient access to information (Odden et al., 2021). Nevertheless, the integration of AI into higher education is not just limited to accessing information. Various AI-based applications that help students and academics review, process, analyze, sort, and summarize data reduce the time allocated to the research process and enhance the quantity and quality of the research (Cain, Buskey, & Washington, 2023).

Furthermore, AI-based applications, such as intelligent tutoring platforms, automated feedback tools, plagiarism detection software, and innovative learning analytics, have transformed university-level teaching, learning, and research support (Crompton & Burke, 2023). By adapting educational content to the unique needs of each learner, AI promotes personalized learning, which in turn improves both student engagement and learning outcomes (Crompton & Burke, 2023). These tools enable more efficient real-time feedback and adaptive instruction tailored

to individual student profiles. Artificial intelligence facilitates personalized learning by tailoring educational resources to meet students' individual needs, thereby enhancing their engagement and learning outcomes (Belkina et al., 2025). However, there are some ethical problems to consider when it comes to the use of generative AI in higher education, as is the case with lower levels of education. Students' work supported by artificial intelligence can lead to unfair competition with other students (Cotton et al., 2023; Farrokhnia et al., 2023).

Examining ChatGPT through SWOT Analysis

SWOT analysis is a technique employed to assess the strengths and weaknesses of a subject, as well as the potential opportunities and threats associated with it (Gürel & Tat, 2017). This method, which is frequently preferred in the field of education (Zhu & Justice Mugenyi, 2015), has been employed in the current study to examine various aspects of ChatGPT in the context of education. Employing the SWOT analysis framework to conduct a systematic analysis of the rapid introduction of technology into the field of education is a reasonable way to gather information about the new dimensions introduced by this technology.

Upon examining the literature, it becomes clear that ChatGPT offers advantages in various aspects of education. Primarily, it is highlighted as a motivating tool for students (Ali et al., 2023; Bhullar et al., 2024; Deng et al., 2025; Elsayary, 2024). In addition, ChatGPT can undertake the role of an evaluator (Baidoo-Anu & Ansah, 2023; Rasul et al., 2023; Sok & Heng, 2023) and support individual learning (Baidoo-Anu & Ansah, 2023; Bhullar et al., 2024; Fuchs, 2023; Rasul et al., 2023; Sok & Heng, 2023), which facilitates the learning-teaching process and reduces teachers' workload. Additionally, ChatGPT can serve as a teacher by understanding the questions asked by students and possessing the necessary information to respond (Gill et al., 2024; Rahman & Watanabe, 2023).

Additionally, other strengths highlighted in the literature include its support for teaching processes (Cooper, 2023), its assistance in assessing student performance (Karanfil & Uyar, 2025), and its potential to develop higher-order thinking skills (Deng et al., 2025). In contrast, ChatGPT has its own disadvantages as well. One of the most frequently emphasized weaknesses is the risk of generating false information (Baidoo-Anu & Ansah, 2023; Gill et al., 2024; Karaköse, 2023; Lee, 2023; Loh, 2023; Zhou et al., 2023). In addition, it can provide biased answers (Baidoo-Anu & Ansah, 2023), lack emotional expression (Zhai, 2022), and lead to false learning assessments (Sok & Heng, 2023; Zhuo et al., 2023). The limited ability to maintain conversations (Kuhail et al., 2022; Zhai, 2022) and the adverse effects on the learning process, which reduce mental effort (Deng et al., 2025; Fuchs, 2023), are likewise regarded as potential risks associated with the use of ChatGPT in education.

Considering the opportunities that ChatGPT can create in education, it is stated that it has the potential to contribute to academic learning processes (Hung & Chen, 2023) and facilitate the integration of instructional technologies into educational settings (Yu, 2024). In addition, ChatGPT has been identified as a tool that supports the development of students' writing proficiency and critical thinking when used as a support tool in academic writing tasks (Adeshola & Adepoju, 2023). It also helps non-native speakers improve their language proficiency by providing interactive language practice (Yuan et al., 2024). Research further indicates that generative AI tools can contribute to personalized and adaptive learning by providing instant feedback and differentiated support to

learners with diverse needs (Meyer et al., 2023). Lastly, AI-supported simulations and virtual learning environments supported by tools like ChatGPT can increase motivation and engagement in science and health education (Mhlanga, 2023).

However, it is also stated that ChatGPT may pose some threats in higher education. Firstly, it is noted that it may necessitate numerous updates to the education system (Gill et al., 2024) and potentially compromise academic honesty by fostering unfair competition among students (Flanagin et al., 2023; Hung & Chen, 2023). In addition, it can increase the risk of academic plagiarism (Cotton et al., 2023; Hung & Chen, 2023; Rasul et al., 2023) and has the potential to create addiction in students (Crawford et al., 2023; Jarrah et al., 2023; Sok & Heng, 2023). In addition, concerns have been raised in the relevant literature regarding potential data security and privacy issues (Rasul et al., 2023; Wend et al., 2025), as well as the potential for increased asocial personality by reducing social interaction (Karanfil & Uyar, 2023; Weng et al., 2025). Finally, it has the potential to influence the employment opportunities of new graduates negatively (Adesholi & Adeola, 2024).

Numerous scientific studies in the literature address various aspects of ChatGPT (Adesholi & Adeola, 2024; Fuchs, 2023; Rasul et al., 2023; Taktak, 2024). Studies employing SWOT analysis to examine the role of ChatGPT in education are particularly significant. Farrokhnia et al. (2023) conducted a SWOT-based evaluation of ChatGPT's role in education. Mai et al. (2023) systematically examined studies on ChatGPT and conducted a SWOT analysis. Budak Durmuş (2024) conducted a SWOT analysis of ChatGPT by gathering opinions from educators at various levels. Taktak (2024) conducted a SWOT analysis of ChatGPT, collecting data from teachers and school administrators at the K-12 level. However, the literature reveals no study that has examined the role of ChatGPT in education through a four-dimensional SWOT analysis grounded in the perspectives of academics specializing in the field of education. In line with this aim, the present study focused on the following research questions;

1. What are the strengths of ChatGPT in higher education?
2. What are the weak aspects of ChatGPT in higher education?
3. What opportunities does ChatGPT offer in higher education?
4. What are the threats that ChatGPT may pose in higher education?

Rationale for the Study

The potential uses of GPTs have attracted significant attention among scholars and other stakeholders in education, as they are a relatively new and rapidly growing technology. It has been growing so rapidly that professionals involved in education have had a hard time remaining informed about current developments in this field. A considerable body of research has been conducted on the application of GPTs in educational contexts; however, more studies are needed, as this new technology produces human-like output and the areas of implementation are varied. Also, most studies on ChatGPT in education are non-empirical, focusing on commentary rather than empirical research (Memarian & Doleck, 2023). Therefore, comprehensive studies are needed concerning the current and future uses of GPTs in education, preferably based on the views of scholars and other stakeholders.

Method

The purpose of this study was to investigate the use of ChatGPT, a popular generative AI application, in education through a SWOT analysis based on the opinions of academics in the field of education. The study utilized a qualitative approach to data collection. A case study was employed throughout the study. A case study is a detailed investigation of a particular, real-life project, program, policy, institution, or system from multiple perspectives to catch its complexity and uniqueness (Simons, 2009). The research employed a semi-structured interview form to collect data. Consequently, the aim of the SWOT analysis is to identify the strengths and weaknesses of the program, as well as with the potential opportunities and threats it may bring about in the future.

Participants

The study group consisted of 18 academics from various universities in Türkiye, working in the Spring semester of 2024-2025 academic year. When selecting academics, attention was paid to the fact that the participants were from the Department of Educational Sciences. The reason for this criterion is that the views of the experts within the field of education can reflect the strengths, weaknesses, opportunities, and threats presented by ChatGPT in educational settings better than academics in other fields of study, as they are concerned more with the existing situation and future of learning and teaching in general. Participants were selected through random purposeful sampling (Cohen et al., 2018), from among the scholars in the field of educational sciences. Demographic data of the participants are given in Figure 2.

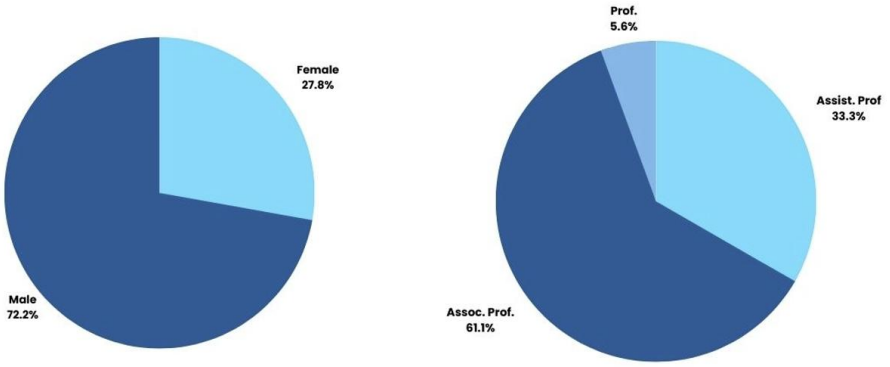

Figure 2. The Distribution of Study Participants by Gender and Academic Title

When the distribution of participants is examined by gender, it is observed that 5 are women and 13 are men. In addition, their distribution by academic title is as follows: 6 people are assistant professors, 11 people are associate professors, and one person is a professor. Participants were given codes between P1 and P18. Another data to be collected in the demographic part of the interview form was the academics' familiarity with and use of ChatGPT. These two questions were asked to gauge the participants' familiarity with ChatGPT and to determine the extent of their use. This information was required to identify the sampling in more detail and analyze their responses better. A brief explanation was given to the participants before the semi-structured questions regarding the definition and elements of generative AI and, specifically, ChatGPT, for the participants to make sure that they all have some basic information about the new model. The familiarity and use of ChatGPT among academics is shown in Figure 3.

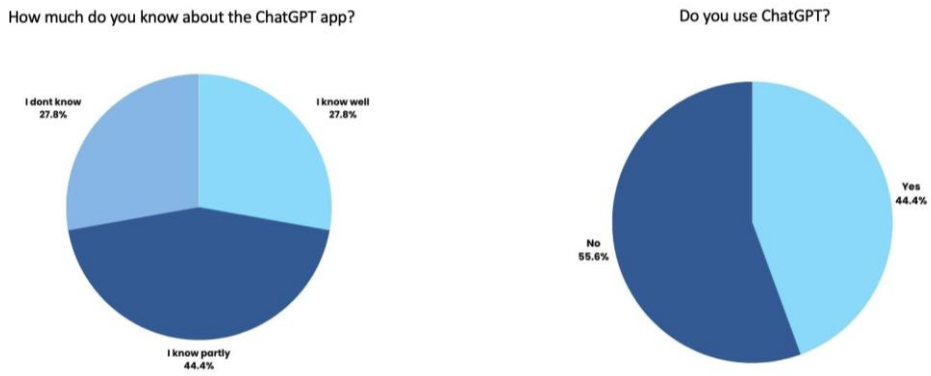

Figure 3. Academics' Familiarity and Use of ChatGPT

Data Collection and Analysis

After the ethical procedures were completed and the necessary permission was obtained, Data were gathered using the interview method. The interview facilitates an in-depth exploration of a topic grounded in participants' perspectives. A semi-structured interview form was used to collect data. The semi-structured type was used to make questions flexible and enable the interviewees to have more control during the interview. The themes were predetermined, as the research questions were created based on the main components of a SWOT analysis. In the first part, following the brief explanation of generative AI and ChatGPt, questions were asked about the demographic data of the participants, including their gender, academic title, familiarity with, and use of ChatGPT. In the second section, participants were posed distinct questions regarding the strengths, weaknesses, opportunities, and threats associated with using ChatGPT in educational contexts. After the questions were prepared, they were given to academics for expert opinion, and a total of five experts in the field of education evaluated the interview form. The experts gave feedback on the points to correct, remove, or add. Following the evaluation, the eventual form was generated. In the final form of the interview, four questions were asked of the academics involved in the study.

1. What are the strengths (positive aspects) of using ChatGPT for educational purposes?
2. What are the weaknesses (negative aspects) of using ChatGPT for educational purposes?
3. What are the opportunities (insights, chances of development, etc.) to be brought about by using ChatGPT for educational purposes?
4. What are the threats (negative changes, ethical problems, etc.) to be brought about by using ChatGPT for educational purposes?

Regarding the validity and reliability of the interview process, the measures indicated by Cohen et al. (2018) were followed. The validity score of the questions was calculated with the Lawshe technique, and it was observed that it provided a 0,99 I-CVI value for five experts (Yurdugül, 2005), which demonstrates that the interview items are relevant. Additionally, face validity is easily established, as the questions were identified under four main categories: strengths, weaknesses, opportunities, and threats. In addition, convergent validity is fulfilled, as the interview measures were compared with those employed in preceding studies. Statistical analysis was performed through the MAXQDA program, which helped to prevent researcher bias in evaluating the findings. Finally, Lincoln and Guba's (1985) key criteria of validity in qualitative research were also met by freeing the participants

from any pressure or direction as the interview was conducted online (credibility), providing adequate information on the participants and their qualities (transferability), reviewing the related literature prior to the development of the semi-structured form and comparing the findings with those obtained in similar studies (dependability), using a statistical analysis program and giving direct quotes from the participants (confirmability). During the analysis of data, the SWOT analysis is coded under the four main themes of a SWOT analysis. As a result of the coding, findings were classified under four main themes (strengths, weaknesses, opportunities, and threats that they can bring about).

Results

The findings of the study are detailed below, following the order of the SWOT Analysis. First, the findings are presented through figures. Then, the first five categories are illustrated in tables, accompanied by direct citations from the participants. Finally, the findings are compared with those obtained in other studies.

The Strengths of Using ChatGPT for Educational Purposes

The participants' opinions regarding the use of ChatGPT in education are analyzed using a qualitative analysis software and the findings are presented in the form of outputs that demonstrate the frequency and order of the items. The positive aspects of using ChatGPT in education are shown in Figure 4.

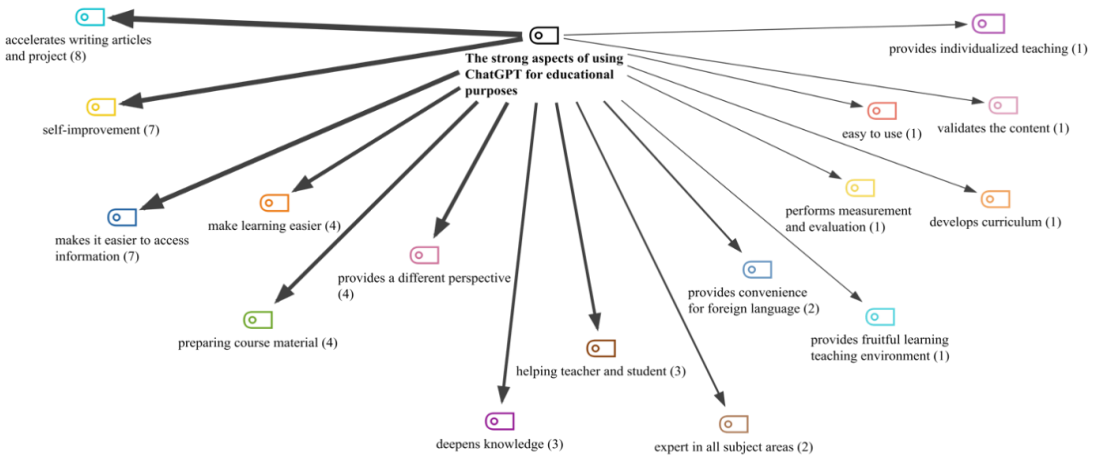

Figure 4. Codes and Frequencies Generated by MAXQDA on the Strengths of Using ChatGPT for Educational Purposes

As seen in Figure 4, after coding the data collected from the participants, it was observed that the most powerful aspect of using ChatGPT was its ability to accelerate writing articles and projects. The academics involved in the study may have developed this function heavily for themselves. They are expected to conduct research, write articles, and complete projects as outputs of the research process. Next, self-improvement, making information easier to access, facilitating learning, and its contribution to preparing course materials are remarkable findings. Direct citations from the participants supporting the five strongest aspects are given in Table 1.

Table 1. The Participants Supporting the Five Strongest Aspects

Sub-Themes	Views	%
Accelerating article and project writing	P3: "Can improve: writing skills, academic writing skills, communication skills." P11: "… can improve writing skills,..."	44.5
Self-improvement	P11: "Because it is a mechanism that answers questions, it can improve good questioning and thinking skills…" P5: "It can perform cognitive tasks in a very short time."	38.9
Making it easier to access information	P17: "It can enable students to easily find answers to questions they have outside of class." P2: "It can help to learn about the facts."	38.9
Making learning easier	P6: "It can make it easier for students to learn independently of the teacher." P13: "It can free learning from being tied to time and space."	33.4
Preparing course material	P1: “It can contribute to personalized teaching by allowing the design of personalized material." P8: "If there are missing course materials, the desired quality material can be designed using ChatGPT"	33.4

When the views of participants are analyzed as a whole, it is observed that the personalization of learning, the advantage of AI in processing information compared to humans, and its potential contribution to preparing the required course materials are heavily emphasized.

The Weaknesses of Using ChatGPT for Educational Purposes

Although generative AI is regarded a promising technology that has the potential to make life easier for people, it also has some negative or weak sides as is the case with many technologies. Figure 5 demonstrates the weaknesses of using ChatGPT in education.

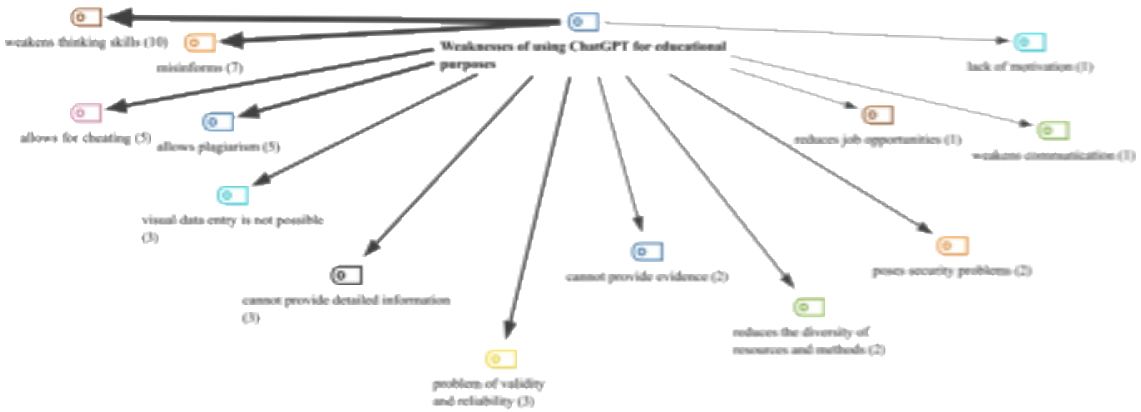

Figure 5. Codes and Frequencies Generated by MAXQDA on the Weaknesses of using ChatGPT for Educational Purposes

As can be seen in Figure 5, it was observed that the weakest aspect of ChatGPT was its weakening thinking skills. After that, it misinforms, allows for cheating and plagiarism; furthermore, visual data entry is not possible. According to academics, the views supporting the five weakest aspects of ChatGPT are given in Table 2.

Table 2. Sub-Themes, Evidence, and Percentages of Academics' Views on the Weak Aspects of Using ChatGPT for Educational Purposes

Sub-Themes	Views	%
Weakening thinking skills	P4: "The fact that users perform many tasks without effort can negatively affect their problem-solving abilities and creativity." P9: "Student can accept ready-made information as true without thinking or questioning."	55.6
Misinforming	P5: "Contrary to what is thought, it does not make the translations very accurate." P3: "Unfortunately, all the information you come across is not correct."	44.5
Cheating	P9: "The student can use the program to cheat or get their homework done." P3: "Students abuse this system in online exams."	38.9
Plagiarism	P4: "It can cause ethical problems, such as intellectual property." P12: "It offers the possibility of copying and pasting, which leads to ethical violations."	33.4
Visual data entry is not possible	P10: "Unable to enter charts, tables, schemas" P17: "Based on written communication only"	33.4

The Opportunities of Using ChatGPT for Educational Purposes

Using ChatGPT for educational purposes have some positive and negative effects as stated above; however, the opportunities it may bring about in the future are also worth noting. Figure 6 shows the main opportunities of using ChatGPT in educational settings

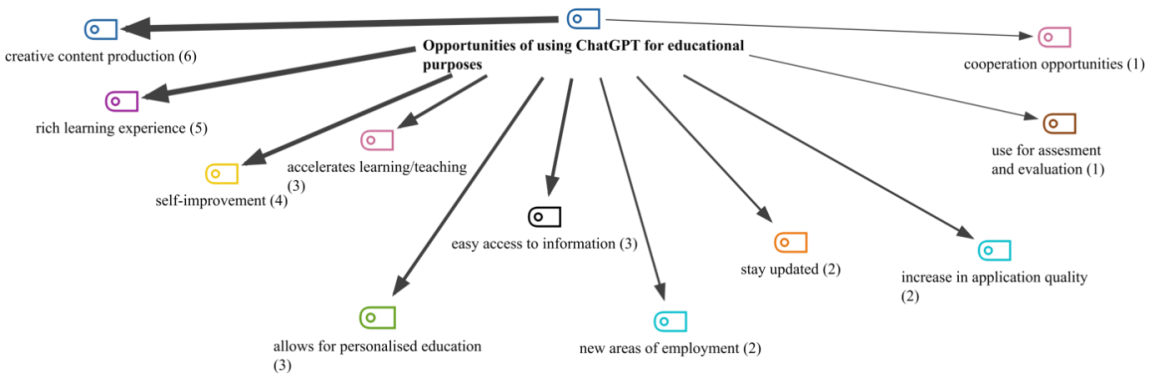

Figure 6. Codes and Frequencies Generated by MAXQDA on the Opportunities of Using ChatGPT for Educational Purposes

Participants' responses revealed that the major opportunity brought about by ChatGPT was its creative content production. Also, the rich learning experience, self-improvement, accelerating learning/teaching, and personalised education are remarkable opportunities. According to the opinions of academics, the five most frequently mentioned views on the opportunities that ChatGPT will bring are presented in Table 3.

Table 3. Sub-themes, Evidence, and Percentages of Academics' Views on the Opportunities of Using ChatGPT for Educational Purposes

Sub-Themes	**Views**	**%**
Creative content production	P5: "Since it is a supportive feature of creativity, it will ensure that the activities to be held with the students develop in terms of quality and quantity." P18: "It can give people creative ideas."	33.34
Rich learning experience	P3: "Richer learning experiences can be delivered." P8: "It can provide instant written, oral communication in the process of learning a foreign language."	27.8
Self-improvement	P13: "When the students are introduced and guided correctly, the quality of homework, material, and thesis, etc. can increase." P14: "It can improve students' self-regulation skills, self-confidence and self-efficacy."	22.23
Accelerating learning/teaching	P13: "When used with due attention to ethical rules, it can provide rapid project and article writing support for researchers." P6: "When used efficiently, it can provide access to information quickly and without limitations."	16.67
Personalized education	P8: "It can be used for students whose support needs outside the classroom and teacher are not met." P14: "It can minimize inequalities of opportunity in education if there are equal access opportunities."	16.67

The views of the participants indicate that the main opportunities of using ChatGPT in education are that it may increase the quality and quantity of the contents to be taught, support foreign language education, improve the self perceptions of students, accelerate learning/teaching and minimize inequalities.

Threats of Using ChatGPT for Educational Purposes

The final dimension of the SWOT analysis is the threats it may bring about. Threats, as suggested by the academics, are as many as the opportunities. Figure 7 demonstrates major threats.

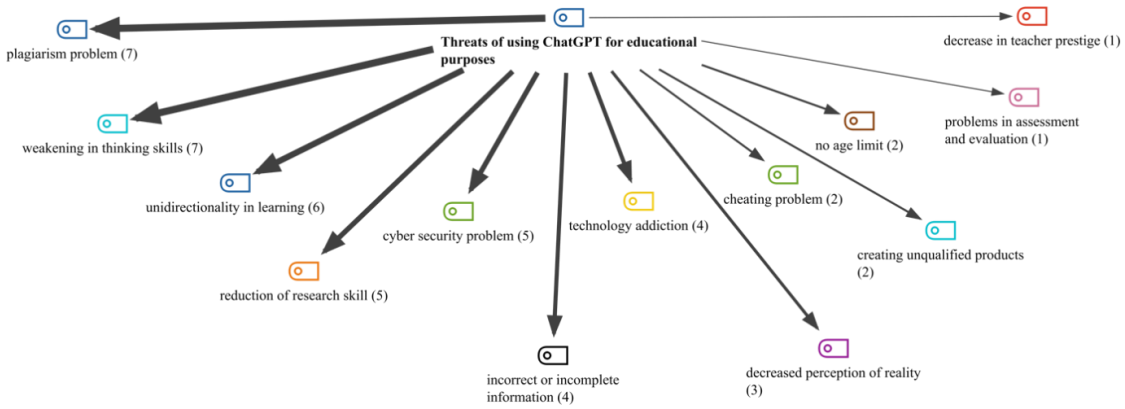

Figure 7. Codes and Frequencies Generated by MAXQDA on the Threats of Using ChatGPT for Educational Purposes

As can be seen in Figure 7, the biggest threat that ChatGPT could cause when it is used for educational purposes was the plagiarism problem. This is followed by a weakening of thinking skills, unidirectionality in learning, reduction in research skills, and cybersecurity problems.

Table 4. Sub-themes, Evidence, and Percentages of Academics' Views on the Threats of Using ChatGPT for Educational Purposes

Sub-Themes	**Views**	**%**
Plagiarism problem	P9: "There may be issues with copyright." P13: "It can make ethical questions as common (plagiarism)."	38.89
Weakening thinking skills	P15: "Inhibiting the development of higher-order thinking and acquisition skills,..." P13: "It can lead to addiction and be detrimental to research, creativity, thinking skills, etc."	38.89
Unidirectionality in learning	P13: "When information sources are faulty, it can lead to incorrect teaching in classroom learning." P7: "The ideological biases of the institutions that developed ChatGPT may affect students"	33.34
Reduction of research skills	P14: "Can accustom students to laziness and readiness." P5: "Reading research activities may decrease."	27.78
Cybersecurity problem	P13: "When there is a vulnerability, the thoughts and data shared can be shared without permission." P1: "Information belonging to an individual or any organization may be shared and used without permission."	27.78

The views given in Table 4 suggest that major threats could involve ethical problems, declining thinking skills, unidimensional learning, laziness and security problems.

Discussion

Generative artificial intelligence has been gaining ground rapidly since the introduction of ChatGPT 3.5 in 2022, making it almost impossible for stakeholders in the education field to remain indifferent to this fascinating development. Students and teachers have started to use this new technology immediately after it was introduced for various purposes; however, they were initially unaware of the correct and conscious use of it, as well as the potential risks or threats it may pose over time. Numerous studies on the use of AI in education have significantly contributed to both current and potential users of AI for educational purposes. By systematically analyzing the use of this technology in education, this study sought to provide insights into its strengths, weaknesses, opportunities, and threats.

The main strengths of using ChatGPT in education, as stated by participants, are: accelerating the writing of articles and projects, promoting self-improvement, making it easier to access information, facilitating learning, and contributing to the preparation of course materials. The most remarkable point to note here is that the academics emphasized the role AI can play in writing articles and projects, which demonstrates that the first point to consider in evaluating the use of AI in education has focused on how academics can make use of this new technology in fulfilling their own responsibilities rather than its use by other stakeholders. This outcome emerges from an academic evaluation of AI use in education. Personalization of learning and the rapid advancement of technology are two key points emphasized by academics. These two qualities of AI facilitate learning and help academics and teachers to prepare the required course materials. Self-improvement of students with the help of ChatGPT is also stressed, which again serves to personalize and facilitate learning. Finally, easy access to information is highlighted by the participants. Currently, accessing information is significantly easier than in the past, and generative AI makes it even easier and faster, although it is not entirely reliable. Providing a different perspective compared to that of human beings, deepening knowledge, and helping teachers and students are more general categories listed by the sampling with lower frequency rates. The findings of other studies that correspond to those obtained in this study under the category of strengths are: serving academic writing (Rane et al., 2024), self-improvement (Farrokhnia et al., 2023), accessing information or accessibility (Samala et al., 2024; Farrokhnia et al., 2023; Fahada et al., 2023; Abujaber et al., 2023; Cotton et al., 2023), and preparing or designing course materials (Javaid et al., 2023). Facilitating the learning process and providing a different perspective have not been matched in related studies by counterparts of equal effectiveness. These two findings are broad categories, and different findings can be matched with either of these two titles. Studies employing a SWOT analysis will likely share some findings, although they collect data from different participants, as many people are aware of the capabilities of this fastest-growing application (Jokinen, 2025) and how to harness them in the educational realm.

The second category in the study is the negative aspects, or weaknesses, of using AI in education. Weakening thinking skills is the most noteworthy weakness stated by the participants. Students are expected to utilize AI to complete their tasks more efficiently and rapidly, which allows them to use the spare time for their hobbies or interests. If teachers or academics do not take the necessary measures and advise their students on using AI consciously for their own development, it can easily impede their thinking skills, especially higher-order thinking skills such as critical, creative, and reflective thinking. Misinforming, cheating, plagiarism, and the lack of

processing visual data are other weaknesses of using AI in education, as emphasized by the participants. The problem of misinformation has been largely mitigated, as technology has evolved since the implementation, thanks to the use of real-time data on the internet. However, ChatGPT is still a discredited source in research (Luo et al., 2023), and it is often emphasized that ChatGPT's outputs in scientific research should be verified before use. The use of ChatGPT in education may lead to two interrelated adverse outcomes: cheating and plagiarism, which may hinder student development, mislead teachers in evaluating student performance, and increase the workload of teachers. The lack of processing visual data has also been significantly addressed since the implementation; however, the outputs of AI for visual data are not entirely reliable yet. The findings of other studies that correspond to those obtained in this study under the category of weaknesses are: weakening thinking skills, especially higher-order thinking (Farrokhnia et al., 2023; Fahada et al., 2023), misinforming or incorrect information (Baidoo-Anu & Ansah, 2023; Lo, 2023; Pittner et al., 2023), cheating (Cotton et al., 2023; Tlili et al., 2023), and plagiarism (Rane et al., 2024; Cotton et al., 2023; Memarian & Doleck, 2023; Lo, 2023). When all the weaknesses listed here are considered, weakening thinking skills and two ethical problems — cheating and plagiarism — are challenging to address in the short term.

The third category consisted of the opportunities of using ChatGPT in education. The use of AI, particularly generative AI, in education is promising, and one can expect positive developments in the field of education as time passes, as this technology continues to evolve rapidly. ChatGPT is not the only player in this competition. So, there is a lot to list under this category based on participants' imagination. Creative content production and rich learning experience are the two main categories listed under this category. Creativity is a crucial component of 21st-century skills, and it was unique to human beings until the introduction of generative AI. Currently, students and teachers who utilize AI for educational purposes employ it to generate creative ideas and solutions, develop engaging activities supported by innovative course materials, and thereby enhance their creativity. Using AI to generate innovative and personalized course materials and activities provides students with a rich learning experience that addresses differing interests, abilities, and multiple intelligences. In addition, self-improvement and accelerating the learning/teaching process are listed under the category of opportunities, as is the case with the strengths of using ChatGPT. Here, some of the participants may have stressed the idea that the use of AI in education will enable students to improve themselves more in the future, compared to the present day, with generative AI gaining additional abilities day by day, and this will eventually accelerate the learning/teaching process as students can get any help from generative AI whenever and wherever they need. Finally, personalization of education ranked fifth among sub-themes, which was also emphasized in the last sub-theme of the strengths category. Personalization of education has long been discussed and found useful, but scholars have not yet reached a consensus, especially in the practical aspects. It is challenging for teachers to focus on each student individually and tailor course materials to their respective abilities, interests, levels, or expectations. With the introduction of generative AI and its rapid development, scholars and teachers began to think that personalizing learning and teaching is not a difficult task to achieve. The discussion of personalization in learning and teaching has reached a point where even "education without teachers" (Yaman & Başaran, 2025) is being debated at present. The findings of other studies that correspond to those obtained in this study under the category of opportunities are: producing creative content (Zhu et al., 2023) rich learning experience, or enhancing and improving learning experience (Javaid et al., 2023; Dar et al., 2024; Abujaber et al., 2023), self-improvement

(Farrokhnia et al., 2023), and personalized education/instruction (Farrokhnia et al., 2023; Rane et al., 2024; Samala et al., 2024; Javaid et al., 2023; Adel et al., 2024; Baidoo-Anu & Ansah, 2023).

Finally, many people are concerned about the threats that may be brought about by using generative AI, or more specifically, ChatGPT, in the realm of education. The most frequent concern here is plagiarism and weakening of thinking skills, which were also mentioned under the category of weaknesses. Ethical problems are frequently mentioned in research on the use of AI, and plagiarism is one of the most prevalent concerns, as students may be inclined to opt for the easy route (submitting work generated by AI tools) when completing homework or conducting research. The risk of underdeveloped higher-order thinking skills is evident. A lack of or weak higher-order thinking skills in students may prevent them from developing their mental capacities, as thinking sharpens a person's mind (Yulaisa & Desnita, 2024). Unidirectional learning, another threat identified by the participants, suggests that students may readily accept all the information as correct when they use generative AI as their sole source of information. Reduction in research skills and cybersecurity problems are again mentioned as threats to using ChatGPT in education. Conducting research usually offers the researchers more than they need. They collect a great deal of data on a particular topic and select the required ones from the entire body of information, considering the reliability of the data source. However, when they use "packed information" from generative AI, they settle for what the AI tool provides. Cybersecurity has been on the agenda since the introduction of the internet, and AI systems are susceptible to online attacks (Ali et al., 2023), which may result in the leakage of valuable personal data through the internet. Additionally, even if there is no attack on the web, AI tools may intentionally share personal information for specific purposes. The findings of other studies that correspond to those obtained in this study under the category of threats are: plagiarism (Rane et al., 2024; Cotton et al., 2023; Memarian & Doleck, 2023; Lo, 2023), weakening thinking skills (Farrokhnia et al., 2023; Fahada et al., 2023), incorrect or incomplete information (Pittner et al., 2023; Lo, 2023; Baidoo-Anu & Ansah, 2023), and technology addiction or over-reliance on AI (Rane et al., 2024; Pittner et al., 2023; Samala et al., 2024).

Conclusion

This study systematically examined the use of generative artificial intelligence, particularly ChatGPT, in education through a SWOT analysis based on participant perspectives. The findings reveal that the rapid emergence and integration of AI tools into educational environments have brought about various strengths, weaknesses, opportunities, and threats that need to be addressed carefully by all stakeholders. The strengths identified in the study show that AI has already begun to reshape academic and instructional practices. Participants particularly highlighted accelerated academic writing, facilitated access to information, support for self-improvement, and the contribution of AI to lesson preparation and personalized learning. These strengths indicate that generative AI has the potential to enhance instructional efficiency and enrich learning processes when used consciously and strategically. However, alongside its strengths, participants also acknowledged several weaknesses associated with AI use in education. The most prominent concern was the weakening of students' higher-order thinking skills, followed by misinformation, cheating, plagiarism, and limitations in processing visual data. These weaknesses show that without proper guidance and ethical awareness, AI may hinder rather than support meaningful learning. Ensuring responsible and critical use of AI tools thus becomes a fundamental

requirement.

Opportunities offered by AI demonstrate its future potential for transforming educational practices. Generative AI can foster creativity, produce innovative content, enrich learning experiences, accelerate instructional processes, and support highly personalized learning environments. These opportunities suggest that AI could significantly contribute to more flexible, engaging, and individualized educational ecosystems, provided that educators harness its capabilities effectively.

Finally, the threats reported in this study emphasize the need for caution. Plagiarism, weakened thinking skills, unidirectional learning, underdeveloped research skills, and cybersecurity risks remain substantial concerns. These threats underline the importance of developing robust ethical guidelines, strengthening digital literacy, and ensuring data security while integrating AI into educational contexts.

In conclusion, the study demonstrates that generative AI is a powerful yet complex tool whose impact on education depends on how it is understood, regulated, and employed by teachers, students, and institutions. While AI holds the promise of enhancing creativity, personalization, and efficiency, it simultaneously necessitates careful monitoring, ethical awareness, and pedagogical responsibility. Future efforts should focus on fostering AI literacy among all stakeholders, developing clear institutional policies, and exploring evidence-based practices that maximize the benefits of AI while minimizing its risks.

Recommendations

It seems impossible not to utilize generative AI in the face of intense competition in today's world. Therefore, stakeholders involved in education should stay up-to-date with the latest developments in the domain of generative AI. The first and most important point to consider is that users of AI should be conscious and informed about the correct use of generative AI, and they should be aware of the potential dangers and risks associated with it. In educational settings, this task should be assumed by administrators and teachers. Thus, students and teachers will both use AI more efficiently and avoid potential dangers or risks. Some institutions, such as UNESCO, UNICEF, and the OECD, have already published guides on how to use generative AI more consciously and raise awareness about the ethics of using AI. Schools can utilize these general guidelines to develop their own guidelines, taking into account local realities, expectations, and tendencies. Teachers should be willing to utilize generative AI applications like ChatGPT in personalizing or individualizing instruction, generating authentic course materials tailored to the curriculum's learning objectives, assessing student performance, motivating students, and enhancing their personal abilities. To counteract the weaknesses or threats of using ChatGPT in education, as stressed in this study, students should be warned that generative AI is not more than an assisting agent at school and at home. It should be the students themselves who lead their studies, complete their homework, and make decisions regarding their performance tasks at school. Additionally, they should be aware that ChatGPT is not entirely reliable and may occasionally provide false or incomplete information. Finally, students should be advised not to rely on AI for any task they have; otherwise, it may weaken some of the valuable skills that have been developed over the years through hard cognitive work, and it may even become an addiction for the students.

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