Transformative Effect of ChatGPT on Accounting Education : A New Era AI Chatbot

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Abstract: This study aims to explore the transformative effects of using ChatGPT on student competence in the future. This study used a qualitative research method with a purposive sample, namely Accounting Education students at Muhammadiyah University of Surakarta. Data was collected through in-depth interviews, classroom observations, and documentation. Researchers applied data triangulation techniques using a thematic analysis approach, namely through the stages of data reduction, data presentation, and conclusion drawing. The results showed that ChatGPT became a popular tool, providing great benefits in improving the efficiency and accessibility of information. Students appreciated ChatGPT's ability to help them complete tasks and provide them with quick answers. However, other issues found in this study include concerns about data accuracy and possible over-reliance on the technology. It is necessary to facilitate the responsible use of ChatGPT and ensure that students retain the ability to solve complex problems and think independently.

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Introduction

Education is one of the fields that is experiencing rapid development along with technological advances. With increasingly sophisticated technology, we can access various kinds of information about education through smartphones and computers (Sari, 2019). One of the technological developments that has a significant impact is the presence of artificial intelligence (AI). Of the various AI applications, Chatbot is one of the more prominent applications in the context of Education. In its first two months, the chatbot has become the fastest-growing app worldwide (Ou & Malmstr, 2024). Chatbots now exist in modern technology, a Chatbot is a computer program designed to simulate a conversation between a robot and a human user through text or voice-based interaction (Adamopoulou & Moussiades, 2020). Chatbots are powered by artificial intelligence (AI) and natural language processing (NLP) technologies, which allow them to understand and respond to user input in a performance manner similar to humans (Khadija et al., 2021).

A chatbot is a computer program designed to perform human-machine interaction through natural language conversation. Chatbots were initially informal and limited in their capabilities. They could only respond to pre-programmed commands and had a limited understanding of natural language (Chaves & Gerosa, 2021). However, chatbots are becoming smarter and more capable of completing more difficult tasks thanks to advances in natural language processing and machine learning. Chatbots, which first appeared as AI-powered assistants, have evolved into sophisticated tools for communicating, automating, and assisting users (Menon & Shilpa, 2023), ChatGPT is one of them.

ChatGPT is an app that is often heard of and trending among students. ChatGPT is commonly referred to as a Generative Pre-Trained Transformer. ChatGPT was first publicly

developed on 30 November 2022, reaching 1 million subscribers within a week of its launch (Wang et al., 2024). ChatGPT can be used in aspects of life, namely in learning (Ausat, A. M. A, Suherlan, 2022; Johnson et al., 2023; Julianto et al., 2023; Primasatya et al., 2024; Shidiq, 2023; Yusriadi et al., 2023). Ramadhan et al (2023) explained that the ability of Artificial Intelligence (AI) intelligence is in ChatGPT which allows it to learn many things either simply or complexly which can produce relevant answers. However, the answers given are not always accurate, because the resulting source remains from internet data, so it can affect the wrong response. The GPT chat process itself is carried out like a conversation between two people with one another to generate an answer that is tailored to the question being asked (Saputra & Hidayati, 2023). ChatGPT can analyze user performance data and provide personalized feedback and guidance to support the improvement of their skills and knowledge (Zhai, 2023). In addition, ChatGPT can answer user questions in real-time, thus providing a more interactive and engaging learning experience. ChatGPT also has task automation capabilities such as providing feedback and assessments (Pongtambing et al., 2023). ChatGPT can process and analyze unstructured data such as academic journals and research papers. In addition, ChatGPT can provide relevant information and knowledge in a conversational format (Aydın & Karaarslan, 2022). Its ability to simplify data access and analysis makes ChatGPT a game changer in the world of education.

The need for technology that can improve learning skills in Accounting Education is increasing. Students need a more efficient and effective way to understand complex learning concepts. Educators are also often required to be able to provide a learning experience that is enjoyable and meets the needs of students. ChatGPT can serve as a self-learning technology, assisting in obtaining information, answering questions, and helping students learn (Chen et al., 2020). In addition, ChatGPT can also facilitate group discussions and solve problems instantly (Aydın & Karaarslan, 2022). In this context, the presence of ChatGPT, a Chatbot powered by a sophisticated AI language show, promises to revolutionize Accounting Education. ChatGPT enables deeper and personalized interactions by providing interactive and structured responses based on the user's natural language input. This opens up new opportunities in the delivery of learning materials, the provision of immediate feedback, and the customization of the learning experience according to students' personal needs. In addition, many students use ChatGPT as an alternative to completing assignments given by educators. Many students also use ChatGPT to complete a thesis as their final project. It causes problems in education because educators feel that ChatGPT is an AI that threatens the academic competence of universities.

This study aims to explore the transformative effects of using ChatGPT on Accounting Education students at Universitas Muhammadiyah Surakarta and that the impact of AI, namely ChatGPT, provides an opportunity and threat to student competence in the future. This promising potential with the use of AI, provides an important role in the academic environment of students in higher education (Chen et al., 2020). One of the previous studies (Lo, 2023), explains that using ChatGPT raises various concerns, such as generating incorrect or false information, as well as threats to academic integrity. Students should also learn about the uses and limitations of ChatGPT and its potential impact on academic integrity. With these issues in mind, users can be more thoughtful in using ChatGPT as a tool in various contexts. There is still a need for in-depth research to fully understand its impact. A paradigm shift in the learning process requires a thorough understanding of the implications, challenges, and benefits that may arise from the integration of AI technologies in the Education curriculum. This research not only highlights the

potential of ChatGPT as a learning aid but also addresses critical aspects such as students' understanding of its use and limitations, as well as its impact on academic integrity. In addition, this research also seeks to understand the paradigm shift in the learning process due to the integration of ChatGPT, as well as how this technology can be utilized to improve the effectiveness of accounting education. Such in-depth perspectives are still rare, both in local and global contexts, so this research is expected to enrich the academic literature.

Research Method

This study used a qualitative approach because it allows the researcher to explore the subjective experiences and changes that students experience in their academic context. The study focuses on providing an opportunity for students to express their experiences, views, and the changes they felt after using ChatGPT. Data was collected through in-depth interviews, classroom observations, and documentation. This study used semi-structured interviews conducted with Accounting Education students to explore their experiences and perceptions regarding the use of ChatGPT. These interviews aimed to understand how ChatGPT influences their learning process, including how it is used in completing academic tasks, as well as its effects on their understanding and learning outcomes. The interview structure was designed to obtain in-depth and comprehensive information regarding the benefits, challenges, and students' opinions on the integration of this technology in Accounting Education at Universitas Muhammadiyah Surakarta.

Observations were conducted directly in the classroom to assess the implementation of ChatGPT in the learning environment. This observation aims to see how students interact in the use of ChatGPT, including how students integrate this technology into the learning process and complete tasks. The researcher recorded the usage pattern, the level of student engagement, as well as the impact that the presence of ChatGPT may have on learning activities. Then, documentation in the research method was used to complement the data obtained through interviews and observations.

To ensure the validity of the data, this research applied data triangulation techniques, which include collecting data from various sources, such as in-depth interviews with students, observation of student interactions with ChatGPT, and documentation. The data that the researchers had collected was then analyzed through several stages, namely transcribing data and member checking. Transcribing data is a process in which researchers convert voice recordings from interviews into written text. The voice recording data obtained must be presented appropriately, without any additions or subtractions (Mahpur, 2017). After transcribing the data, the researcher proceeded to the member-checking stage to ensure the validity and credibility of the data. If errors are found, the researcher will contact the source for clarification. Member checking is done so that the changed data is in accordance with what was conveyed in the interview (Cohen, 2007). (Cohen, 2007). In this study, the researcher checked the interview text while listening to the recording, and if any data did not match or was unclear, the researcher contacted the interviewee for clarification.

This research used a thematic analysis approach through the stages of data reduction, data presentation, and conclusion drawing (Kusuma, 2021). Data were collected from student interviews, observation of interaction with ChatGPT, and documentation. After that, the researcher transcribed the interview recordings to text accurately and conducted member checking to ensure data validity. Then, the next stage was data reduction. At the data reduction stage, the researcher filtered out relevant information for further analysis. The data

that had been selected was presented clearly to facilitate drawing conclusions. Conclusions were drawn from themes and patterns found through data analysis.

Results and Discussion

In an era where artificial intelligence technologies such as ChatGPT are increasingly used in Education, this research provides a new perspective on how technologies particularly large language models such as ChatGPT help university students learn Accounting. This research focuses on how ChatGPT can interact with university students to improve their understanding, skills, and abilities. Preliminary findings show that ChatGPT can not only provide information but can also mimic complex and real accounting situations. ChatGPT can help users learn problem-solving and critical analysis. As well as make learning more interactive and practical. According to this research, there are opportunities and threats to using ChatGPT as a learning tool. ChatGPT can be a revolutionary learning tool that will help generations of accountants grasp accounting concepts faster and make them better prepared for the changes happening in the digital age. However, like a double-edged sword, this technology requires users to remain critical and not rely on it completely to maintain analytical ability and professionalism. To understand its impact on students' learning and skill development, this study uncovered the perspectives of five Accounting Education students of Universitas Muhammadiyah Surakarta on their experiences using ChatGPT. In-depth interviews were conducted to gain insights into how this technology helped or affected their learning process. The following table presents each interviewee's answers based on the identified themes :

Table 1. Interview Results

Source	Interview Results
Informant 1	ChatGPT was first recognised through social media and began to be used to help with college assignments. It was very helpful as it was able to provide responses quickly. However, the use of ChatGPT also encourages more independent learning, resulting in less time for discussion and brainstorming with friends.
Informant 2	The use of ChatGPT is helpful as it allows quick access to information. However, the answers provided are sometimes less relevant, so they need to be reviewed or rechecked for accuracy.
Informant 3	ChatGPT is helpful in writing, framing arguments, generating ideas, developing concepts and providing inspiration. However, over-reliance on ChatGPT can have a negative impact, as it can reduce critical thinking and analytical skills. Therefore, it is important to use ChatGPT wisely in order to maintain creativity.
Informant 4	ChatGPT is used to understand accounting material because the quick response is very helpful in the learning process. However, the answers provided are sometimes general and lack depth, so it is necessary to look for additional references to obtain a more comprehensive understanding.
Informant 5	ChatGPT is very helpful because it is more efficient and can be accessed at any time, but answers or references from ChatGPT should be reprocessed in their own language and cited according to the rules if needed, to avoid the impression of plagiarism or direct retrieval of material, it must be wise in using and must comply with academic ethics.

Based on the results of interviews conducted by researchers, most students said that there were many significant positive benefits from using ChatGPT in learning situations, especially for students in accounting education. ChatGPT provides fast and efficient access to information. The ability to get answers in a short time can be helpful in the learning

process, especially when students are struggling to understand complex concepts. Thus, ChatGPT serves as a reliable source of support to clarify students' understanding of accounting material, ranging from basic principles to more complex topics.

In addition, students also thought that using ChatGPT also encouraged the development of independent thinking skills. In today's digital age, students are faced with multiple sources of information, and the ability to navigate and select the right information is crucial. ChatGPT allows users to independently search for solutions and retrieve information, thus increasing their confidence in learning. However, it is important to remember that while ChatGPT provides information quickly, users should review and seek additional resources to ensure accuracy and understanding.

It suggests that while technology can serve as an effective tool, human interaction, and critical analysis are still necessary to achieve a more comprehensive understanding. From a creativity standpoint, ChatGPT plays an important role in helping students write, structure arguments, and generate new ideas. Its ability to inspire can encourage innovative thinking that has never been thought of before. In other words, ChatGPT is not only an information search tool, but also a source of inspiration that helps users develop new concepts for academic assignments. However, there are also possibilities for the negative impacts of using ChatGPT. Over-reliance on this technology may lead to a decrease in critical and analytical thinking abilities, which are essential skills in education. Therefore, users need to prioritize a sensible approach when using ChatGPT. It is important to adhere to academic ethics when using this technology. Students should revise answers or references received from ChatGPT in their language and include relevant sources as appropriate. This step prevents plagiarism, deepens understanding, and improves the user's communication skills.

Overall, students thought that if used wisely, ChatGPT could be a very effective technology for learning accounting and developing skills. Incorporating the utilization of such technology into learning methods is expected to produce a more capable and responsive workforce in facing the challenges of the professional world. Using ChatGPT has a positive impact on individual learning and the overall development of education.

Discussion
Student Experience and Perception of ChatGPT
In today's digital age, ChatGPT has become a symbol of transformation in the 4.0 industrial revolution. The deep integration of data, automation, and artificial intelligence has resulted in a new era where machines not only execute commands but can also interact and learn like humans (Zahrani & Haqque, 2024). ChatGPT has attracted the attention of many people, including students because of its ability to process information in real time and generate intelligent responses. Using ChatGPT technology can be regarded as E-learning because the learning process can be done anytime, saving costs, flexible learning time, and expanding the scope of learning resources (Mustofa & Riyanti, 2019). As a generation that grew up in the era of digital technology, students have different experiences in interacting with ChatGPT. They have used it for various purposes, such as assisting in completing assignments and searching for learning materials. ChatGPT is a useful technology and is often used by Accounting Education students in helping to complete accounting tasks, such as providing sample problems and solutions related to journals, balance sheets, and income statements. Moreover, ChatGPT also helps in analyzing accounting cases.

In addition, students also expressed that ChatGPT is a friendly and fun discussion partner, especially when they need someone to discuss new ideas with. Although ChatGPT cannot replace human interaction, it can fulfill a need by offering perspectives, and ideas or being a good listener. Its strength lies in its ability to provide timely and relevant responses which allows users to feel heard and valued. ChatGPT can act as a neutral resolution partner in certain situations, such as when someone is struggling with an idea or is unsure of their opinion. ChatGPT provides a new perspective or simply reinforces an existing opinion. ChatGPT is thus a flexible and useful tool for users to explore their thoughts in depth and as a medium to practice conveying ideas.

Opportunities and Threats of Using ChatGPT

ChatGPT provides various opportunities for Accounting Education students to enhance their learning. ChatGPT, as a virtual tutor, can help users learn independently and flexibly by providing full explanations, sample questions, and instant feedback (Mukhlis, 2024). ChatGPT can also help students access various learning materials and the latest accounting developments. ChatGPT can tailor materials to each individual's needs and learning style with its learning personalization capabilities. This increases motivation and learning effectiveness. ChatGPT can also help users learn to think critically and solve problems, which are crucial in the working world through business case simulations and interactive discussions. In summary, ChatGPT has excellent potential to prepare accounting students to become more professional.

ChatGPT has many features that simplify its needs. With an easy-to-use and easy-to-understand conversational interface, users can directly type questions or requests without going through a confusing process, which makes interactions fast and efficient. Users can communicate in multiple languages with ChatGPT, which supports Bahasa Indonesia. The ability to explain complex concepts with simple language is its key feature, which helps users from different backgrounds understand technical or academic information. But behind these opportunities, there are several threats arising from the use of ChatGPT. Among them are Students' critical thinking skills can be threatened by the use of ChatGPT, if in doing accounting assignments they rely too much on it without double-checking the answers generated by ChatGPT. So it is necessary to check back with relevant sources so that the answers produced are accurate. Over-reliance and copy and paste in using ChatGPT should not be done. Because it results in losing opportunities to learn analysis, problem-solving, and independent decision-making. This can have a negative impact on the quality of accounting produced in the future. So it is necessary to pay attention to several aspects of the use of ChatGPT that are good and correct.

Effects on Interaction and Collaboration with other Students

ChatGPT has proven to be a useful tool for improving the productivity and efficiency of student group work. ChatGPT helps teams complete tasks faster as it can provide relevant ideas, references, and basic structures. However, there are times when the answers provided are not appropriate and need to be reviewed. ChatGPT also plays a role in improving collaboration between students when the answers are reprocessed and discussed with the group. Students can build shared understanding and develop new ideas by sharing information obtained from ChatGPT. ChatGPT can also catalyze group discussion as it allows users to analyze and re-evaluate the information that has been provided.

On the other hand, some students also think that ChatGPT can reduce their social interaction with classmates and educators if they rely too much on ChatGPT for their assignments and learning. This can hinder the progress of communication, cooperation, and

problem-solving skills that are usually learned through group projects or discussions. Social interaction also helps students understand better because it provides different perspectives. This allows students to gain more knowledge from their classmates. In addition, the motivation and emotional support gained from these interactions are crucial to helping students face academic challenges (Azzahra et al., 2023). Students may lose these benefits if they do not engage in social interaction.

Impact on Soft Skills Learning

Soft skills are a collection of non-technical abilities that a person has, including emotional intelligence, social intelligence, and the ability to interact with others. Soft skills include communication skills, teamwork, problem-solving/discussion, leadership, and adaptability (Sutrisno, 2016). The use of ChatGPT can affect students' soft skills learning, especially in presenting arguments and presenting assignment results. Some students said that they were more structured in constructing arguments because of ChatGPT, which could give them an idea of how an idea or concept could be conveyed clearly. Conversely, some students felt that this reliance on technology reduced the need for in-depth critical thinking as they tended to get answers from ChatGPT without asking many questions. Although there are concerns that critical thinking and debating skills may be under-honed, technology such as ChatGPT helps in the learning process. There is a view that independent thinking skills remain important so that students can learn more without relying on technology (Yahya et al., 2024). So students not only have technical abilities but must be equipped with relevant soft skills so that the ability to communicate can be effectively applied in the world of work (Suranto & Rusdianti, 2018).

Academic Ethics and Honesty

Ethical and academic honesty challenges arise when ChatGPT is used in an academic setting. Time constraints or difficulty understanding the material lead some students to use ChatGPT to complete assignments that should be done independently. However, there are differing opinions on whether ChatGPT is considered "cheating". Some students believe ChatGPT is not considered cheating if it is only used as a tool. However, if it is used as a substitute for fully independent effort, it may violate the principle of academic honesty. In addition, students recognize that there are ethical boundaries in using this technology. ChatGPT should be utilized to gain understanding rather than just providing immediate answers. Overall, ChatGPT can aid learning, but it is important to remember that excessive or inappropriate use can impact academic integrity. It therefore needs to be used wisely in the context of learning (Dwivedi et al., 2023).

Long-term Transformation Effect

In the future, the use of technologies such as ChatGPT will bring great changes in the world of accounting. Accounting can focus more on strategic work that requires critical thinking as these technologies can speed up routine tasks such as data processing, number analysis, and report generation. Nonetheless, since ChatGPT takes over many tasks, relying on it too much can reduce manual skills and critical analytical abilities. Furthermore, overuse of ChatGPT may cause accountants to become overly reliant on this technology as the only way to solve problems. Ultimately, this may result in a decrease in the accountant's ability to think independently. To mitigate this risk, accountants should maintain a balance by improving their analytical skills and using technology only as a support, not a substitute. Conversely, using ChatGPT can improve your understanding of technology and help you think strategically. This shows that technology can be an important asset to increase the value of accounting work if used properly (Elisabeth, 2019).

ChatGPT has many opportunities as an innovative learning tool in accounting due to its ability to simplify complex tasks, accelerate the learning process, and prepare students for professional challenges in the digital age. In addition to helping students learn technical skills, ChatGPT enables the simulation of real-world scenarios that support deep understanding and enhance soft skills. In addition, the use of this technology also has several challenges including potentially reducing collaboration between students, weakening their soft skills, and encouraging dependency which can jeopardise critical thinking and academic honesty (Fitrianinda et al., 2019).

Overall, the use of ChatGPT in education depends largely on how the technology is utilized. ChatGPT can advance high-quality learning without compromising ethics and long-term competence. This can be guaranteed through a balanced approach where students are encouraged to combine knowledge from this technology with active learning, collective interaction, and critical evaluation. If used correctly, ChatGPT can be a strategic partner in revolutionizing accounting education.

Conclusion

Based on the data analysis that has been conducted, this study shows that ChatGPT has become a popular tool, providing great benefits in improving the efficiency and accessibility of information. Students appreciate ChatGPT's ability to help them complete tasks and provide them with quick answers. However, other issues found in this study include concerns about data accuracy and possible over-reliance on the technology. From a social perspective, ChatGPT has the potential to encourage self-directed learning. Despite this, ChatGPT helps group work. This suggests that the social impact of using ChatGPT is context-specific and multidimensional. Students are generally aware of the importance of academic ethics and tend to be cautious when using ChatGPT. They also realize that inappropriate use can impair their ability to think critically and analytically. Overall, this study emphasizes the great potential of ChatGPT to improve the quality of learning. However, the utilization of technology needs to be balanced with efforts to develop critical and analytical thinking skills. Colleges and lecturers therefore have an important role to play in facilitating responsible use of ChatGPT and ensuring that students retain the ability to solve complex problems and think independently.

Recommendation

Further research is needed to explore the impact of using ChatGPT. For lecturers, it is recommended that they start integrating ChatGPT technology into the learning process, for example through assignments involving analysis of ChatGPT results to develop students' critical thinking skills. In addition, special training for lecturers on the use of ChatGPT in learning can be carried out to ensure effective and responsible implementation. For campus leaders or policy makers, it is necessary to formulate institutional policies related to the use of ChatGPT in learning, including ethical standards, data privacy, and responsible use. For example, formulating official guidelines for the use of ChatGPT in class and providing licensed access to students to encourage equitable use of technology. In addition, campus leaders can support technology training for lecturers and students to improve digital literacy as a whole. For further researchers, it is recommended to involve various parties, such as lecturers, educators, and students from various study programs to obtain a more holistic view of the impact of ChatGPT. This recommendation is expected to strengthen previous findings

and provide more focused insights into the use of ChatGPT technology, to support interactive, adaptive, and value-based learning and social responsibility in the digital era.

References

Adamopoulou, E., & Moussiades, L. (2020). An Overview of Chatbot Technology. In *IFIP Advances in Information and Communication Technology: Vol. 584 IFIP*. Springer International Publishing. https://doi.org/10.1007/978-3-030-49186-4_31

Ausat, A. M. A, Suherlan, H. K. A. (2022). Is ChatGPT Dangerous for Lecturer Profession? An In-depth Analysis. *Jurnal Pendidikan Dan Konseling*, *4*, 1349–1358.

Aydın, Ö., & Karaarslan, E. (2022). OpenAI ChatGPT Generated Literature Review: Digital Twin in Healthcare. *SSRN Electronic Journal*, *2*, 22–31. https://doi.org/10.2139/ssrn.4308687

Azzahra, F. A., Natanael, & Abimanyu, F. T. (2023). Perubahan sosial akibat kemunculan teknologi ChatGPT di kalangan mahasiswa. *Madani : Jurnal Ilmiah Multidisipline*, *1*(11), 270–275.

Chaves, A. P., & Gerosa, M. A. (2021). How Should My Chatbot Interact? A Survey on Social Characteristics in Human–Chatbot Interaction Design. *International Journal of Human-Computer Interaction*, *37*(8), 729–758. https://doi.org/10.1080/10447318.2020.1841438

Chen, L., Chen, P., & Lin, Z. (2020). Artificial Intelligence in Education: A Review. *IEEE Access*, *8*, 75264–75278. https://doi.org/10.1109/ACCESS.2020.2988510

Cohen, L. (2007). Research Methods in. In *Education And Training* (Vol. 7, Issue August).

Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S., Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., … Wright, R. (2023). "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, *71*(March). https://doi.org/10.1016/j.ijinfomgt.2023.102642

Elisabeth, D. M. (2019). Kajian terhadap peranan teknologi informasi dalam perkembangan audit komputerisasi (Studi kajian teoritis). *METHOMIKA: Jurnal Manajemen Informatika & Komputerisasi Akuntansi*, *3*(1), 40–53. https://doi.org/10.46880/jmika.Vol3No1.pp40-53

Fitrianinda, K., Desy, S., & Sujarwo. (2019). Polemik Penggunaan Artificial Intelligence "ChatGPT" Pada Lingkup Dunia Pendidikan. *Concept and Communication*, *null*(23), 301–316. https://doi.org/10.15797/concom.2019..23.009

Johnson, D., Goodman, R., Patrinely, J., Stone, C., Zimmerman, E., Donald, R., Chang, S., Berkowitz, S., Finn, A., Jahangir, E., Scoville, E., Reese, T., Friedman, D., Bastarache, J., van der Heijden, Y., Wright, J., Carter, N., Alexander, M., Choe, J., … Wheless, L. (2023). Assessing the Accuracy and Reliability of AI-Generated Medical Responses: An Evaluation of the Chat-GPT Model. *Research Square*, 1–17. https://doi.org/10.21203/rs.3.rs-2566942/v1

Julianto, I. T., Kurniadi, D., Septiana, Y., & Sutedi, A. (2023). Alternative Text Pre-Processing using Chat GPT Open AI. *Jurnal Nasional Pendidikan Teknik Informatika (JANAPATI)*, *12*(1), 67–77. https://doi.org/10.23887/janapati.v12i1.59746

Khadija, A., Zahra, F. F., & Naceur, A. (2021). AI-Powered Health Chatbots: Toward a general architecture. *Procedia Computer Science*, *191*, 355–360. https://doi.org/10.1016/j.procs.2021.07.048

Kusuma, Y. Y. (2021). Analisis Kesiapan Guru Kelas Dalam Mengimplementasikan Pembelajaran Tematik Di Masa Pandemi Covid-19 di SD Pahlawan. *Jurnal Pendidikan Dan Konseling (JPDK)*, *3*(2), 50–55. https://doi.org/10.31004/jpdk.v3i2.1633

Lo, C. K. (2023). What Is the Impact of ChatGPT on Education? A Rapid Review of the Literature. *Education Sciences*, *13*(4). https://doi.org/10.3390/educsci13040410

Mahpur, M. (2017). Memantapkan Analisis Data Kualitatif Melalui Tahapan Koding. *Repository Universitas Islam Negeri Malang*, 1–17. http://repository.uin-malang.ac.id/800/2/koding.pdf

Menon, D., & Shilpa, K. (2023). "Chatting with ChatGPT": Analyzing the factors influencing users' intention to Use the Open AI's ChatGPT using the UTAUT model. *Heliyon*, *9*(11), 1–19. https://doi.org/10.1016/j.heliyon.2023.e20962

Mukhlis, M. (2024). Persepsi Guru terhadap Pemanfaatan ChatGPT dalam Mengembangankan Soal Literasi Membaca: Studi Kasus pada Sekolah Menengah di Provinsi Riau. *Jurnal Pendidikan Dan Kebudayaan*, *9*(1), 1–19. https://doi.org/10.24832/jpnk.v9i1.4873

Mustofa, R. H., & Riyanti, H. (2019). Perkembangan E-Learning Sebagai Inovasi Pembelajaran Di Era Digital. *Wahana Didaktika : Jurnal Ilmu Kependidikan*, *17*(3), 379. https://doi.org/10.31851/wahanadidaktika.v17i3.4343

Ou, A. W., & Malmstr, H. (2024). Computers and Education : Artificial Intelligence Perceptions and usage of AI chatbots among students in higher education across genders , academic levels and fields of study. *Computers and Education : Artificial Intellegence*, *7*(April), 0–11. https://doi.org/10.1016/j.caeai.2024.100259

Pongtambing, Y. S., Appa, F. E., Siddik, A. M. A., Sampetoding, E. A. M., Admawati, H., Purba, A. A., Sau, A., & Manapa, E. S. (2023). Peluang dan Tantangan Kecerdasan Buatan Bagi Generasi Muda. *Bakti Sekawan : Jurnal Pengabdian Masyarakat*, *3*(1), 23–28. https://doi.org/10.35746/bakwan.v3i1.362

Primasatya, R. D., Labbaik, M., Mujtaba, M. I. E., Wahono, R. D., & Wahono, R. D. (2024). Self-leadership Dalam Menyikapi Perkembangan Teknologi Chatbots AI di Dunia Pendidikan Akuntansi: Tinjauan Perspektif Adaptive Leadership. *Owner*, *8*(2), 1944–1955. https://doi.org/10.33395/owner.v8i2.2313

Ramadhan, F. K., Faris, M. I., Wahyudi, I., & Sulaeman, M. K. (2023). Pemanfaatan Chat Gpt Dalam Dunia Pendidikan. *Jurnal Ilmiah Flash*, *9*(1), 25. https://doi.org/10.32511/flash.v9i1.1069

Saputra, N. J., & Hidayati, D. (2023). Persepsi Dosen Pascasarjana Universitas Swasta terhadap ChatGPT dalam Meningkatkan Mutu Pembalajaran. *Jurnal Sistem Dan Teknologi Informasi (JustIN)*, *11*(3), 532. https://doi.org/10.26418/justin.v11i3.67023

Sari, D. E. (2019). Quizlet: Aplikasi Pembelajaran Berbasis Smartphone Era Generasi Milenial. *Jurnal Pendidikan Ilmu Sosial*, *29*(1), 9–15. https://doi.org/10.23917/jpis.v29i1.8150

Shidiq, M. (2023). the Use of Artificial Intelligence-Based Chat-Gpt and Its Challenges for the World of Education; From the Viewpoint of the Development of Creative Writing Skills. *Society and Humanity*, *01*(01), 353–357.

Suranto, S., & Rusdianti, F. (2018). Pengalaman Berorganisasi Dalam Membentuk Soft Skill Mahasiswa. *Jurnal Pendidikan Ilmu Sosial*, *28*(1), 58–65.

Sutrisno, B. (2016). Profil Model Pembelajaran Soft-Skill Pada Smk Bidang Ekonomi Di Surakarta. *Jurnal Pendidikan Ilmu Sosial*, *26*(1), 115–135.

Wang, S., Wang, F., Zhu, Z., Wang, J., Tran, T., & Du, Z. (2024). Artificial intelligence in education: A systematic literature review. *Expert Systems with Applications*, *252*(PA), 124167. https://doi.org/10.1016/j.eswa.2024.124167

Yahya, R. N., Azizah, S. N., & Herlambang, Y. T. (2024). Pemanfaatan ChatGPT di Kalangan Mahasiswa: Sebuah Tinjauan Etika Teknologi dalam Perspektif Filsafat. *UPGRADE : Jurnal Pendidikan Teknologi Informasi*, *1*(2), 53–59. https://doi.org/10.30812/upgrade.v1i2.3481

Yusriadi, Y., Rusnaedi, Siregar, N. A., Megawati, S., & Sakkir, G. (2023). Implementation of artificial intelligence in Indonesia. *International Journal of Data and Network Science*, *7*(1), 283–294. https://doi.org/10.5267/j.ijdns.2022.10.005

Zahrani, A. R., & Haqque, R. (2024). Aspek Relasional Dalam Proses Komunikasi Manusia Dengan Mesin (Chatgpt). *Komversal : Jurnal Komunikasi Universal*, *6*(September), 324–338. https://doi.org/10.38204/komversal.v6i2.2056

Zhai, X. (2023). ChatGPT for Next Generation Science Learning. *XRDS: Crossroads, The ACM Magazine for Students*, *29*(3), 42–46. https://doi.org/10.1145/3589649