Perception of Teachers and Students on the Use of Artificial Intelligence (AI) Tools in Education

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Abstract:- The use of Artificial Intelligence (AI) has become inevitable in various fields including education. Many studies have found significance in the use of AI, particularly in education, as it adapts to students' learning processes. This study investigates how teachers and students perceive the use of AI tools in classrooms. Twenty-six teachers and 68 high school students participated in an online survey that included two questionnaires to collect information. The findings showed that although teachers' and students' perspectives on the use of artificial intelligence (AI) tools in education varied, they largely agreed. While teachers indicated that AI tools may help them manage their classrooms more successfully and provide their students with more feedback, students said that AI could help learning be made more efficient and improved through the comprehension and retention of material. On the flip side, there are some disadvantages as well, such as the possibility of misuse as cheating tools, weakened human connections, and job displacement of teachers and other educational professionals. The study concluded that using AI tools in education has more benefits than disadvantages and should be performed properly.

Keywords:- Artificial Intelligence, Education, Perception.

I. INTRODUCTION

Technology has become an integral part of education. Technology's continuous and rapid change has caused many changes in education – from the chalk-board discussion, which is limited to the four walls of a classroom, to online or distance learning, which can happen remotely and was made widely known during the COVID-19 pandemic, to the rise of artificial intelligence (AI) that can generate anything you need from making an essay, editing pictures, text to audio conversions, word to PowerPoint presentations, and many more.

Artificial intelligence (AI) is described by McCarthy (2007) as "the science and engineering of creating intelligent machines, particularly intelligent computer programs." Although it is related to the related job of utilizing computers to comprehend human intellect, AI should not be limited to techniques that can be observed by biological means. Artificial Intelligence has been integrated into many applications that are relevant to education (University of Gronengen, 2023). Some recent educational applications are the AI tool called ChatGPT, which can generate texts on a wide variety of topics based on user prompts; Talk to Books, which has a large curated database of books that returns quotes based on user prompts; Sheet Plus, which converts text to Google Sheets or Excel formulas; Bearly, which summarizes long texts; Lex, which also generates essays; Glasp, which generates summaries based on users' notes and highlights) Perplexity, which provides short answers with citations; DALL-E 2, which can create unique and realistic images based on text prompts written in natural language; and many more (University of Gronengen, 2023).

AI has brought a lot of changes in education. Many studies have shown that integrating technology into education has several advantages. According to Muttappallymyalil (2016), newer educational technology can be an effective tool for teaching and learning in this rapidly changing technological world and can be part of a comprehensive system for lifelong education. Artificial intelligence can personalize students' learning depending on their needs (Newton, 2016). It can be used to facilitate teaching and learning because it offers various tools and technologies (D'Mello et al., 2018). Apart from the fact that it can customize learning for each learner, it can also increase the accuracy and speed of the feedback. This differentiation can provide students with equal opportunities to maximize their learning.

Moreover, Chassignol et al. (2018) stated that measuring learning progress is becoming increasingly effective with the help of intelligent assessment systems. Through the implementation of these intelligent systems, the assessment of many assignments and the detection of learning and teaching gaps are no longer a problem.

Despite the potential benefits of AI-based educational tools, research on how students and teachers view these resources is lacking. This is especially true in the field of AI tools, where data on how teachers and students perceive and use these tools are scarce.

Therefore, the purpose of this study was to improve our understanding of students' and teachers' perceptions of AI tools in education. Understanding the perceptions of these stakeholders is critical for the successful adoption of AI tools in education. Researchers can also gain insights into how to design and implement AI tools in ways that benefit both students and teachers.

The primary goal of this research was to examine the perceptions of students and teachers regarding the use of AI

tools in education. Its specific goal was to answer the following questions:

1. What are the perceptions of students regarding the use of AI tools in education?
2. What are the perceptions of teachers regarding AI tools in education?
3. What are the advantages and disadvantages of AI tools in education?

II. LITERATURE REVIEW

In recent years, the use of artificial intelligence (AI) tools in education has become more widespread. Artificial intelligence (AI) tools are computer programs that employ algorithms to simulate intelligent behavior, enabling them to spot patterns, address issues, and come to conclusions. Teachers can improve student engagement, tailor instruction, and evaluate students' progress with the use of AI tools. But how do educators and students feel about using AI tools in the classroom? The employment of AI tools in education is examined from the perspectives of students and teachers in this survey of related literature.

A. Advantages and Disadvantages of AI Tools

Teachers' perspectives on the application of AI tools in education have also been examined. In a poll of 500 teachers in the US, researchers discovered that 77% of teachers were in favor of using AI tools in the classroom. Teachers said that AI tools could help them provide individualized training to their pupils while saving time on grading and lesson planning (Kou et al., 2020).

In addition, Hosseinzadeh, A., & Hughes, J. (2021) showed in their study that most teachers, in a sample of 1,200 in the United Kingdom had a favorable assessment of AI tools in education. According to the study, teachers believed that AI tools may help them run their classrooms more effectively and give their pupils more feedback. The survey also discovered that teachers believed that AI tools could free up their time for tedious duties, such as grading and lesson planning.

In contrast, in a study conducted by Rana et al. (2019), the authors found that teachers had a more mixed perception of AI tools, with some viewing them as an effective way to improve student engagement, whereas others viewed them as too expensive and difficult to use.

Overall, the research indicates that students generally have a favorable attitude toward the use of AI tools in education and see them as useful tools for enhancing student comprehension. Teachers, on the other hand, typically have a more unfavorable opinion of AI tools, considering them to be excessively expensive and challenging to use. It is crucial to ensure that both students and teachers are properly taught in utilizing these tools and that the advantages of using AI tools exceed the expenses to successfully integrate AI technologies in education.

B. Teacher Perception of AI Tools

Teachers' perspectives on the application of AI tools in education have also been researched. In a poll of 500 teachers in the US, researchers discovered that 77% of teachers were in favor of using AI tools in the classroom. The teachers said that AI tools could help them give individualized training to their pupils while saving time on grading and lesson planning (Kou et al, 2020).

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C. Student Perception of AI Tools

Numerous studies have examined how students feel about using AI in the classroom. Seventy percent of college students in the United States who participated in an Education Research Center poll of 1,200 college students said they had a favorable opinion of AI tools in the classroom. Students believed that AI tools may make learning more efficient for them as well as improve their comprehension and retention of material, according to the study (Education Research Center., 2021).

Ranganathan and Dutta (2021) discovered that students usually had favorable sentiments toward AI tools in education after reviewing studies on the topic. For instance, students said that AI tools could speed up research, reduce mistakes, and deliver individualized education. The study also discovered that several students expressed worries about using AI technologies, including privacy issues, lack of control, and worry about being replaced by computers.

Furthermore, in a study by Akbulut, Akbulut, and Akbulut (2020), students usually had a good attitude toward the use of AI tools in the classroom and saw them as useful tools for enhancing their comprehension of the subject matter.

III. RESULTS AND DISCUSSIONS

A. Teachers' Perception

The results showed that there was an average overall perception of teachers regarding the use of AI tools in education. Specifically, teachers think that AI can help students gain a deeper understanding of academic concepts.

The study further showed that primary school teachers strongly agreed that AI can improve teacher productivity in the classroom. They also view the use of AI to automate administrative tasks as very helpful. This result supports the study of Hosseinzadeh, A., & Hughes, J. (2021) who said that teachers believed that AI tools may help them run their classrooms more effectively and give their pupils greater feedback and that it could free up their time for tedious duties like grading and lesson planning.

Contrary to primary teachers, secondary teachers strongly believe that AI can effectively monitor students' behavior and attendance at school. This may imply that AI may not be effective in monitoring primary students' behavior as they need more interaction from teachers.

In addition to that, younger teachers use AI to automate their administrative tasks most of the time. They also strongly agreed that it could help reduce the teaching workload. Moreover, they believe that it can improve communication between teachers and administrators. These results imply that younger teachers typically use AI in their administrative work. This may further imply that they prefer to use AI in communicating with their superiors rather than talking with them in person.

B. Students Perception

Students, on the other hand, also agree with the utilization of Artificial Intelligence (AI) tools in education. They neither agree nor disagree that AI can improve communication between students and teachers and that AI can successfully identify and assess their learning needs. They also agreed that AI can improve the quality of education, reduce school-related work, and have the potential to assess students' learning.

Specifically, junior college students strongly agreed that AI can improve the quality of education. They also strongly agree that it can help students gain a deeper understanding of academic concepts, have the potential to assess student learning, reduce school-related workloads, and improve the overall school environment. This may imply that junior college students use AI more to aid in their studies.

The overall results agreed with the findings of Ranganathan and Dutta (2021) that students usually had favorable sentiments toward AI tools in education after reviewing studies on the topic.

C. Other Advantages and Disadvantages of Using AI

1) Teachers' Perception

According to the teacher respondents, other advantages of using AI include the following.

- This can lead to unprecedented innovation across different disciplines.
- This can help students monitor their mistakes in writing and be more aware of the correct writing composition.
- It can provide answers to everything, beyond what the students and teachers can grasp; and
- It can analyze the relationships between variables, thus making it easier for students to analyze complex data.

Some disadvantages that the teachers mentioned when using AI are as follows:

- AI can lead to job displacement among teachers and other educational professionals.
- The use of AI in classrooms limits human interaction. It cannot provide emotional support to students, which is crucial to their development and learning.
- If not properly mediated, it can make students more reliant and lazier, resulting in the downgrading of the quality of education. Critical thinking and innovation are no longer being practiced.
- It can also be used as a cheating tool.

2) Students' Perception

According to the student respondents, the advantages of using AI are as follows:

- This can help students to perform urgent tasks.
- This can help students deepen their knowledge and assist them in challenging lessons. It can summarize lessons for easier understanding. It can assist in writing, especially in checking grammar and related contexts.
- It reduces students' stress by having more fun experiences in studying.
- It can help teachers analyze data on students' performance so that they can assist them better.
- It is always available. Teachers may not always be available. It is also portable. It can be used anywhere if you have internet; and
- It filters out unnecessary websites that are not useful for study.

In a study conducted by Ranganathan and Dutta (2021), students said that AI tools could speed up research, reduce mistakes, and deliver individualized education.

Some disadvantages of using AI cited by the students were:

- It can also be used for cheating purposes. However, according to the respondents, this can be neutralized if learning is focused more on higher-order thinking skills.
- This can be a distraction when it is allowed to be used during class hours.
- Students may become lazy and dependent on AI, thus limiting their ability to think independently.
- It can reduce social-emotional factors, including engagement, communication, and overall relationships.

- Some data can be unreliable and inaccurate.

IV. CONCLUSION

In conclusion, the study's findings indicated that while students and teachers generally agreed on the use of artificial intelligence (AI) tools in education, teachers' perceptions varied. Improved teacher output, automated administrative activities, deeper comprehension of academic subjects, and an improved learning environment, in general, were all benefits of adopting AI.

However, some drawbacks include the potential to be used as cheating tools, diminished human connection, and job displacement of teachers and other educational professionals.

The benefits of AI in the sphere of education cannot be disputed, despite its drawbacks. To maximize its potential for enhancing student learning and instructor effectiveness, artificial intelligence in education should be used effectively in education.

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