CHAPTER 3

SIGNIFICANCE OF ARTIFICIAL INTELLIGENCE IN MODERN EDUCATION

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KEYWORDS

Artificial Intelligence , Modern Education , Personalized Learning , Adaptive Learning Systems , Machine Learning

ABSTRACT

The use of Artificial Intelligence (AI) in schools has changed a lot about how people learn and teach. This essay discusses the various methods AI can assist in making learning better. It's mostly about how it can speed things up, make learning more specific, and grab students' attention. Smart computers can learn from data and understand words. Teachers can use these types of AI to look at a lot of school data. Learning tools must be able to change based on each student's needs for this data-based way to work. This helps you learn smarter and better. AI can also be used to do boring office work. This gives teachers more time to do more important tasks. AI does more than just let people choose how they want to learn. It's also used to make smart teaching tools and virtual assistants. These tools use AI to help kids get help, comments, and advice right away. This lets you learn at your own pace and in an interesting way. Virtual reality and augmented reality apps are also made with AI. These apps help people learn in fun ways, which helps them understand tough topics better. Learn with a group is a very important area where AI is used a lot. It lets smart tools be made that let students talk to each other and

share what they know. So that learning groups are always new and different, AI looks at patterns in how people work together and learn. AI is being used in schools, which raises some moral questions. Some of these are bias, privacy, and the need for AI to be properly managed. Pay attention to these points if you want to make AI work better in schools and make sure it's fair for everyone. In conclusion, AI is important in modern education because it can change how basic lessons are taught by making them more specialized, getting rid of dull jobs, and making learning spaces more open and fun for everyone. They need to figure out how to use AI in the classroom in a way that doesn't hurt social problems or bring up new ideas. In this way, the school system will be ready for the future.

3.1 INTRODUCTION

First, let us quickly go over what AI is and how it has been used in the past in schools. Some AI-based ways to learn are smart teaching systems, flexible learning, virtual helpers, making learning more like a game, and making learning more personalized for each person. There are many good things that AI can do for education. It can make it easy to start, improve learning for everyone, save time and money, and give us insights and information. AI in schools isn't good because it can't tell how people feel. We're going to talk about this. Lastly, we will talk about how AI will be used in education in the future to make lessons, test students, make personalized learning paths, get people to work together, and keep learning going. At the end, we'll talk about some ideas, why AI is important in school, and what the future holds. A lot of work was done in the 1980s and 1990s to figure out how to use AI to make training software that could act and behave like real life. That's what the method was called because it was meant to make students think more deeply. In the early 2000s, learn management systems (LMS) that use AI became more common. AI is also being used in more and more educational websites and apps. Anyone can use any of these to learn in their own way, at any time.

3.2 AI-BASED LEARNING

"AI-based learning" is a broad term for a number of different learning tools that use AI to help students learn better, have more fun while they're learning, and create their own unique learning paths. Here are some ways to learn that use AI. Smart

teaching systems (ITS) are one type. These use AI to give each student specific information and instructions based on how they learn best. AI is used to make sure that each student has a unique way to learn based on their skills, hobbies, and how they discover best how to learn. Kids are more likely to stay interested in and want to learn when they are taught this way. Every student can learn better with AI-based learning tools that are made just for them. These tools also make school easier for everyone. ITS, or intelligent tutoring systems are: These tools can tell kids what they need to work on and give them exact ways to do it. ITS makes a plan just for each student based on what they already know. Figure out what the student already knows and what they want to learn with the help of knowledge modeling, data mining, and machine learning. Once that's done, the system makes a lesson plan with practice questions, tests, and lessons that are just right for each student. ITS is also great because it tells kids right away what they did wrong, so they can fix it. It can change the way and speed of teaching to help a student who is having trouble if it sees that they are having trouble. ITS has been shown to help kids learn many things better, such as languages, math, and science. Kids who use ITS remember things better and do better on tests than kids who don't use ITS. Many good things about ITS are also bad things and limits it sets. A problem is that it costs a lot to build and use. Also, they're not mentally intelligent enough, which is a flaw. This type of learning has become more well-known in the past few years. Because AI knows about each student, it can change the lessons and the speed to fit each one's needs. Students' test scores, the amount of time they spend on learning projects, and how they use learning tools are all things that this way of learning looks at. This method has been shown to improve learning by getting students to connect with each other more and remember what they have learned. But there are also some problems and limits with flexible learning. One thing that could make the system less useful is not being able to get good info. Getting information about kids and using it could be against the law and a breach of their privacy. These are AI-based learning tools that use natural language processing to give students information right away. Imaginary Assistants can be added to a lot of different ways to learn, like educational apps, learning management systems, and websites for online courses. Virtual assistants with the help of AI can understand what students say in everyday language and respond in a way that makes sense. The can show students how to use learning tools, talk about what they are learning in class, and let students know what they think about their work. It's great that virtual helpers help students in real life. This can help them learn more and stay on track with their studies. For your own wants, they can also give you comments and help.

They can also make it easy for teachers to help all of their kids. If teachers already know the answers to the most common questions and worries that students have, they can focus on giving more in-depth help to the students who need it. There are some good things about virtual helpers, but there are also some bad things and boundaries. A virtual assistant is one way that AI could be used in all kinds of schools. They can help and support kids right now, which can help them learn more and make it easier for teachers. This is how gaming works: students want to be pushed, do well, and be praised. Making learning more like a game can make it more fun and difficult, which will keep students interested and driven. Games at school are fun because they can get kids more interested and motivated, which can help them learn more. Letting kids learn at their own pace can also help them understand things better. Every school level, from K–12 to college, can use games to help them learn. It helps kids learn better, which means they do better on tests, are more interested in school, and remember what they've learned better. But games have flaws that they can't always fix. It's important to plan and put together the game-like parts carefully so they don't get in the way of the learning goals. Some students might not do well on jobs that are based on games, and those students might need more help. AI can be used in the classroom to get students more interested, motivated, and good at what they're doing. Games are a good way to do this. Adding game-like features to lessons can help students learn more by making them more fun and interesting. Learning that is tailored to each student is possible by keeping track of how they do, how they act, and how they like to learn. This data is then used to make sure that every student learns in a way that is just right for them. Projects, tools, and learning notes that are made to fit the student's needs and way of learning can be part of this. Personalized learning can be used in all kinds of schools, from K–12 to college. It does work to get kids more interested in learning, help them do better on tests, and help them remember things better. But sewing skills have some problems that they can't fix.

3.3 ADVANTAGES OF ARTIFICIAL INTELLIGENCE IN EDUCATION

Tools that use AI can make learning more specific and adaptable, which can improve results.AI can help people learn by giving them access to tools that can assist them. Third, tools that use AI can do dull chores and give students feedback right away, which makes the learning process go faster. Using AI to do things that people would normally have to do can help bring down the cost of school. AI could make learning better in many ways, such as by making lessons that are more

specific and flexible, by making models that are fun to use, and by making smart teaching systems. One type of simulation is interactive.

These are fun and interesting because they let people try out hard ideas and concepts in a way that is both clear and involved. These are computer programs that are run by AI and can help and give feedback to students right away. They learn faster and better this way. This tool changes languages in real time and speaks what students write, which can help them think about and be interested in their schoolwork. AI can improve learning in lots of ways, like by making it more personalized and flexible, using interesting models, and setting up smart training systems: AI-powered tools can make learning adaptable and flexible so that it fits everyone's needs. This could make people more interested, keep them going, and teach them more. Immersive and fun, AI-powered interactive Sims let people look at tough ideas and concepts in a way that is both visual and hands-on. These systems use AI to help and give feedback to students in real time, which helps them learn more quickly and better. Tools that use natural language processing can read and speak written text, as well as let users interact with lesson material in real time. This part is about being easygoing and welcoming to everyone. AI could make it easy for everyone to get an education by creating materials and tools that work for a wide range of learning styles and needs. Some students have trouble reading or speaking. Real-time language translation and text-to-speech tools can help these students better understand and connect with their schoolwork (Bai, Wang, & Chen, 2020). As Li, Cui, and Wang (2021) say, speech recognition and prediction text are two AI-based technologies that can help students who have physical problems do their schoolwork and take part in classroom activities.Tech and school supplies should be accessible to all students, and AI-based tools can help teachers and writers make sure of this (Chen & Wang, 2020).

3.4 CHALLENGES AND LIMITATIONS

If AI systems aren't taught on balanced data or aren't made to be fair, they can be unfair and make social problems worse (Machin & Steinerowski, 2019).. Comfort and safety: People worry about the safety and privacy of children because AI-based school systems can collect private information about them (Shin, 2019).Some people are worried about AI's morals because it makes them think about duty, freedom, and responsibility (Bostrom & Yudkowsky, 2014). Tech can only do so much. AI is still being worked on, so it may not be able to fully copy how people

think and learn. AI may not be as good or useful as they could be since they are used in schools (Bai, Wang, & Chen, 2020).

3.4.1 QUERIES ABOUT WHAT IS RIGHT AND WRONG

- More and more AI is being used in schools. To keep kids and teachers safe, rules and morals need to be made worse.
- Private Information: AI can collect and store private information about kids when it is used in schools. People worry about how to keep their data and information safe because of this (Shin, 2019).
- It's possible that AI in schools will make things less fair and equal when it comes to money, race, and gender (Machin & Steinerowski, 2019).
- Being honest and open: AI systems don't always make sense of how they decide what to do. (2014) Bostrom and Yudkowsky A lot of people are afraid they won't be able to be honest.
- What if material made by AI was made by computers instead of people? Liu, Shi, & Xiong (2021) say that people may wonder who is in charge and what their rights are.

3.4.2 GETTING IN TOUCH WITH THE PRESENT SCHOOL SYSTEM

- Teach should know how to use AI well in the classroom (Gunter, 2021).
- Integration with Real-World Technologies: AI systems need to be made to work well with technologies like learning management systems and student information systems that are already used in schools (Bai, Wang, & Chen, 2020).

3.4.3. PRIVACY AND SAFETY OF DATA

- When AI is used in schools, it's important to keep stuff safe. What could go wrong when AI is used in schools? You can use these ideas and keep these safety rules in mind.
- Making sure that schools follow the rules for computer safety: US schools must follow FERPA and GDPR rules for data security when they use AI in the classroom (Shin, 2019).

ISBN: 978-81-962971-8- 3

- When schools store and encrypt data, they should make sure that private information stays out of the hands of people who shouldn't have it (Zhang & Chen, 2021).
- To stop hacks and data breaches, schools should have strong cybersecurity means in place (Shin, 2019).

3.4.4 BEING RELIANT ON TECHNOLOGY

- Kids might depend on AI too much if it is used in schools:
- Finding the best mix of old-fashioned and new ways to teach: The best way to teach should not be thrown out; instead, AI should be used to improve it (Bai, Wang, & Chen, 2020). This will keep the right amount of technology and personal touch.
- AI systems should not only do things for kids, but they should also teach them how to think critically and artistically (Khalil, Ebner, & Kopp, 2019).
- It's not enough for schools to just have AI in the classroom; they need the right tools (Gunter, 2021). 3. Giving students current skills: Tech-savvy lessons should be given in schools so that teachers and students can use AI systems in a smart and secure way (Anderlini & Kock, 2020).
- AI in schools might not be able to understand how people feel either because they are too stupid to do so.
- Making AIs understand how people feel: Dr. D'Mello (2019) says that AI systems should be given emotional intelligence so they can know how kids are feeling and help them.

3.5. FUTURE OF AI IN EDUCATION

- AI systems will be mixed with virtual and augmented reality technologies to make learning more active and powerful (Li & Shum, 2020).
- It changes and makes classes that are better suited to the needs of each student and can be changed as required.
- AI can be used to find copied work in student papers and projects, which makes the classroom more honest and stops cheating.

- AI can look at information about students and tell teachers how they are learning and how well they are doing. This lets teachers change the lessons they give and make sure that every student learns in a way that is best for them.
- AI can be used to make smart teacher aids that help students with their schoolwork and give them specific comments.
- AI can be used to create systems that use natural language to answer students' questions and give them comments on their work.

3.6 CONCLUSION

In the long run, we have changed how we teach and learn by giving schools new, high-tech tools. It's clear that people want to improve education by looking for new tools and methods, such as data-driven methods and fun activities. Teachers and politicians need to find a balance between how they use new tools to help kids and how they think about the moral and practical issues these changes raise. In the future, schools will have more shared and individual places to learn.

It is important to think about the issues deeply so that all kids can benefit from the changes. The world of education changes so fast these days that using cutting edge tools is a big part of how we teach and learn.

You want to make schooling better and more useful for everyone if you try new things, like data-driven methods and fun activities. To make sure that everyone can learn in a way that works for them, data-driven methods use data. By taking each student's skills and weaknesses into account, this feature could make learning more fun and useful. Many things about how well kids are doing can be learned from data analytics.

This helps them fix and help you in a better way. With the help of virtual reality, augmented reality, and other fun activities, you can learn in new ways. Kids can learn hard subjects in fun and engaging ways with these tools that might be harder to do with regular lessons. Immersive and changing models, settings, and situations can help people learn more and gain useful hands-on experience in many areas. While lawmakers and teachers use new tools, they need to think about the moral and practical issues they bring up. This is especially important as things change.

Many people worry about things like fairness, privacy, and the fact that programs might have bugs. It's not enough for the tools to just work; teachers also need to be taught and helped to use them effectively in the classroom. Things look good for the future of education. There may be places to learn that are more focused and based on groups. But before these changes happen, it's important to know what issues they will bring up.

This is how people who work in education can make sure that new tools can help a lot of students. As a whole, this will make schools more open, creative, and useful.

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