

Paper action about

Models of Artificial Intelligence (AIA) Applications for Preschool Education

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Abstract

Artificial Intelligence applications are considered the most important sources of recent education. It helps the specialists of educational programs to develop and invent new ways of strategy's which helps kids to learn effectively. An Educational technology constitutes an important aspect in modern education providing unique learning experiences to students and improving their learning. Technological resources (especially computers) have been integrated in education for decades.

However, integration of educational technology in early childhood education is a more recent trend compared to the other levels of education. This fact creates the need to develop, apply and study application of resources and methodologies specifically addressed to young children. Artificial Intelligence approaches have been incorporated to educational technology resources providing improved interaction to learners.

An overview of artificial intelligence

Children's ability to understand AI concepts correlated positively with the extent to which they were able to explore the AI concepts through interacting with the activities. Further work is needed to design an effective AI curriculum that covers more material and can be adapted to other contexts, such as classrooms with older, non-programming students and non-expert teachers. We believe that there are hands-on ways to make other AI concepts (e.g., planning, perception, reasoning, and deep learning) accessible to young children.

What is Artificial intelligence?

Artificial intelligence (AI) is a branch of the field of computer and information science. It focuses on developing hardware and software systems that solve problems and accomplish tasks that—if accomplished by humans—would be considered a display of intelligence. The field of AI includes studying and developing machines such as robots, automatic pilots for airplanes and space ships, and “smart” military weapons.

Europeans tend to use the term machine intelligence(MI) instead of the term AI.

AI is concerned with developing computer systems that can store knowledge and effectively use the knowledge to help solve problems and accomplish tasks. This brief statement sounds a lot like one of the commonly accepted goals in the education of humans .

We want students to learn (gain knowledge) and to learn to use this knowledge to help solve problems and accomplish tasks.

Intelligence is a combination of the abilities to :

- Learn. This includes all kinds of informal and formal learning via any combination of experience, education, and training .
- Pose problems. This includes recognizing problem situations and transforming them into more clearly defined problems .
- Solve problems. This includes solving problems, accomplishing tasks, and fashioning products.

Three General Goals of Education

Each person has their own ideas on what constitutes appropriate goals for education. Thus ,this topic can lead to heated debate and is currently a major political issue. Curriculum content ,instructional processes, and assessment are all controversial issues. What constitutes a “good ” education or a “good” school?

David Perkins' 1992 book contains an excellent overview of education and a wide variety of attempts to improve our educational system. He analyzes these attempted

improvements in terms of how well they have contributed to accomplishing the following three major goals of education (Perkins, 1992, p5)

- Acquisition and retention of knowledge and skills .
- Understanding of one's acquired knowledge and skills .
- Active use of one's acquired knowledge and skills. (Transfer of learning. Ability to apply one's learning to new settings. Ability to analyze and solve novel problem.

These three general goals—acquisition & retention, understanding, and use of knowledge & skills—help guide formal educational systems throughout the world. They are widely accepted goals that have endured over the years. They provide a solid starting point for the analysis of any existing or proposed educational system. We want students to have a great deal of learning and application experience—both in school and outside of school—in each of these three goal areas.

The teaching strategies most

commonly employed in ICAI systems are :

- i) coaching the student within a particular activity, such as a game-playing situation ;the intent is to manipulate the environment and the coaching such that a particular skill(s) or general problem-solving ability is acquired ;
- ii) questioning the student to encourage reasoning about current knowledge and to modify or formulate concepts; this may involve simulations or games in which the student can

discover facts or laws

- ؛iii) providing tasks for the student and evaluating the responses in order to detect the student's misconceptions.

Applications of (AI) in preschool Education

Adaptive Learning:

It is one of the promising application for the benefit of students. AI in schools help the students for adaptive learning by tracking their academic progress, modify the course or its learning pace, informing the teacher about the difficulty in comprehension, and, more.

Automated Grader:

Though automatic grading has a long way to go, several standardized tests are using automatic grading systems.

At an initial phase, the teachers submit graded essays as a sample to distinguish good and a bad essay. The software accumulates the knowledge as it grades more essays and provides specific feedback instantly.

However, the Robo-graders replace a part of the grading system, and human grader is always there for further assessment.

Chatbot:

Students' evaluation is necessary as it gives a valuable information and also needs an elevation from the existing setup. The AI-driven chatbots seem to be promising in increasing the feedback quality.

The chatbot collects the students' opinion through a dialog interface as if it is a real interviewer and look reasons too for varied opinions. The system is unbiased.

Chat Campus:

As the name itself indicates, you can chat with AI to know the campus. You can understand the life on the campus like searching a lecture hall, application procedure for the next semester, get assignments, know the cafeteria, parking lot, library, campus events, interviews, and more.

Data Accumulation:

Using previous search queries, Artificial intelligence in education can suggest related content for the students. For instance, if you are looking into preposition part of English grammar, it may suggest further readings on complete parts of speech as a whole, or other parts of speech like Noun, Adverb, and, etc.

Personalized Learning:

It is evident that the pace and needs for learning differ from one learner to another. Accordingly, the learning instructions and approach should vary and optimized for individual benefits.

Artificial intelligence in education can adapt quickly to the individual needs and deliver personalized learning methodologies and activities driven by the learners' interest. And, it incorporates complex tasks readily and accelerates the learning task too.

Proctoring:

E-learning, the future of learning needs supporting technologies. AI-powered systems ensure the authenticity of the student to take the exam and prevent from cheating.

It can be used for attending competitive exams, school/college admission test, promotions, and, more.

Smart Content:

Smart content creation is already introduced into the primary and secondary school, college, and corporate environment. With the help of AI, the textbooks could be split into small chunks of digestible guides, which is easy to read and understand.

The study guide includes flashcards, MCQs, fill in the blanks, pointers, true/false, chapter summary, and, so forth. For instance: Cram 101, Netexlearning, and, etc.

Virtual Facilitator:

Though virtual humans are not welcomed in the place of a human instructor, virtual instructors could be used in the educational and therapeutic environment. It can think, act, and react to the students' queries and act as an assistant for the teacher.

PopBots

Is a hands-on toolkit and curriculum designed to help young children learn about artificial intelligence (AI) by building, programming, training, and interacting with a social robot.

Conclusion

The Applications of Artificial Intelligence in Education is offering opportunities for student engagement against the typical four-walled classroom. Though AI cannot replace our teachers, AI applications are used in one or the form today in education. We hope that this will empower children with AI literacy, inspire them to create projects using AI technology, and augment children's reasoning metacognitive skills (thinking about thinking)

References

- Belpaeme, T.; Kennedy, J.; Ramachandran, A.; Scassellati, B.; and Tanaka, F. 2018. Social robots for education: A review. *Science Robotics* 3(21):eaat5954
- Randi, W, Hae , Lauren O, W, and Cynthia, B 2018. Personal Robots Group, MIT Media Lab, 20 Ames Street, Cambridge, Massachusetts, 02142
- David ,M.(2006) **Brief Introduction to Educational, Implications of Artificial Intelligence**, University of Oregon
- <http://darkwing.uoregon.edu/~moursund/dave/index.htm>
- Vita: <http://darkwing.uoregon.edu/~moursund/dave/vita.htm>