

The Future of Teaching and Learning in Artificial Intelligence era (part II)

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Abstract:

The core of the AI is a model. Now, based on the needs of teachers (as well as students and their families/caregivers), we add another layer to our criteria. Some AI models can recognize patterns in the world and do the right action, but they cannot explain why (e.g., how they arrived at the connection between the pattern and the action). This lack of explain ability will not suffice for teaching; teachers will need to know how an AI model analyzed the work of one of their students and why the AI model recommended a particular tutorial, resource, or next step to the student. This paper discusses examples of AI supporting teachers and teaching including these concepts: AI assistants to reduce routine teaching burdens; AI that provides teachers with recommendations for their students' needs and extends their work with students; and AI that helps teachers to reflect, plan, and improve their practice. On the other hand, AI is being able to reduce the amount of teacher attention which have to give to administrative things and increase the amount of his attention can give to his students with their learning needs in the classroom.

1. Introduction:

The most direct result of the application of artificial intelligence in education is the birth of an intelligent teaching system. The intelligent teaching system emerged on the basis of computer-assisted teaching. It is an open human-computer interaction system formed by student-centered, computer-based, and computer-simulated thinking processes of teaching experts. At present, the intelligent teaching system has become the main form of artificial intelligence application in education. Intelligent teaching systems mainly apply artificial intelligence principles in knowledge representation, reasoning methods and natural language understanding. Because it integrates the activities of knowledge experts, teachers and students, correspondingly, the intelligent teaching system is

generally divided into three basic modules: knowledge base, teaching strategy and student model, plus a natural language intelligent interface. Specifically, the functions of the intelligent teaching system are as follows: to understand the learning ability, cognitive characteristics and current knowledge level of each student; to select appropriate teaching content and teaching methods according to the different characteristics of the students, and to provide students Targeted individual guidance; allowing students to use natural language to conduct man-machine dialogue with the “computer tutor”. The design of intelligent teaching system requires not only knowledge of computer science, but also theoretical guidance of educational science.

2. Application of artificial intelligence in the field of education:

One of the biggest challenges in education is that everyone learns differently. It is difficult for teachers to accurately grasp each student’s real learning situation, leading to the teaching design and teaching process, difficult to focus on each student’s real learning needs, resulting in a waste of energy, time and teaching resources. But the artificial intelligence system can provide each learner with a personalized learning style, so that each student can learn in the most suitable way, accurately record the learning status of each student, assist teachers to achieve hierarchical teaching and precise teaching, and effectively solve the core problems of teaching and learning. At present, the application of artificial intelligence in the field of our education mainly includes image recognition, speech recognition, human-computer interaction and so on. Applications mainly focus on tutoring, online learning, classroom teaching and other aspects. Artificial intelligence application in the field of teaching is mainly manifested in the application of Intelligent Tutoring System. Intelligent teaching system is set intelligent class room, intelligent marking, intelligent diagnosis and intelligent treatment, intelligent preview, intelligent operation. Intelligent sentiment analysis for the integration of intelligent teaching system is designed to create a good learning environment for students, so that the students can convenient call all kinds of resources, to accept a full range of learning services, to achieve the success of learning. By establishing the subject of teachers, students and teaching management, the corresponding teaching strategies can be formulated and implemented according to the characteristics of different students and personalized teaching services can be provided for students. Distributed intelligent teaching system based on network is the latest development direction of intelligent teaching system. It can make students who are originally separated in different areas learn together in a virtual environment, make full use of network resources, give play to learners’ initiative, and bring better teaching effect.

The application of artificial intelligence in the field of education is still in its infancy, and people effectively combine the high efficiency of machines with human intelligence to influence the development of society. In recent years, artificial intelligence technology has always maintained a rapid development speed, and its application in the field of education plays a huge role in education and teaching, and promotes the development of humanized and individualized teaching, and integrates teaching activities. Closely connected with the development of science and technology, this is a major innovation activity in the field of education.

3. The mainly four specific forms:

I. Smart Assessment

Under the traditional education model, teachers' work content focuses on two aspects, one is classroom teaching, and the other is correcting homework. Among them, teachers need to spend more time and energy to correct students' homework. However, driven by big data technology, text recognition technology, and semantic analysis technology, automatic correction of homework has been realized in reality. Intelligent evaluation can simplify the correction process to a large extent. This is also a major change to the traditional evaluation method. It is faster, more efficient, and very accurate. It frees teachers from heavy homework corrections. Make it more energy in classroom teaching, effectively promote the improvement of teaching efficiency.

II. Smart Tutor System

The intelligent tutor system is one of the adaptive learning systems. It is precisely because of the emergence of this system that the one-way instillation mode of teachers to students under the traditional teaching mode has been changed to a large extent, and better teaching results can be obtained. The system can make targeted learning plans according to different students' mastery of learning content, and at the same time highlight students' personalized learning methods, and help students master knowledge points more quickly through richer learning resources to realize specific learning goals.

Through the intelligent tutor system, it is even possible to analyze the expressions of the students and understand the learning status of the students from it. Through the feedback mechanism, the teacher can be more aware of the students' mastery of the classroom teaching content, and use an emotional perception to predict and adjust it. In fact, the development of the intelligent tutor system is still immature at this stage. Basically, it has more applications in self-study and Q&A, but it has relatively few applications in classroom teaching. If you want to apply it better, you still have to pay attention to the improvement and optimization on the technical level.

III. Educational Simulation Game

In modern education concepts, quality education is emphasized. Therefore, the classroom atmosphere should not be lifeless, but should be presented in a more entertaining way. Under the background of the rapid development of artificial intelligence, educational simulation games are not entertainment activities in the traditional sense. They are more targeted. They promote the openness of education and teaching through games, and create some digital games based on the simulation environment. Students can have a higher enthusiasm for learning. Through intelligent simulation games, students can form a new understanding of things, and at the same time, their observation and thinking abilities can also be well exercised, which promotes students to discover and solve problems proactively. Based on the simulation game environment, students can be more involved in learning through playing different roles, and participate in learning activities with great interest to gain new knowledge. The introduction of simulation games in teaching can show some abstract knowledge in concrete forms, so that students can form a more intuitive understanding and feelings, can effectively enhance students' attention, and make students' professional knowledge learning more solid and in-depth.

IV. Educational Robot

Educational robots involve many disciplines. The application of multi-disciplinary knowledge and technology, the role of educational robots developed in assisting teaching is obvious. It can effectively add interest in the classroom, stimulate students' innovative ability, and rely on information technology to enhance students' knowledge and the ability to obtain information. In specific teaching applications, educational robots are an intelligent teaching tool that can form a powerful supplement for teachers to carry out teaching activities. Students can also actively seek answers to questions through this human-computer interaction and promote self-learning capabilities. Educational robots can perceive changes in students' emotions. Educational robots can perceive changes in students' emotions. If there are more exchanges with students, they can more accurately grasp the learning effects of students, which is conducive to teaching students in accordance with their aptitude, so that students can feel knowledge from the communication with intelligent robots charm.

4. The Problems Facing Artificial Intelligence Education

Although current AI education is not perfect, but it has also had a strong impact on all aspects of education. From the field of practice, People are trying to bring education into line with the requirements of the age of artificial intelligence, Our thinking has been changed, the mode has been updated, the behavior F has been changed, the resource

development and other aspects have achieved positive thinking and exploration. However, as the current education is still in the early stage, the role of artificial intelligence and the development of artificial intelligence education is mainly reflected in the “technology”, lack of education, and some problems existing in the discipline and artificial intelligence education practice.

I. Artificial Intelligence Education Technology Upgrade

Artificial intelligence is not equal to artificial intelligence education. The core technology of artificial intelligence is to simulate the thinking activities and behavior patterns of human beings in some aspects according to the amount of data collected, algorithm characteristics and computing speed. But artificial intelligence education is by no means a simple way to collect and analyze big data, And the subjective analysis of students' learning ability, type, style, specialty and a variety of related relations, and then put forward teaching Suggestions or take intervention measures. There are essential differences between man and machine. The simulated intelligence of machines is different from the natural intelligence of human beings. The intelligence of a machine is that the problem is formalized by man and that the computer can do the calculation.

Then, Human intelligence is acquired through learning and practice, and has initiative. But the intelligence of the machine does not have the intelligence of the human mode of thinking.

AI is allowing the automation of administrative tasks, allowing institutions to minimize the time required to complete difficult tasks so that the educators can spend more time with students. AI can be used to automate the grading tasks where multiple tests are involved with better ways of grading written answers and normal essays. Besides, Artificial Intelligence is allowing for automation of classification and processing of paperwork.

Smart content is a very hot subject matter today. Robots can produce digital content of similar quality as what different AU essay writing services can create. Smart content also includes virtual content like video conferencing, video lectures. AI systems are using traditional syllabuses to create customized textbooks for certain subjects. As a result, textbooks are being digitized, and new learning interfaces are being created to help students of all academic grades and ages. An example of such mechanisms is uses AI to make textbook contents more comprehensible and it is easy

to navigate with summaries of the chapters, flashcards, and practical tests. On the other hand AI interface which enables professors to create electronic curriculums and educative information across a myriad of devices includes online assistance programs, audios, and illustrative videos



Figure 1, Education Transformation workflow (Microsoft)

When AI is introduced, teachers are not necessarily replaced, but they are in a position to perform much better by offering personalized recommendations to each pupil. AI customizes in-class assignments as well as final exams, ensuring that students get the best possible assistance. Besides, instant feedback is one of the keys to successful tutoring. Through AI- apps, students get targeted and customized responses from their teachers. Teachers can condense lessons into smart study guides and

flashcards. They can also teach students depending on the challenges they face in studying class materials. College students can now access a larger window time for interacting with professors. Smart tutoring systems, can offer quick feedback and work directly with students.

AI can facilitate the learning of any course from anywhere across the globe and at any time. AI- equips students with fundamental IT skills. With more inventions, there will be a wider range of courses available online and with the help of AI, students will be learning from wherever they are.

AI help schools to determine the appropriate methods of preventing students from getting lost in crowds when they run in corridors. AI can also be used in the modeling of complex data to enable the operations department to create data-driven forecasts. Also, assigning seats during school functions or ordering food from local cafeterias. AI will create adaptive learning techniques with customized tools for improving the learning experiences. Artificial Intelligence might inform the students how their career paths look like depending on their goals thus assisting them beyond academics. Only time can tell the ultimate impact of AI in the education industry.

II. Limitations of Artificial Intelligence Education

Interaction Although artificial intelligence has been developed for more than 60 years, it has great limitations in applied education at present. Education to some extent, education, to some extent, is a means of learning by which people communicate and inspire each other according to their own knowledge, but intelligent teaching system is far from reaching this level. Secondly, machines cannot communicate with students as humans can. Machines only judge students' input information and master students' learning situation, which leads to people's wrong information receiving due to the data generated by "machine intelligence", ignoring the real situation.

III. Learning Mode Solidification

Artificial intelligence education system is made into a teaching module based on the data of knowledge level, cognitive ability and learning style provided by different students. Through the test results of this module, students are judged and their learning process is evaluated. The level of each student is different, if according to the formal teaching

module teaching, rather than according to the specific situation of each student flexible teaching, in the long run, it is not conducive to the personalized development of students.

IV. The Scope of Artificial Intelligence is Limited

Although the introduction of ARTIFICIAL intelligence into education conforms to the development of The Times, it does not mean that all subjects are suitable for artificial intelligence or the current artificial intelligence education is not able to cover the learning of all subjects. There are obvious differences among various disciplines, which are mainly reflected in the differences in research objects, theoretical framework, discipline thoughts, research methods and expression methods, etc. These differences lead to the natural differences in teaching and learning of different disciplines .

V. Analysis of the Limitations of Artificial Intelligence in

Education In terms of the current level of development of artificial intelligence and the characteristics of artificial intelligence itself, its application in education also has its limitations.

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