

How Do Teachers Face Educational Changes in Artificial Intelligence Era

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Abstract. With the rapid development of information technology such as deep learning, big data, and neural networks, a new era of AI (Artificial Intelligence) has arrived. Thinking, emotion, and social skills that were once considered to be unique to human beings are gradually being realized on AI, and education and teaching based on these abilities are bound to usher in profound changes. AI plus education has risen to the level of national policy. As a teacher, how to face the educational changes in the AI era is both a challenge and an opportunity.

Keywords: Artificial Intelligence; Educational changes; Teaching.

1. Introduction

At the beginning of 2017, Einstein robots were born in the United States. It not only recognizes hundreds of facial expressions such as emotions, fears, and confusion, but also infers people's age and gender and makes simple expression responses. The robot's designer, David Hanson of Hansen Robotics, at the 2045 Global Future Conference in New York, said, "If we create robots with human intelligence or beyond human intelligence, we can't predict what will happen. And that will also bring us unimaginable opportunities, definitely a change."

AI is the study of the rules of human intelligence activities, constructing an artificial system with certain intelligence, allowing computer to complete the work that requires human intelligence in the past. In the 1950s, humans began to study AI. Thanks to scientific and technological progress in the past ten years, AI has been advancing by leaps and bounds. Thinking, emotion, and socialism have been considered to be unique to human beings [1].

AI era has already arrived. from 2016, China has successively released the "Education Informatization" 13th Five-Year Plan" and "Education Informatization 2.0 Action Plan" and other documents, emphasizing the integration of AI into reality through big data collection and analysis. In May 2017, "New Generation AI Development Plan" proposed the implementation of the National Intelligence Education Project, which set up AI courses in primary and secondary schools. The New Media Alliance Horizon Report (2017 Higher Education Edition) states that "as AI and natural user interfaces enter mainstream applications, many universities are designing machine learning algorithms and haptic devices to more realistically interact with humans." [2]

2. The Application of AI in Education

2.1 Australia Online Adaptive Education Platform.

Smart Sparrow is Australia's online adaptive education platform. It does not produce content itself. Instead, it assists teachers in designing adaptive teaching content according to the acceptance and changes of different students. The platform is open to college students and teachers to meet the needs for rich interactive, adaptive educational content. At present, it mainly involves science, medicine, engineering and other fields. Combining the characteristics of these fields, Smart Sparrow has embedded a large number of simulation experiments in the course, allowing students to "learn by doing", such as complex virtual surgery, virtual experiments, designing virtual buildings, etc.

2.2 America Desire2Learn

Desire2Learn(D2L) is a cloud education learning management platform in the United States. It provides cloud learning management systems for the world's top 1000 companies, higher education

institutions, and K-12s. It aims to change the way the world learns. With the D2L learning management platform, you can read course materials, submit assignments, do test questions, and communicate with classmates. This not only provides students convenient learning tools, but also a large amount of valuable raw data. Using this raw data, D2L can analyze the students' learning and feedback the results to students and teachers in a highly graphical format. For the feedback, students can understand the mastery of specific knowledge points and teachers can understand the progress of each student's learning. For D2L, it can use the knowledge of students' learning to predict whether students are suitable for some new courses, so as to help students make choices.

2.3 America Online Robot Jill Watson

Jill Watson is an online AI program based on the IBM Watson supercomputer. Professor Ashok Goel uses it to answer questions from students in his online course. In the face of a problem, Jill will answer more than 97% of the questions. It will be transferred to other human assistants. At the end of the semester, most students did not realize that the robot was answering their questions.

2.4 Betty's Brain

Daniel Schwartz, a professor of education at Stanford University in the United States, developed an AI application, Betty's Brain. As a virtual character, Betty plays the children's companions in the learning activities, allowing students to teach him learning biological knowledge. During the collaborative dialogue, the students' explanations will be recorded and evaluated by Betty and will be immediately feedback to them, so that students can deepen their understanding of knowledge in the process of perfect explanation. In the future, AI can configure the faces and sounds of chat robots or virtual instructors to meet the personal preferences of students, and truly be a mentor.

2.5 A Small Robot in China Zhongguancun "Little Fat"

At the end of 2016, Zhongguancun No. 1 Primary School introduced the cute robot "Xiao'pang" into the classroom and interacted with children. In the 40-minutes interactive lecture, the children followed by the robot's chubby English, Attracted by "capabilities" such as self-built maps. It is a family-service robot built by Evolution Robotics for children. Robot can not only smoothly realize the dialogue with the child, but also can express the child's behavior habits and love through the instructions given. Through increase or decrease the content in the future interaction, it plays a role in the development of children's behavior.

3. The Challenge of Teachers in the AI era--Technology and Education Reform

The invention of the 15th century typography brought the first educational revolution. Cheap books have made knowledge popular, and the original elite education has gone to civilian education. People are classified according to specific group attributes such as age, region, and degree of learning. Standardization means compromise, and everyone's individualized learning needs are difficult to satisfy. Eventually, "the scale of education will move toward the mediocrity of education" [3].

In the 20th century, the rise of the Internet brought a second educational revolution. The Internet allows anyone to access educational resources anytime, anywhere, and the scale of education is ushered in a new stage of development. In addition, big data technology analyzes data through machine learning and powerful computing capabilities, and gains insight into every detail of the learning process.

Nowadays, with the popularity of the Internet, AI and big data technology are applied in the depth of educational scenes. Everyone becomes a unique learning organism, and they all have equal rights to education resources. Low-cost, large-scale personalized education has become a development trend.

So, in the era of AI, where will teachers go? AI is a rare opportunity for teachers to develop and a difficult challenge, we must continue to learn, constantly enrich our teaching level, accumulate teaching experience, keep up with the pace of technological development, learn to use AI technology to analyze different cases and different problems encountered in the teaching process.

3.1 New Technology Subverts Traditional Teaching Mode

"In the various industries of humanity, the industry ranking that is most easily erased by AI", the consensus point is that 18%-25% of education may be replaced by AI. If a teacher says that his greatest interest is to do repetitive work, then in the era of AI, he must be replaced. AI will completely change the needs of education, the form of education, the resources of education, and the fundamental problem of education. The biggest problem of education is the scarcity and imbalance of educational resources, and the emergence of intelligent education will make all children in the starting line of life. This may be subversive for changes in education.

3.2 The Wisdom Classroom in the Era of AI

STEM education has been proposed in the United States for a long time. It is the "educational goal" composed of the first letters of the four English words of Science, Technology, Engineering and Mathematics. Education needs to improve learning ability [4].

In the era of AI, "teaching" and "learning" will develop in the direction of "precise education" and "lifelong learning". So, our mission is not only to keep up with this era, but more importantly to lead innovating our teaching. The ancients said "three immortal": morality, meritorious deeds, and words. Even if both meritorious deeds and words have been replaced by new pet robots, morality will never be replaced, because the greatest nature of education is to play the love.

3.3 Teachers Who Will not use AI New Technology Will be Eliminated

"The future is the era of 'human-machine co-teaching'. Teachers will not be replaced as a profession, it does not mean that all teachers will not be eliminated." If we can't adapt and meet this change, we can only be eliminated. So, we must continue to learn, improve, learn to use our teaching skills and teaching experience, actively adapt to information technology changes, seriously reflect and evaluate the ability of 'machines and humans' to conduct and focus on improving education and teaching wisdom, especially the emotion and love. Only by continuous learning and progress can we turn the challenges brought by AI into opportunities for traditional education.

4. How Do Teachers Face the Challenges - Role and Positioning

In AI era, the most important is how to use AI technology to analyze cases and problems in the teaching process. From skill education and knowledge education to focusing on wisdom education and spiritual education. The most valuable thing of people is curiosity. Exploring people's potential, expanding people's spirituality, and promoting people's spiritual growth are the biggest tasks and special missions of education. the AI era requires teachers to make new changes:

4.1 Become a Teacher with Humanity and High Emotional Intelligence

Although the emergence of AI has solved many educational problems, it needs to be clear that personality is unique to human beings and plays an important role. As an engineer of the human soul, the teachers' care should change from the physical to the mental aspects. Therefore, compared with the cold machine, the teachers with high emotional intelligence will be more popular!

4.2 Have a Sense of Learning, Openness and Innovation

In the new era, learning consciousness, open consciousness and innovative consciousness will be essential qualities for teachers [5]. How to use the new technology to present the best teaching results for students, which will become an important topic that teachers will face.

4.3 Become a Teacher with Affinity and Influence

AI teaching can only achieve simple human-computer interaction. Therefore, how to better communicate emotionally with students and interact with students in all aspects is one of the problems that teachers need to think about. Try to communicate with students in a friendly way, and you will definitely feel more caring!

4.4 Focus on Moral Education and Individual Development

The development and application of new technologies will ensure that every child receives a more detailed and personalized education. Therefore, as a teacher, should also pay attention to the students' learning characteristics, and teach them in an appropriate way according to their aptitude, also lead in the process of physical and mental development, with sincere care, these cannot be replaced by AI.

Altogether, in the era of AI, teachers must grasp three cores: one is to cultivate students' interest, desires and methods to explore knowledge; The second is to cultivate students' good conduct; The third is to inspire students to find life value and meaning. So, teachers should improve their information literacy, use smart technology to improve their teaching concepts and teaching wisdom, and become teachers who master AI and have innovative thinking!

5. Summary

As a higher development stage of information technology, AI will inevitably move toward the stage of wisdom education and wisdom learning. The great purpose of human use of AI is to free itself from the complex basic work to engage in more important or more interesting things. But education is very special. It has two parts: "teaching" and "education". "Teaching" refers to the transfer of knowledge. This part of the work AI can do better than people; "education" refers to the cultivation of character, encourages students to explore the unknown, to discover, to create, to love, this part is hard to replace by AI.

Therefore, it is not the AI that determines whether teachers can be replaced. It is the essence of education, the needs of students, and the education nature runs through it. In the era of human-computer co-education, one of the main purposes of learning is to train students to analyze the core literacy and ability that cannot be possessed by a series of machines, such as speculative ability, practical ability, cooperative communication ability, etc., to inspire curiosity, to help students establish a sense of lifelong learning, rather than simply acquiring memory knowledge. As a teacher of the new era, based on itself, constantly updating their teaching wisdom, doing a good job of teaching reflection, summing up experience, and fully utilizing the latest science and technology to help the state cultivate healthy talents with all-round development of moral, intellectual, and artistic work.

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