Research on Classroom interaction mode based on Artificial intelligence technology

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Abstract. Artificial intelligence (AI) technology has an effect on various industries at an unprecedented speed. The development of artificial intelligence has brought hope for the university educational reform in the world. But, will AI bring the subversive innovation of education for students? In order to answer this question, the paper first analyzes the demand for innovation in education and clarifies the conditions for subversive innovation. Then, the application of artificial intelligence in the field of education is introduced in detail, on the basis of which the interactive model system interconnection of educational artificial intelligence supported by artificial intelligence is presented visually. Finally, the data of the experiment prove the effectiveness of the model from 2016 to 2019.

1. Introduction
With the development of information technology and the continuous improvement of social intelligence, the society has an increasing demand for innovative talents, which puts forward new demands for the efficient and accurate teaching of schools and the personalized growth of students in the university [1].

Artificial intelligence technology is affecting a lot of things at an unprecedented rate. The development of educational artificial intelligence brings hope for the educational reform in the world, but will it bring innovation in all kinds of education? In order to study this question, this paper first analyzes the innovation demands of education and clarifies the conditions for creation and innovation [2].

And then, this paper introduces the application of artificial intelligence in the course, including learning, discussion, lecture and so on. On this basis, it often describes the interconnection relationship of some education supported by artificial intelligence systems. The possibility of creation and innovation is discussed brought by artificial intelligence to education. Finally, from the perspective of others for teachers and students, this paper presents a model on the development of education by artificial intelligence, in order to promote the deep integration of university education and artificial intelligence.

The rest of this paper is organized as follows. Section 2 introduces related work. Section 3 describes the proposed model in detail how an improvement in university education. Section 4 shows the experimental results and analysis. Conclusions are finally drawn in Section 5.
2. Related work
The teaching mode changes from closed to semi-open. Although the emergence of social self-organized teaching forms such as MOOC, STEM and live class does not change school teaching in a breakthrough way, it provides new thinking for the structural reform of teaching [2].

In online learning, the high deep learning ratio is a key problem and reflects a poor level of motivation in e-learning programs. From the perspective of the courses themselves, the deep learning ratios of shorter or more difficult courses are lower than those of longer or less-difficult courses. Theoretical and practical recommendations are provided for reducing the dropout ratio in online learning and improving learning efficiency by [3].

Education innovation technology will bring convenience to world life and study from the appeal of students' personalized education which in turn may propose new requirements for people's knowledge structure. For one thing, AI technology increases the need for learning. So, under the AI threat theory, people have to think about how to improve their knowledge level. In addition, the emergence of new technologies comes from the higher wisdom of human beings, and social progress is inseparable from people's continuous learning. For another thing, AI technology will propose a way of people’s learning. With the application of AI technology, speech recognition, big data and other emerging technologies in the field of university education, the education system can clearly present students’ learning behavior and process, bring visual feedback to study. This will help teachers realize "teaching students in accordance with their aptitude" and meet who develop students' personalized learning needs.

A defining aspect of our modern age is our tenacious belief in technology in all walks of life, not least in education. It could be argued that this infatuation with technology or techno-philia in education has had a deep impact in the classroom changing the relationship between teacher and student, as well as between students; that is, these relations have become increasingly more I-It than I-Thou based because the capacity to form bonds, the level of connectedness between teacher and students, and between students has either decreased or become impaired by the increasing technologisation of education. Running parallel to this and perhaps exacerbating the problem is the so-called process of learnification, which understands that teachers are mere facilitators of the learning process, rather than someone with an expert who has something to teach others. In this article, I first assess the current technologisation of education and the impact it has had in relations within the classroom; second, I characterize Buber's I-It and I-Thou relations and its implications for education; finally, I investigate through a thought experiment if the development of AI could 1day successfully replace human teachers in the classroom.

3. The proposed model
Effectiveness and innovation is the primary goal of university education[4]. The learning system supported by artificial intelligence overturns the traditional learning mode, opens the "black box" of students' learning, and better displays the personalized characteristics of students.

Students are one of the core elements of education and the starting point and foothold of all education. Therefore, it is very important how to improve students' study.

Education system of artificial intelligence can from the students' knowledge model, cognition model and three levels, mental model accurately depict the learner, dynamically display the students' knowledge structure, cognitive ability, learning style, learning habits, etc., and defects in the accurate student knowledge and personality characteristics[5], on the basis of personalised mentors and learning resources for students services, in order to better "according to their aptitude" teacher and student better understand oneself, eventually improve learning effect. In short, AI promotes the development of an adaptive learning environment and other tools and becomes the "golden key" to open the "learning black box", thus effectively revealing the process of learning [6].
A more novel model is proposed by AI technology there, which is constructed by teachers, students and AI interactive system etc. Teachers and students learn from each other and improve together in the system.

Figure 1. Classroom interactive system based on AI

Figure 2. Student’s participation ratio

The basic knowledge evaluation and measurement is basic knowledge evaluation and measurement. The interaction module mainly completes the interactive behavior relations, including between
teachers and students or between students. Practical level assessment mainly measures and evaluates students' practical activities. Innovation level assessment mainly shows students' innovation and creative ability. Online points will ensure that students come to the classroom and participate in interactive teaching activities.

4. Experimental results and performance evaluation
In this section, the experimental results are presented. By comparing with that of others, the performance of the proposed model is proved to be better. The tool of experiment is Python and its version is 3.7. There are 200 students from 2016 to 2019 for data database in the experiments. The experimental results of 200 students randomly selected are listed in Fig. 2 in the two courses of data structure and computer network.

![Chart of Student innovation ability](image)

Figure 3. Student innovation ability
From 2016 to 2019 as shown in Fig.3, Data show that students' innovation and creation ability have been greatly improved by using the new model. Students' interest in learning and scientific interest for knowledge are significantly enhanced. In 2016, scientific interest is poor for students before using the model. It wasn't until the middle and later stages that some of the students had some sense of innovation. But, in 2017, some of the students have a little bit of innovative consciousness from the fifth time. In 2018, the more students have a little bit of innovative consciousness from the fourth time. In 2019, the more students have a little bit of innovative consciousness from the second time. Finally, students who are creative and innovative make up 40% of the students in 2019 in Fig.3.

With the continuous use of the model, the proposed model gains good performance index from 2016 to 2019. The average grades gain a good performance from 75% to 89.9%, increasing by 20%. Students evaluate the excellent rate is proposed from 82% to 94%, whose growth rate is 14.6%.

5. Conclusion
In general, there is still a long way to go for AI to realize disruptive innovation in university classroom education, but the development of AI in education does not propose in detail. While artificial
intelligence brings "benefits" to education reform, it also brings great challenges. In the future, how to make artificial intelligence better serve university education and teaching, how to achieve the deep integration of artificial intelligence and education, is the hot topic that teachers need to pay attention to and focus on the problems.

**Figure 4. Students results and Evaluation**

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