Research on the Teaching Reform of the Basic Computer Teaching Course Assisted by Artificial Intelligence

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Abstract. With the rapid development of information technology, countries are striving to make efforts in the fields of information technology and artificial intelligence. The construction of the course system of artificial intelligence assisted computer basic teaching in colleges is not only related to the personal future of students, but also related to the future development of the national information industry. This paper first studies the current situation of basic computer teaching course’s teaching mode, then analyzes the existing problems in the current basic computer teaching course, and finally gives the construction strategy of the new basic computer teaching course’s teaching system.

Keywords: Teaching Reform, Artificial Intelligence, Basic Computer Teaching Course

1. Introduction
With the rapid development of information technology, the basic computer teaching course based on artificial intelligence has become the main computer related course in more and more universities[1]. Under the current background of information technology development, countries are striving to make efforts in the fields of information technology and artificial intelligence to occupy the technological commanding point[2]. Therefore, the basic teaching course of artificial intelligence assisted computer in colleges is not only a key professional course of computer science, but also an important pillar subject related to the development of national science and technology industry in the future. In addition, as an important subject to cultivate students’ information technology literacy and ability, the basic teaching of artificial intelligence assisted computer must keep up with the trend of the times development and technology frontier, so as to ensure the effectiveness and frontier of course information, and ultimately guarantee the teaching effect of the course[3]. However, most colleges and universities still adopt the traditional teaching mode, which limits the achievement of the basic teaching goal of artificial intelligence assisted computer, and urgently needs to innovate and reform the teaching mode. Therefore, it is of great practical significance to study the reform of basic computer teaching based on artificial intelligence.

2. The current situation of the teaching mode of the basic computer course assisted by artificial intelligence

2.1. Current situation of teaching mode
At present, in order to improve the teaching effect of the basic course of computer aided by artificial intelligence, different colleges and universities have adopted different teaching modes[4]. These models mainly include five in one teaching mode, cooperative learning and network teaching resources combined
teaching mode, layered teaching mode, University computer basic experiment teaching mode based on network learning environment, mixed teaching mode and task driven teaching mode[5-6]. These teaching modes have their own advantages and disadvantages, as shown in Table 1 below. It is necessary for colleges and universities to choose different teaching models based on their own teaching practice, teaching objectives and conditions, so as to ensure the teaching effect.

From the different teaching modes shown in Table 1, it can be seen that the current basic teaching of artificial intelligence assisted computer is still lack of full application of artificial intelligence and information resources, which still limits the quality and effect of basic teaching of artificial intelligence assisted computer to a certain extent, and is not conducive to further improving students’ information literacy and technical ability.

| Teaching mode                        | Advantages                              | Disadvantages                        |
|--------------------------------------|-----------------------------------------|--------------------------------------|
| Combination of network teaching resources | Arousing students’ enthusiasm for learning | Lack of guidance from teachers        |
| Learning resource environment based on Network | Improve students’ ability to analyze and solve problems | Not conducive to develop innovation ability |
| Task driven                          | Enhance practical ability, cooperation ability and innovation spirit | Lack of guidance from teachers        |
| Blended learning                     | Improve learning efficiency             | Lack of guidance from teachers        |
| Independence, cooperation and exploration | Training the students’ self-control ability | Competitive atmosphere               |
| Stratified teaching                  | Improve classroom efficiency            | Evaluation method is relatively simple |

2.2. The current situation of artificial intelligence assisted computer basic course teaching

First of all, through the investigation and analysis of the current situation of College students’ information literacy, it is found that most college students can use the common office software, as well as the common software tools and web services, which shows that most of the current college students have basic information literacy. Secondly, the overall evaluation of students on the teaching process and learning effect shows that the current teaching mode of most basic courses of artificial intelligence assisted computer is relatively balanced. In addition, at present, the traditional teaching mode is still adopted in most colleges and universities, and the classroom teaching is mainly based on teachers. At present, most of the students have low interest in the theoretical part, but they have strong enthusiasm and initiative for the practical courses, and a considerable part of the students' learning motivation is to obtain credits and related certificates. Through the investigation of teachers, it is found that due to the rapid change of AI computer technology, many teachers cannot update and acquire the modern theory of AI computer in time, which affects the teaching effect. In addition, the content of the practical course is not rich enough to arouse students’ interest in learning, which is not conducive to improving the efficiency of classroom learning.

3. Problems in the teaching of basic computer courses assisted by artificial intelligence

3.1. There is still room for further improvement of students' information literacy

Through the investigation of the current computer literacy of college students, it is found that although most students can normally use common computer software and know some common operations, this is not enough to support the application of more professional information and technology, which shows that the computer literacy of students still needs to be further improved. Therefore, in the teaching process of the basic course of AI assisted computer, it is necessary to further strengthen the teaching of the theory of AI computer information literacy of students, as well as the teaching of related event operation skills, so that students' computer information technology literacy can be continuously improved.

3.2. The teaching materials of artificial intelligence aided computer basic course are out of date

As a field of continuous development and innovation, both artificial intelligence and computer information technology are updating and developing rapidly in real time, in addition, both the knowledge architecture of computer technology and information technology, and the description and expression of abstract program code and logic structure are constantly innovating and changing. With the rapid development and change of
information technology, the theory of artificial intelligence assisted computer basic course also needs to be followed up quickly, so as to meet the needs of students to obtain the latest information technology. But at present, most of the teaching materials of the basic courses of artificial intelligence aided computer in colleges and universities cannot be updated in time, resulting in the content of the teaching materials cannot be in line with the international forefront in time, and cannot keep up with the pace of the development of the times and the needs of the industry development.

3.3. The teaching mode of basic computer course assisted by artificial intelligence needs to be improved

There are many different teaching modules in the basic course of AI assisted computer, as shown in Figure 1 below, and each different module involves different knowledge content. Therefore, teachers of the basic course of AI assisted computer are required to adopt different targeted teaching modes.

However, the current teaching mode of the basic courses of artificial intelligence assisted computer is still relatively backward, most of which are based on the traditional classroom theoretical knowledge teaching and few practical courses. This is not conducive to students' enthusiasm for learning, but also leads to students' difficulty in understanding and mastering the essence and core of basic computer courses, and is not conducive to the cultivation of students' innovation ability and the ability to solve practical problems.

4. Construction of a new teaching system of basic computer courses assisted by artificial intelligence

As the main position of training college students' computing thinking level and the basic theory of artificial intelligence, the teaching of artificial intelligence assisted computer basic course in Colleges and universities has important significance and value. In the face of the problems existing in the teaching of basic courses of artificial intelligence assisted computer, colleges and universities should actively reform and innovate in the teaching objectives, teaching contents, teaching material construction, teaching staff and teaching means as shown in Figure 2. So as to build a teaching system to meet the development requirements of the information age, and cultivate high-quality talents of artificial intelligence and computer technology to meet the needs of social development.

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**Figure 1.** Different teaching modules in the basic course of AI assisted computer,

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**Figure 2.** Teaching reform and innovation of artificial intelligence computer

First of all, at the level of teaching objectives, colleges should be based on the cultivation of students' basic knowledge and skills of computer and artificial intelligence to solve problems, as well as the cultivation of students' information literacy and information technology thinking ability. Secondly, at the level of teaching content, colleges should follow the cutting-edge information and technology of artificial intelligence and computer technology in time, keep pace with the advanced level, and only in this way can students not fall behind the times. In addition, in the aspect of teaching material construction, colleges should
actively prepare corresponding resources investment and teaching material preparation for the needs and development direction of artificial intelligence and computer technology industry, so as to make the students better connect with the industry. Not only that, at the level of teachers and teaching means, colleges should adjust and innovate the structure of teaching departments and offices, constantly strengthen the construction and training of teachers, and maintain the knowledge and technology reserve of teachers. By actively using modern teaching methods and teaching tools to carry out practical learning, so that students have a deeper understanding and understanding of the basic teaching course of artificial intelligence assisted computer, and constantly strengthen students' information literacy.

5. Conclusions
In summary, as an important position to cultivate students' information technology literacy and ability, the basic teaching of artificial intelligence assisted computer in colleges should actively innovate the teaching mode, construct the teaching system following the technology frontier of the times, so as to ensure the effectiveness of course information and the teaching effect of the course. In view of the problems existing in the current teaching of the basic courses of artificial intelligence aided computer, colleges should constantly reform and innovate in teaching objectives, teaching contents, teaching material construction, teaching staff and teaching means, so as to continuously promote the progress and development of the teaching of the basic courses of artificial intelligence aided computer.

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1. Research and practice on the joint examination mechanism of programming courses
2. Research on the experimental teaching reform of data structure

References
[1] Wang Zhuli. New views on knowledge and learning in the age of intelligence [J]. Distance Education Journal, 2017 (3): 3-10.
[2] College Computer Course Teaching Steering Committee of the Ministry of education. Basic requirements for College Computer Basic Course Teaching [M]. Beijing: Higher Education Press, 2016: preface.
[3] Li Haiyan, Xu Jinhua. Study on the reform of basic computer courses in colleges and universities [J]. Computer education, 2012 (8): 29-31.
[4] Zhang Junjie. Practical research on the layered teaching mode of computer application basic courses in higher vocational education [D]. Shanghai: Shanghai Normal University, 2013.
[5] [5] based on network learning resource environment [J]. Computer knowledge and technology, 2011, 7 (2): 34-36.
[6] Wang Zhuli. Further discussion on the new view of knowledge in the era of intelligence and discussion with Professor He Kekang [J]. Journal of distance education, 2019 (2): 45-54.