



The Application of Information Technology in the Course Teaching of ‘Picture Recognition and Reinforcement Calculation’

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Abstract. Under the background of the new era, modern electronic computer information technology is widely used in various fields. This paper for the application of computer technology in data model, through the key elements, the advantages of computer technology in data analysis, and from the statistical analysis method, computer technology integration of the information model, hope to provide reference for the industry workers, promote the application and development of modern computer information technology in engineering discipline teaching.

Keywords: Picture Recognition and Reinforcement Calculation · information technology · modern teaching

1 Introduction

In today’s new economic era, social development and economic progress need to be supported by a large number of talents. Therefore, it is necessary to give higher priority to education, constantly summarize various practical problems in education, improve the quality of teaching with the help of modern technical means, ensure that the development of education can be coordinated with the progress of modernization, and realize the development of effective innovation education in contemporary times. As far as China is concerned, the effective integration of education work and information technology is a concept of new education development. At the same time, the active use of information technology in education work is also a major development trend in the future.

2 Application of Information Technology in Teaching

2.1 A Brief Introduction

For ‘Picture Recognition and Reinforcement Calculation’, it is a key content in the teaching of architecture, and it is also a basic course in all engineering cost disciplines. The course is practical and professional, and the key and difficult knowledge faced by students in the process of learning knowledge is generally abstract. Therefore, if students want to master the basic knowledge of this course and use the relevant skills correctly, they will face a higher learning difficulty. Students of this major not only need to have

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Table 1. STATISTICS OF REINFORCEMENT

No.	Component		Specifications		
			Level	Diameter	
...	
...	
	Single length (m)		Overall length (m)	Single length (m)	
	Calculation	Amount		Calculation	Amount

sufficient spatial imagination, but also master the ability to convert two-dimensional into three-dimensional composition [1] (Table 1).

During this period, there are great differences in the construction sites of most steel bar projects. Therefore, in different projects, the steel bar calculation work varies greatly, and there are many calculation nodes that need to be paid attention to. Faced with this In this case, some students will feel extremely high learning difficulty in the learning process. As a result, dull and boring learning mood is produced, resulting in poor learning effect. Faced with such a situation, if teachers want to ensure their own teaching effect, they need to use modern science and technology to make the original boring content more vivid and attract students' attention. It can also use the conversion processing to make it a 3D stereoscopic image. With this kind of teaching assistance, students can feel the content of building information more intuitively. The students' acceptance ability will be further improved. The absorption effect will be better, and the final teaching quality can be effectively guaranteed.

2.2 An Introduction to Information Teaching

Teaching work in the new era needs to pay attention to the development of modernization and informatization, which belongs to the new development concept of education in the context of the new economy and society. Compared with the inherent teaching work form in the previous stage, this new teaching mode with the characteristics of modern technology can use terminal teaching technology, Internet information technology, electronic information technology to carry out teaching work, and complete the demonstration of relevant teaching content. After using this teaching mode, the teaching effect can be more reliably guaranteed [2]. Therefore, this new teaching model is highly trusted by people. Based on the current informatization teaching concept, teachers can use informatization and network technology to perform image simulation processing on the teaching content, make it into a three-dimensional figure, and make animation simulation actions. After watching the teaching information, students can make a full understanding of all the three-dimensional graphics, and compare and contrast with all the two-dimensional graphics in the textbook. Therefore, the effect of this modern teaching method is very significant (Table 2).

Table 2. COLLECTIVE 3 D CAPABILITY QUESTIONNAIRE OF STUDENTS IN A MAJOR

2 D to 3 D capability	Number of people
Strong	15
Middle	31
Weak	57

Usually, the modern information teaching work needs to take the current modern teaching concept as the starting point, combined with the characteristics, needs, objects and content of the teaching work in different periods to clarify the final teaching objectives. After this, it is necessary to carry out targeted teaching to ensure the learning effect of students through this way, and achieve the ultimate goal of cultivating talents.

3 Analysis of Information Technology in Teaching

3.1 Analysis of Artificial Intelligence Technology Application

Artificial intelligence technology can virtualize reality to build a human-computer interaction technology. This technology can centrally process all virtual information and scenes generated in the computer system, and integrate it with the scenes seen by the user's naked eyes, thereby building an independent engineering model [3]. During this period, the students' real world can also be integrated with the help of terminal devices. Under such teaching conditions, students can further cognition to all the real worlds they are familiar with.

For artificial intelligence technology, during the period of combining with the content of the textbook, it is necessary to edit and process all the two-dimensional drawings in the textbook to make it a 3D model, and mark it with the corresponding AR code. Students can use their mobile phones to scan the AR code and then see the corresponding virtual model on the display. During this period, after scanning the code, students can also implement related controls through the screen, that is, zoom or rotate the model. This allows students to have a clearer impression of the model, to observe and understand the model from multiple perspectives. This kind of teaching method with strong modern characteristics can more effectively deal with the problem of too abstract knowledge that cannot be handled by traditional paper textbooks, deepen students' understanding and memory of teaching content. Students' learning activities will also become more effective and the teaching effect can also be greatly improved.

3.2 Analysis on the Function of Mobile Teaching Resource Library

The main function of the teaching resource library is to summarize all knowledge points and analyze the key and difficult knowledge in detail [4]. After the resource library is formed, all knowledge in the resource library can be processed centrally, and a QR code can be generated. Students can scan the QR code with a terminal device to directly access the corresponding location and query the various knowledge materials they need.



Fig. 1. Content setting of teaching resourcepository. Note: Figure 1 is original.

This method can more efficiently solve various problems encountered in the preview and review process for good students, so that students can master the relevant knowledge points more quickly (Fig. 1).

During the actual teaching period, the calculation of the amount of steel reinforcement is very complicated. Students can query the relevant content in the textbook through their mobile phones, and scan the corresponding AR code, so as to have a detailed understanding of the specific work situation in the structure of steel reinforcement construction. Otherwise students directly scan the QR code of the resource library configured in the textbook, and directly jump to the corresponding resource library to query more detailed data. After students can clarify the final engineering calculation formula, they can successfully complete the learning task of this link. The platform can also summarize all the knowledge points involved and generate corresponding review pages to provide students with a more comprehensive teaching aid. Using this teaching method, students can not only obtain more accurate query services, but also deepen students' correct cognition of relevant knowledge. At the same time, this kind of learning method can further promote the learning effect of students, so that the teaching work can give full play to its guiding role.

3.3 Analysis of Professional Internet Teaching Platform

Internet technology is a representative technology under the background of the new era. It builds a professional Internet teaching platform for students, configures corresponding teaching content, completes teaching tasks more efficiently. The platform can conduct unified evaluation of all teaching vocabulary and final teaching effect to fully realize the various teaching functions that the Internet platform needs to have [5] (Fig. 2).

After the construction of the platform is completed, all students can search and learn relevant knowledge points through the platform at any place and at any time period, find

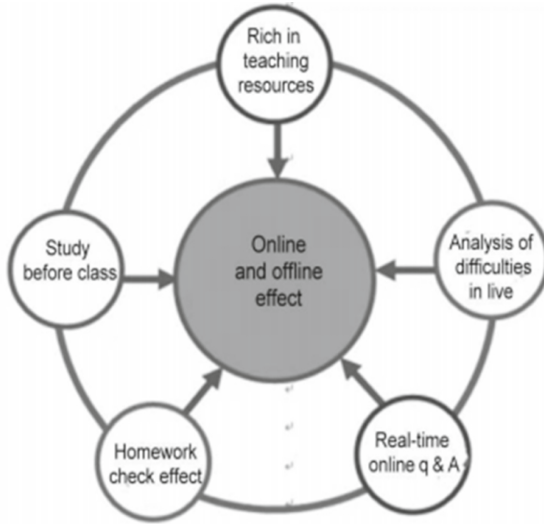


Fig. 2. Renderings of the Internet teaching scheme Note: Figure 2 is original.

the relevant content they need more accurately, and test their professional ability. When students pass the professional exam and get the final score, they can use their final test results as a reference, communicate with professional teachers, and give feedback on all aspects of the problems they have encountered in the first time, and put forward their own practical problems in the learning process. Under such circumstances, professional teachers can more directly grasp the learning problems of students, understand the final learning effect of students, adjust teaching methods in a targeted manner, and appropriately speed up or slow down the progress of teaching, so that information-based teaching can be more suitable for students. To ensure the teaching work is more targeted, they further develop and strengthen students' professional skills (Fig. 3).

3.4 Analysis of the Development of Teaching Integration

The teaching of 'Picture Recognition and Reinforcement Calculation' needs to be based on drawings, which has certain particularities. At the same time, it also needs to focus on students during the teaching period, and teachers mainly play an auxiliary role. While mobilizing students' enthusiasm for learning, they can enhance the teaching effect. [6]. Under such teaching needs, it is necessary to integrate teaching, so that all relevant knowledge can be more systematically transmitted to students' minds. The special language expression form of drawings can be used as a means of dialogue. The flat method shows all the construction structure drawings, thereby ensuring the calculation results of the steel works in the final stage. During the actual education period, teachers are also required to set group learning tasks for students to ensure the cooperation between students, and conduct a comprehensive analysis of construction tasks in different links and forms to ensure that teaching and learning can play their due effect.



Fig. 3. Schematic diagram of the teaching scheme Note: Figure 3 is original.

3.5 Analysis on the Reform of Traditional Teaching Assessment Methods

Whenever the traditional teaching assessment is mentioned, the exam-oriented education will appear. Due to the strong limitations of this kind of test-oriented education, some students only pay attention to the scores in the learning process. They don't care about their actual ability. In the long run, these students are far below the test ability in terms of practical ability. This result is seriously inconsistent with the requirements of the contemporary society for talents. In order to ensure that modern technical talents can meet the actual needs of the society, it is necessary to take students' practical ability as the main assessment object, use this assessment method to break through the examination framework formed by examination-oriented education. In the formal teaching stage, students' usual hands-on ability should also be used as the main assessment standard, and they should also participate in the final grade assessment. Under such circumstances, all students can continuously improve their vocational skills and focus on practical skills, rather than simply studying for exams.

3.6 Analysis of the Actual Teaching Effect

In the formal teaching stage, teachers can use BIM technology to effectively integrate all online and offline teaching courses, so that students can have a clear understanding of all engineering reinforced bones during learning, and form the corresponding three-dimensional in their minds. The three-dimensional space continuously deepens students' overall understanding of various types of projects, and transforms the virtual into the real. This way can use this new self-study method to break the shackles of traditional teaching and break through difficult and key problems. In this process, students also need to accurately understand various calculation rules with the help of BIM technology, clarify their learning ideas, and ensure that all relevant knowledge such as flat method drawing, reinforcement calculation, BIM modeling can be kept in mind and to be proficient in

application, comprehensively improve their professional level and professional technical ability.

4 Conclusion

To sum up, the application of information technology in the field of contemporary education is effective, not only a simple teaching platform and technical tool, but also a more scientific teaching mode and teaching method. In the teaching of ‘Picture Recognition and Reinforcement Calculation’, the application of artificial intelligence technology, Internet technology, and mobile terminal technology are all breakthroughs in traditional forms of education with good effect. At the same time, this is also an excellent development of talent training in the contemporary society.

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