



Design and Production of CAI Courseware for Football Tactics

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Abstract. CAI courseware is a modern educational technology aid that can present the complex teaching process more intuitively to the public. Taking football offensive tactics as an example, this paper designs and produces related animations, pictures, texts, music and video texts and materials through the combination of computer hardware and software, and completes the structural design diagram of the CAI courseware. Through multimedia technology and multimedia tools (such as Flash and Authorware7.0), the production and debugging of CAI courseware are completed, and finally the courseware is packaged, to generate the executable file, to meet the needs of football teaching in sports colleges. The design and production of football offensive tactics CAI courseware not only improves the quality of physical education teaching and stimulates students' enthusiasm for learning, but also provides students with scientific methods of self-learning and self-evaluation to improve their sports quality, and also effectively uses the diversified effects of information exchange.

Keywords: CAI Courseware · Multimedia · Football Offensive Tactics

1 Introduction

China has entered the 14th Five-Year Plan, which has put forward higher requirements for the sports work of Colleges and Universities. Universities are the base for cultivating talents, the central work of the school is teaching, teaching reform is the key to cultivating talents, and the reform of teaching methods and means is an important part of teaching. At present, most of the football teaching in sports universities still stay in the traditional teaching methods and means, in the teaching of theoretical courses, the explanation of tactical cooperation is mostly presented to students in the form of wall charts, videos, etc., which cannot mobilize their enthusiasm very well, and the teaching methods are outdated and incompatible with the development of modern teaching. As an auxiliary teaching technology means, multimedia CAI courseware is an indispensable and important teaching technology. In the teaching of technical classes, teachers mainly visualize teaching, personally demonstrate that students master a certain technical action or let students cooperate to complete a certain tactic, which not only requires teachers to have a high level of sports technology and strong teaching ability, but also requires students

to have a strong visual understanding ability. Increasing the intensity of teachers' teaching, limiting the increase in teaching volume and knowledge, it is not conducive to the improvement of students' enthusiasm and the renewal of football knowledge, coupled with the current teaching reform needs to reduce the number of hours in the classroom, so the traditional teaching methods make the teaching effect of football teaching, especially related to tactical teaching, greatly affected. In order to solve the current situation of this lagging teaching method, improve the quality of teaching, and enable students to master and complete learning tasks in less time, we can use modern educational technology to apply CAI courseware to assist teaching, in order to achieve the purpose of improving the teaching efficiency and teaching effect of physical education special courses.

At present, the form and content of students' education have become rich and flexible, using the computer-aided teaching courseware of football offensive tactics designed and produced by Authorware7.0, Flash and other software, combining teaching content with animation, sound, pictures, text, video, etc. The information transmitted by this multimedia vision and listening technology to students is not only accurate and image, but also greatly improves students' interest in learning, makes students' understanding of tactics more profound, and achieves the purpose of teaching. On the other hand, it also saves the physical strength and energy of teachers, so that teachers can have more energy to devote to lesson preparation and teaching activities.

2 Study Methods

2.1 Literature Review

In the study, I consulted a large number of relevant materials, such as "Modern Football" of the People's Sports Publishing House and "Illustration of Football Offensive Tactics and Techniques" of Beijing Sport University Press, prepared for the design of courseware, and watched 2014 and 2018 The video of multiple matches of the Football World Cup and the European Championship, as well as related books, such as "Flash MX Introduction and Improvement", "Multimedia CAI Courseware Production Concise Tutorial", etc., have fully prepared for courseware production and material editing.

2.2 Expert Interview

This study selects physical education experts, football experts and computer experts with high authority, and solicits the opinions and suggestions of football experts, professors and computer experts through interviews to determine the development content of football offensive tactics CAI courseware.

2.3 Production Method

With Authorware7.0 as the development platform for courseware, Flash as animation processing software, Photoshop as image processing software, Super Solver V8 and Super Solver 3500 as video processing software, and Word as word processing software for overall design and production.

3 The Development Environment for Courseware

3.1 Hardware Environment

- 1) host: Intel(R) Pentium(R) 1.73 GHz 60 G hard disk, 1.5 GB memory; 128 MB Memory.
- 2) scanner: Used to scan text and pictures;
- 3) Speakers, disc burners, etc.

3.2 Software Environment

Operating system adoption Windows 10

Animation footage editing software adoption Flash MX

Image processing software adoption Photoshop

Multimedia synthesis software adoption Authorware7.0

Video conversion software adoption Super Solver V8 and Super Solver 3500.

4 Design and Production of CAI Courseware for Football Offensive Tactics

4.1 The Content and Structural Design of the CAI Courseware for Football Offensive Tactics

Football offensive tactics CAI courseware not only creates a stimulating student interest in learning, stimulating students' desire to learn, trying to meet the needs of students to acquire knowledge according to their own individual environment, but also provides an electronic teacher who guides students to learn at any time. The courseware is designed with the idea of combining optimal teaching design with giving full play to the advantages of computer software production as the guiding ideology [1]. At the same time, the design of football offensive tactical CAI courseware should also follow the basic principles of multimedia courseware design such as scientific, systematic, educational, technical, practical and convenient.

4.1.1 Content of the CAI Courseware on Offensive Tactics in Football

The teaching content of the CAI courseware of football offensive tactics is based on the "football offensive tactics" part of the physical education professional textbook published by Beijing Sport University Press, "Football", and at the same time refers to various versions of the textbook and related materials, carefully conceives and organizes the content, and elaborately produces more than 100 images, pictures and animations [4].

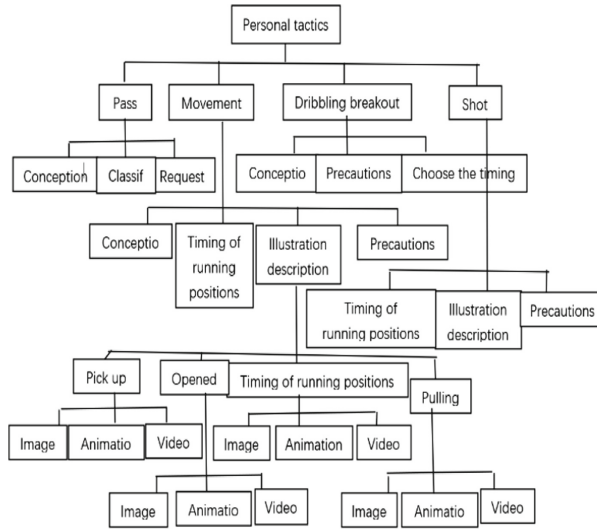


Fig. 1. Individual tactical structure design diagram

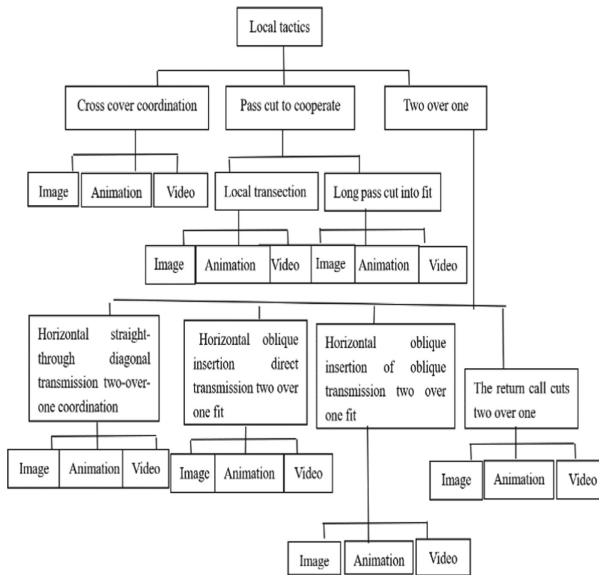


Fig. 2. Design of a local tactical structure

4.1.2 Structural Design of the CAI Courseware for Football Offensive Tactics

According to the teaching needs, the teaching content is divided into three parts, namely individual tactics, local tactics, and overall tactics [3]. Among them, the individual tactical structure design is shown in Fig. 1, the local tactical structure design is shown in Fig. 2, and the overall tactical structure design is shown in Fig. 3.

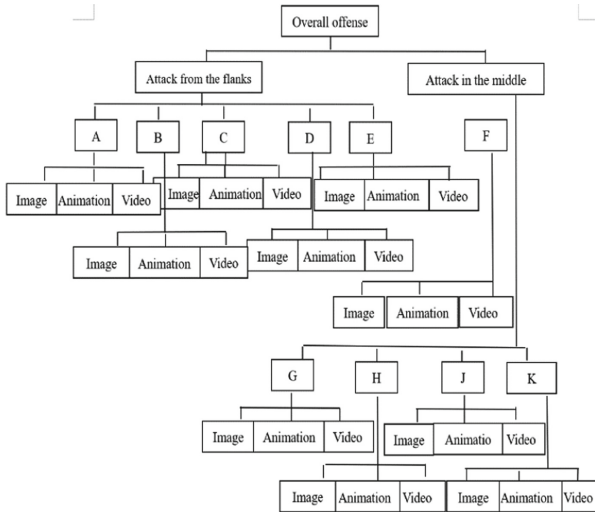


Fig. 3. Overall tactical structure design diagram

Note: A - Dribble down the bottom cross; B - The winger and the center crossed to cooperate with the breakthrough cross; C - The winger works with the center-forward or forward to break through the cross; D - Avant-garde sleeve insert fitting; E - defenders plug in along the wing; F - slash cross; G - Long Pass Counter Attack with Breakthrough; H - Quick pass to cooperate; J - Retracement Anti-Cut; K - header ferry.

4.2 Production of Courseware Materials

4.2.1 The Production of Images

Images refer to the pictures and graphics used in the courseware interface. There are 3 main sources for this part of the content: a) Graphics drawn by drawing software, such as soccer fields, etc. After editing, save it in the material folder; b) The picture scanned by the scanner, the image file is generated after scanning, and then processed with Photoshop) Images and images downloaded from professional websites, or graphics and image materials from the material library carried by e-books, and then processed with Photoshop as needed to achieve the desired effect of the courseware.

4.2.2 The Production of Text

The production of text requires concise content and prominent focus, reasonable font and font size, font size should be as large as possible, font should be eye-catching, and the key places in the teaching content should be distinguished by different fonts, font sizes and colors.

4.2.3 Production of Music and Sound Materials

This courseware mainly uses two kinds of sound materials: a) MP3 music as background; b) Sounds collected from the VCD through the capture card. According to the content of the courseware, different background music is selected, and the music with a soothing and slower rhythm should be selected when explaining, the music in the video should be selected as light music, and the music in the video should be selected as exciting music. The dubbing in the courseware should achieve a clear and rhythmic effect. Some audio-visual effects should be reasonably added to the courseware, but they should not be used too much to avoid interfering with the information and producing negative effects. For the choice of background music should highlight four combinations, namely: Combined with the content of the interface; Combined with the color of the interface; Combined with the text on this page; Combined with animation rhythms in courseware [2].

4.2.4 Production of Animation Footage

Animation materials are mainly produced using Flash software, including animation demonstrations of the overall tactical routes of various offensive tactics, requiring the routes to be clear and easy to see. In the design, according to the teaching requirements, consider the function of repeating the playback, and the teacher can repeat the playback according to the actual teaching.

4.2.5 Production of Video Footage

This courseware is mainly to help students establish correct, intuitive, and clear demonstration movements as the main purpose, so video materials are one of the important contents of this courseware, playing an intuitive and exemplary role. The video material of this courseware mainly comes from two aspects: One is the real-time video material, that is, the demonstration of various offensive tactics by professional football players is filmed on the spot and edited; Second, you should choose some excellent video materials, such as: 2014 World Cup shooting highlights, 2018 World Cup shooting highlights, European Cup shooting highlights, etc., collected through super solution V8, and use super solution 3500 to convert into the AVI format required for courseware.

4.2.6 Production of the Opening and Closing Credits

The title design of this courseware is characterized by simplicity, crispness, beautiful pictures, beautiful music, and a moderate length of time. In the design, FLASH is used to make the opening and closing animations, and the opening animation first displays the main content of the courseware, and finally displays the name and producer of the courseware. Learners can click on the bouncing arrows to enter the main interface of the courseware. The end animation shows the producer's school, department, name, and other information in turn.

4.3 Overall Production and Debugging of Courseware

After the text, pictures, animations, music, videos and other materials are prepared, we enter the overall preparation of the courseware. The overall production of courseware is



Fig. 4. Renderings of the main interface

mainly based on the CAI courseware structure design drawing, the application of Flash and Authorware7.0 software to complete. This part of the content is a modification of various media information presentation forms, including the re-selection of background music, text size, color, font modification, etc. The overall production is through the production of one page, with hypertext links to achieve its strong interactivity, so that the pages form a three-dimensional network structure between them.

The interface is the medium of communication between the courseware producer and the user, and a good and beautiful interface will undoubtedly give people a refreshing feeling. In order to make the picture livelier, the main interface inserted a Flash animation and multiple Gif pictures, the main part is a four-button main menu, music control switch, back button, etc., the mouse on the button or press when the button color will change, press to enter the next layer of content, press the exit button will enter the end of the animation. According to the requirements of the system structure and teaching content, the courseware structure is multi-level, and a total of 5 levels of interface are designed [5]. The production effect of the main interface is shown in Fig. 4.

Through the trial operation of the initially completed courseware, at the same time communicate with professional teachers, listen to the opinions of teachers, start from the actual use of learners, debug the courseware, modify the details of the courseware and part of the content, and further improve the courseware.

4.4 Courseware Packaging

Once the courseware is ready, package it, generate an executable file, copy the relevant footage file, and engrave it on a disc so that it can be run directly on other computers.

5 Application of Football Offensive Tactics CAI Courseware in Football Teaching Practice

Multimedia courseware as an important part of the teaching reform process, it is different from the traditional teaching mode, can be through video clips, Flash animation demonstration, the book static illustrations and instructions, in a dynamic and intuitive form to present to students, so that students in learning more intuitive. It is easier to understand, so as to improve students' learning interest and learning efficiency, and achieve the effect of doubling the results with half the effort. For example, when learning football "two over one" tactics, in traditional teaching, if a certain student does not see clearly or does not understand when the teacher is doing the demonstration, it is almost impossible for the teacher to repeatedly demonstrate to a certain classmate alone, even if the teacher does the demonstration again, it will delay the practice of other students. The application of multimedia technology to football teaching can change students' passivity and dependence on teachers. When students learn football offensive tactics, once they do not see the demonstration clearly or do not understand it, students can repeatedly look at it in the CAI courseware according to their own situation, and they can also control the speed of the demonstration action. In the CAI courseware, the use of human-computer dialogue, students can choose to learn different content and progress according to their own characteristics and needs, the passive learning into active learning, improve the subjective initiative of their own learning, and then improve the efficiency and comprehensiveness of students' mastery of technical actions.

The use of multimedia teaching enables teachers to gradually change from knowledge instills to guide students' learning on the basis of the original. The use of multimedia courseware for football teaching can show the content that is difficult for teachers to express during explanation and demonstration through multimedia technology, which greatly improves the teaching efficiency and teaching effect of the classroom. The application of multimedia CAI courseware not only requires teachers to be able to control multimedia equipment freely, but also to be able to make CAI courseware with computers by themselves, which puts forward higher requirements for the computer literacy of classroom teachers.

6 Conclusion

The application of multimedia courseware in the football offensive tactics class for auxiliary teaching can make the content of the class more vivid, visual and intuitive, the students more impressed, and the students easier to understand and master the tactics. At the same time, the dynamic picture of sound, light, electricity and image displayed by multimedia equipment can improve students' enthusiasm for learning, make students full of trust and satisfaction with the education they receive, and is undoubtedly very helpful for improving the quality of teaching. Therefore, it is completely feasible to use multimedia CAI courseware to assist in the teaching of football offensive tactics. At the same time, the application of multimedia CAI courseware is also a comprehensive test and improvement of the teaching ability and self-quality of classroom teachers.

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