

Research and Application of Computer Multimedia Technology in Soccer Pass Tactics Theory Teaching

Wenzhong Li, Yunhua Cao
North China Electric Power University, Beijing China
liwenzhong666@126.com; 2004cyh@sina.com

Changdai Wang
Beijing University of Chemical Technology Beijing China
wangchangdai@163.com

Abstract—starting from the sports theory course---football theory teaching, this paper studies the application of multi-media, which will pose challenges for the traditional single football teaching and training mode, and become the inevitable trend of future teaching as well as the training reform and development. This paper adopts research methods like literature review, video observation, expert interview and software programming to introduce the multi-media technology into the football theory teaching, and offer students a brand-new and vivid environment for teaching.

Keywords- multi-media technology; sports theory

Currently, as the modern teaching and training means, computer multi-media technology is applied more and more widely. The teachers have also generally experienced the convenience and efficiency of modern multi-media technology in the teaching. The multi-media teaching means to integrate the various media information kinds (such as text, image, sound, etc.) on the screen, and help learners to complete a series of man-machine interactive operation for study through interactive interface. The application of teaching and training courseware modes in the football teaching will pose challenges for the traditional single football teaching and training mode, and become the inevitable trend of future teaching as well as the training reform and development.

I. RESEARCH CONTENTS, OBJECTS AND METHODS

A. Research contents

The main research contents of this paper are: (I) the detailed contents and basic characteristics of football passing tactics in the theory teaching; (II) the design methods of multi-media courseware in the theoretical teaching of football passing tactics; (III) the application effect analysis of multi-media courseware in the theoretical teaching of football passing tactics.

B Research objects

1) *The objects of expert interview*: In the design and research process for this paper, many experienced front-line experts and scholars in football are interviewed including 8 professors, 7 vice professors and 5 lecturers.

2) *The objects of observation objects*: According to the design needs of observation, the 40 wonderful matches of the top 8 teams in 2006 World Cup is viewed, studied and edited.

C. Research methods

1) *Literature review method* Through referring to the relevant media reports and literature review on general training theories and special sports theories, the development model of multi-media CAI courseware can be determined.

2) *Video observation method*: According to field classification standards of Federation International Football Association (FIFA), the football field can be divided into frontfield, midfield and backfield. The range of 30m in the both ends is frontfield and backfield respectively, and the rest part is the midfield.

3) *Expert interview method*: Through visiting and consulting relevant experts and professors, and collecting their suggestions and opinions on the steps and methods for this research, the applicability and purposes of this research results are explored.

4) *Software programming method*: With the multi-media computer of Intel pentium4 PC as the hardware platform for courseware development and the Chinese Windows operating system of Microsoft Windows XP as the software development platform, this paper utilizes the dynamic website development tools like Dreamweaver and ASP for the development of multi-media network software for teaching football, and applies the animation and program design of computers to produce multi-media courseware for the teaching training of football passing tactics.

II RESULTS AND ANALYSIS

A. The basic contents and characteristics of football passing tactics in the theoretical teaching

1) *The basic contents of football passing tactics in the theoretical teaching*. According to *Football*, the general teaching material for physical education institutes, the basic contents of football passing tactics are shown as Fig. 1.

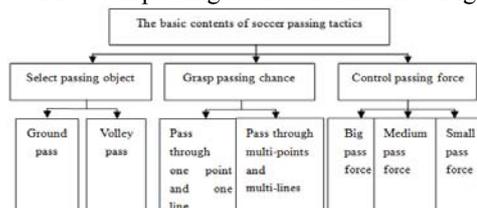


FIG. 1 THE BASIC CONTENTS OF SOCCER PASSING TACTICS

2) *The basic characteristics reflected in the main contents of football passing tactics in the theoretical teaching*

a) *The analysis of selecting passing objects*

(1) *Analysis of ground pass*

Ground pass is the base for grasping ball possession and controlling match rhythm in the matches. If it is impossible to pass the ball to back defender, making a ground pass to the front offensive players is the best choice. Therefore, the ground pass training must be focused in teaching.

(2) *Analysis of volley pass*

Volley pass in matches especially the front volley pass can increase attacking speed, effectively attend defense line and cause great threats to the other side. Therefore, when the core player (ball-handler) of the team can pass the ball to several teammates at the same time, he shall pass it to the player who poses the greatest threats to the other side. Generally, the play who is forwarding and running to open space is the most dangerous one to the other side. Hence, the ball-handler shall pass the ball this kind of player to win scores.

b) *Analysis of grasping the pass chance*

(1) *Analysis of one point and one line pass (pass commands the positioning)*

The features of one point and one line pass: poor invisibility, single route, easy discovered intention. If the ball is stolen successfully, as long as the pass is sudden, quick and accurate, the pass receiver quickly run to the pass point to implement the tactic, this still is threatening to the other side.

(2) *Analysis of multi-points and multi-lines pass (positioning guides the pass)*

The features of multi-points and multi-lines pass: “the passer has many options, it is more invisible and hard to defend, and the success rate of this tactic is relatively high; hence it is the main pass form in the practical application.” This is the same as the result in teaching materials. However, in many domestic matches (Chinese Super League and Chinese First League), it can be discovered that players are often walking or waiting for the ball rather than actively run to keep space with others for creating more pass chances for teammates. Therefore, when training students, they shall be encouraged to run more and run skillfully and form good habits for matches.

c) *Analysis of controlling pass force:* Whether the pass force is well controlled in matches plays an important and decisive role in grasping match rhythm and successful scoring. In the courseware, click for the large pass force and show: display (frontfield), display (midfield), exercise and corresponding text description, and click again on the display (frontfield) and display (midfield), the video composed by the pictures of failed attacks caused by large pass force will be shown to deepen impression”.

B. *The training steps in the teaching of pass tactics*

Here the practice under non-confrontation, confrontation and match conditions is explained with the combination of the reality.

1) *The practice under non-confrontation condition:* Every

practice method in the courseware has the real examples under non-confrontation condition. For instance, in the practice of short-pass of ground pass, the practice under non-confrontation condition is designed into the tactic cooperation of two or three players. There are three different methods which are reflected in the courseware through videos, pictures and text descriptions. According to the classification of pass methods and different fields in the teaching material of *Football*, as well as the different performances in different pass tactics, the pass tactics are classified. The author hopes the application of this courseware can achieve the purpose of assisting the teaching training.

2) *The practice under confrontation condition:* In this courseware, the confrontation conditions are divided into weak confrontation, medium confrontation and strong confrontation. Each confrontation level has three kinds of training ways. This classification applies the definitions of Professor Zhang Yan'an on the confrontation conditions: “the distance of 2-3 meters is weak confrontation, the distance of 1.8-2 meters is medium confrontation; and the distance within 1.8 meters is strong confrontation”, which shows the order from weak to strong in training tactics and the “step by step” concept in learning. In this courseware, there are 9 types of practice ways under confrontation conditions, which are displayed through videos, pictures and corresponding text descriptions

3) *The practice combines with matches:* This courseware selects three kinds of pass tactics practice under the match conditions or close to the match conditions and shows different demonstrations for different areas. Moreover, the videos, pictures and text descriptions are utilized in demonstrations, which help greatly to the teaching training. In the site teaching, the teacher shall pause the match when the classic situation occurs in the matches, but the pause times shall not be too many, otherwise, the match practice effects will be affected.

C *The training methods of pass tactics in teaching*

1) *Practice method examples in tactics training*

a) *Take the pass cooperative practice of two or three players under non-confrontation conditions for example:* As shown in Fig. 2, ③ and ② made a long pass to ① through one-two wall pass, and then ③ and ② conduct scissor run; ① and ③ made a long pass to ② through one-two wall pass, and then ① and ③ conduct scissor run; ② and ① made a long pass to ③ through one-two wall pass, and then ② and ① conduct scissor run.

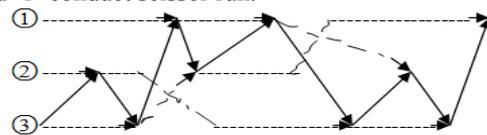


FIG.2 THE DIAGRAM OF NON-CONFRONTATION CONDITION

b) Take the practice under non-confrontation conditions for example

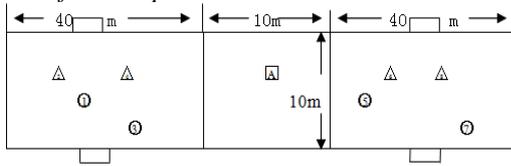


FIG.3 THE DIAGRAM OF CONFRONTATION CONDITION

As shown in Fig. 3, conduct two-to-two match in two playing areas. The ball is controlled by the side with numbers now. If they have no chances for shooting or scoring after attacking 5 times in one side, the ball handler should pass the ball to the free player of Δ and then to the teammates on the other side, but the free player has 3 chances to touch the ball. The ball pass must be quick in changing the attacking area. The purpose of this is to improve the players' ability of changing attacking direction quickly.

D The design methods of multi-media courseware in the theoretical teaching of football pass tactics

1)The purpose of making multi-media courseware. In the teaching, the various auxiliary functions of computers are fully utilized in the courseware to show students with the features of football pass tactics and the specific performance forms under different situations. Moreover, with the explanation of teachers, students can build correct concept of football pass tactics, combination of pass tactics and reasonable application of football pass tactics so as to improve students' interest and study efficiency, stimulate their learning initiation, and help students systematically grasp the relevant knowledge and techniques on football. This courseware fully plays the comprehensive and multi-angle software processing and interactive abilities of the computers, and achieves the purposes of expanding knowledge range and inspiring the imagination of the students.

2)The model design of multi-media CAI courseware

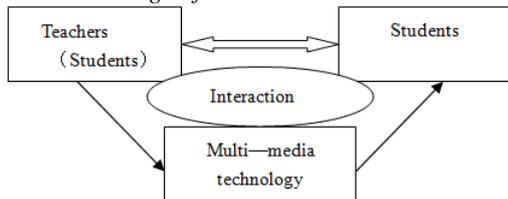


FIG. 4 THE MODEL DESIGN OF MULTI-MEDIA COURSEWARE

In order to define the various functional models developed by this courseware, the development model of multi-media courseware is built as Fig. 4 according to the requirements of teaching program and the teaching characteristics of football.

3) The design methods of multi-media courseware

a) The overall design. The production of football multi-media courseware must be based on the teaching program, take the teaching goals and expected results as its purposes, and properly add some extra or advanced theoretical knowledge. As shown in Fig. 1, the contents of football pass tactics are designed into three functional models in the main interface: select passing object, grasp passing chance and control passing force. There are corresponding detailed text descriptions under each functional model. If the students want to know knowledge on one aspect, the teacher can just click the corresponding hotzone, the students will see the next interface or see some edits and pictures of match video and relevant practice methods. Through these texts in hotzone, students can be guided for their learning tactics.

b) Program design. According to the overall design program, this courseware is specifically designed and programmed by the structural analysis methods of top-down, layer-by-layer decomposition and step-wise refinement.

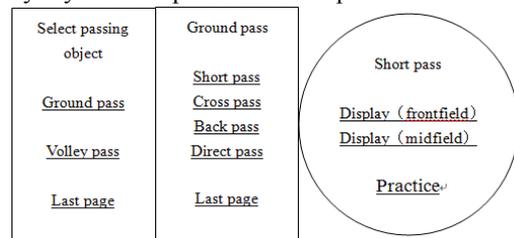


FIG. 5 THE TACTIC COOPERATION CLASSIFICATION AND TRAINING METHODS

c) The main design technologies in multi-media CAI courseware

(1)The hypertext and hyperlink technologies in multi-interfaces

Applying the characteristics of knowledge net structure, the interfaces of courseware is designed into forms similar to the "main page+ hyperlink points" on the internet (see Fig. 5).

(2)The interactive techniques based on man-machine dialogue

The multi-media technology is the customized studying environment provided by the teachers through computers. It is a kind of teaching method for students to study through interacting with computer information. When teaching the theories of football skills and tactics, explaining with physical football has many limitations but some basic teaching contents rely on physical things greatly. Therefore, it is difficult for teachers to express, but the interactive function of multi-media courseware can perfectly solve this problem.

4)The main development tools for multi-media courseware

With the Chinese Windows operating system of Microsoft Windows XP as the software development platform, this courseware utilizes the dynamic website development tools like Dreamweaver and ASP and vivid editing software and the picture, image and sound tool

software such as Powerepoint and Premiere to make the various diagrams, images, photos, animation and sounds need in the courseware

5) *The production flow of multi-media courseware.* When making multi-media courseware, it must be note that: the styles of each part shall try to be the same

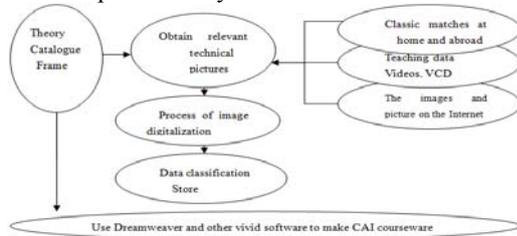


FIG. 6 THE PRODUCTION FLOW OF COURSEWARE

E. *The application effect analysis of multi-media courseware in the theoretical teaching of football passing tactics*

1) *Improve teaching efficiency of the teachers.* Integrating multi-media technologies in the theoretical teaching of football can not only express the abstract and boring theoretical images of football but also liberate teachers from the repeated demonstrating labor on the site. For example, in the courseware, click the volley pass and long pass, the demonstrations in (frontfield), (midfield), and practice will be shown in the next interface; then click the demonstration (midfield), a ten successive pass will be displayed. With the 2-3 minutes' video and brief description, coupled with the detailed explanation of teachers and the practice methods selected in the courseware, the students can understand long pass and volley pass better and faster.

2) *Enhance students' initiation.* The courseware has contain many match videos and teaching practice methods so that students can select the styles of their own favorite teams for imitation through the class application so as to enhance students' interest. At the same time, the students can conduct selective and jumping learning methods of quickly review and in-depth research for the knowledge in the second class based on their own actual situations, which fully reflects the individualized teaching concept of teach students in accordance with their aptitude.

3) *Improve teaching methods.* Applying multi-media technology in the theoretical teaching of football has changed the traditional teaching modes, animate the class, release the initiation and creativity of students and improve the learning efficiency. Its interactive features enable teachers to guide students to selectively study which solves the disconnection problem in theoretical and tactic teaching to a certain extent.

4) *Speed up the updates of teaching knowledge.* The powerful interactive function of multi-media technology can easily change its contents. Through the Internet and modern convenient communication tools, teachers can

instantly track the advanced football skills and tactics and learn the leading academic dynamics at home and abroad so as to grasp the first-hand data conducive to the teaching and scientific research; while the students can imitate some comprehensive football tactics anytime through multi-media technology.

III. CONCLUSIONS AND SUGGESTIONS

- A. *In the theoretical teaching, multi-media courseware combines with the detailed explanations of teachers as well as the contrast of different pictures can play the guiding effect in the initial formation of football pass tactics on the minds of players.*
- B. *The application of multi-media courseware can express the abstract and boring theoretical images of football, and the contents of multi-media courseware have no tactic differences from the practical ones. Therefore, multi-media courseware can build corresponding tactic concepts and lay firm foundation for improving individual tactic sense.*
- C. *In the multi-media courseware, the demonstration of football match scenes can liberate teachers from the repeated demonstrating labor on the site and show the teaching ideas through a high layer.*
- D. *The application of multi-media courseware in football theoretical teaching not only improves the teaching methods of football class but also fully plays the labor source in the teaching and improves the teaching quality.*
- E. *The application of this courseware in the theoretical teaching has great practical value, and suits the development trends of modern teaching theories as well as the science and technology.*

REFERENCES

- [1] The general teaching material for physical education institutes, *Football* [M], People's Sports Press, 1992, 6
- [2] Huang Zhuhang, *The Construction Process and Training Strategy Design on the Tactic Sense for Football Match* [M], Doctoral Dissertation from Beijing Sport University, 2004, 4
- [3] Authorized by national teaching material council for physical education institutes, *Modern Football* [M], People's Sports Press, 2001, 6
- [4] Wang Runping, Zhang Ting'an, Zhao Zhen, Chen Yizhang, XuAimin, Analysis of the Pass Errors of Attacking Team around the 30 m of the other's Penalty Area in 2004 European Club Football[J], Journal of Wuhan Institute of Physical Education, 2005, 5
- [5] Liu Deming, *The Production and Application of Football Multi-media Courseware* [J], Liaoning Sport Science and Technology, 2006, 6
- [6] Li Ning and Liu Dahai, *On the Application of Multi-media Courseware* [J]. Silicon Valley, 2009, 01