

# Application of Multimedia CAI Technology in Physical Education

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**Abstract:** Today, the use of multimedia teaching has become a common phenomenon of school education, the multimedia CAI is accepted by the majority of students and students. Physical education is an important part of school education, and it will be used in the era of the multimedia application of the trend of the times, and it is also the time for the application of multimedia CAI in physical education teaching. Multimedia CAI not only provides students provides a good learning environment, also can effectively shorten the learning time. It is very important to improve the teaching quality and efficiency and achieve the best teaching objective. This paper mainly expounds the application of multimedia CAI in physical education teaching, in addition to the analysis of the current situation, the traditional sports teaching and sports teaching in the application of multimedia CAI contrast, and proposed in the teaching process should pay attention to the problem.

**Keywords:** CAI, multimedia, physical education, sports.

## 1. INTRODUCTION

The computer aided instruction (CAI) is the core content and the main technical means of the modern information technology applied to education. It is a teaching task that is to teach the students in the auxiliary or substitute for the teachers. It is a kind of teaching method which is to impart knowledge and provide skills to students. On multimedia teaching spirit, southern agriculture professor talked about three aspects: reflecting the characteristics, the advantages and the performance. These three "embody" the complete summary of the principle of multimedia teaching. The computer aided teaching has overcome the single and one-sided teaching method, and it is applied to computer technology such as multimedia, hypertext, artificial intelligence and network communication. It is a new subject of current teaching reform to use the multimedia CAI to teach students knowledge and skills in modern educational technology. Facing the rapid development of the information age, as an important part of school education and teaching of sports teaching, whether it is theoretical research and practical application are not backward, should be to adapt to the challenges of the modern information age [1-5].

## 2. SIMPLE APPLICATION OF MULTIMEDIA CAI IN PHYSICAL EDUCATION

### 2.1. Courseware

The courseware can fully embody the features of multimedia, and it integrates the animation, like pictures, images, sounds and characters, and it gives full play to the advantages of multimedia teaching. In order to show the form, the rich media resources and the changeable

demonstration method, the teacher can easily explain and control easily. Students are easy to learn and can give full play to their initiative, interactivity and collaboration. It can better meet the needs of the campus network, the stability of the distance education and download the features quickly.

### 2.2. Structure Design of Courseware

The overall structure of the multimedia courseware is composed of the teaching object and the teaching content. The teaching objective of the courseware includes strengthening students' physique, mastering basic knowledge, technology, skills, cultivating students' good moral character and improving students' ability of observation and imitation. As shown in Fig. (1). The teaching content of the courseware includes theory course and practice lesson, and its courseware teaching content structure is shown in Fig. (2).

### 2.3. Content of Sports Multimedia Courseware

The teaching courseware of physical education can be divided into two major categories: the principle teaching mode and the training teaching mode [6].

#### 2.3.1. Principle Teaching Mode

Principle teaching mode can be divided into teaching and technical teaching. Principle teaching is simply introducing the characteristics, origin, evolution, development and rules of the project, development and rules, site and sports methods, and helping students to establish complete knowledge concepts [7, 8]. Technology teaching is using CAI course, through the screen complex technical movements and some excellent athletes in the world scientific and normative action with "slow motion" and "freeze" on the screen to display the students. Students can be very clearly seen the key technical essentials of the various actions they have to grasp, increase the depth of

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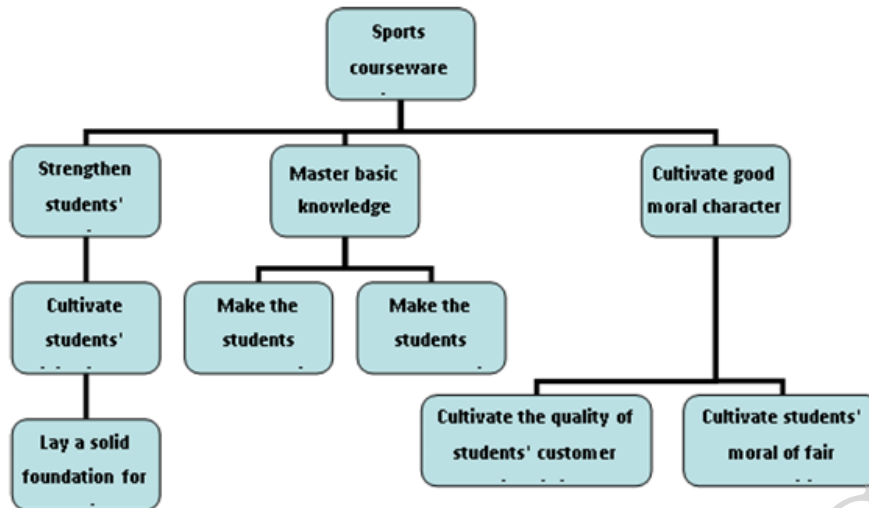


Fig. (1). The overall structure of multimedia courseware.

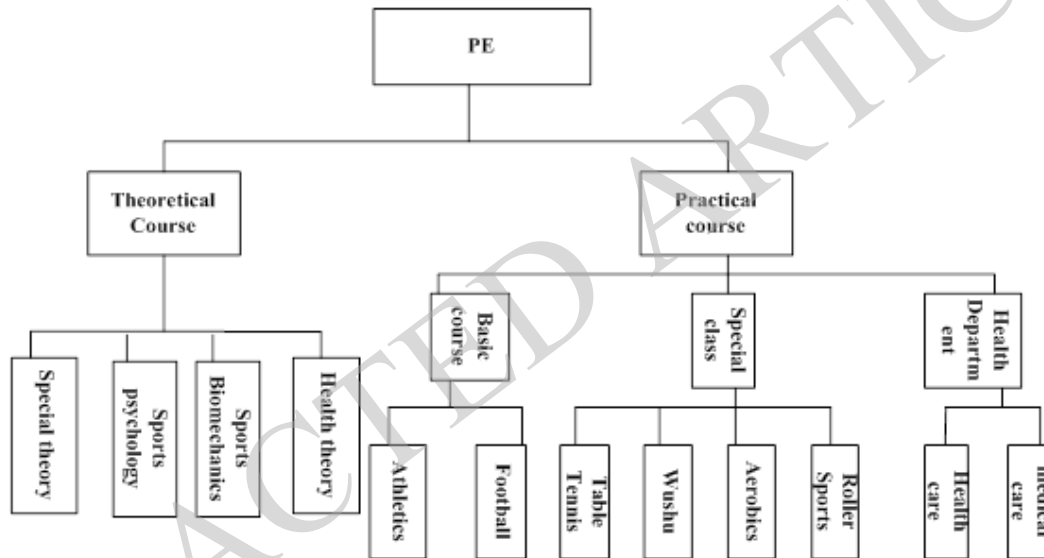


Fig. (2). Courseware teaching content.

understanding, so that students more and better grasp of sports knowledge and skills [9].

**2.3.2. Training Teaching Mode**

Training teaching mode should follow the principle of distinction, which is reasonable arrangements for different training step and method, and improve students of technique, dynamic,[10-12] method and essentials of basic knowledge, basic concepts of the understanding and analysis of the problem and the ability to solve problems, as shown in Fig. (3).

**2.4. The Significance of Multimedia Technology for Modern Education**

Multimedia technology has many features and functions for education and teaching process. These features and functions are other media do not have or are not fully equipped with. Multimedia computer aided instruction is the product of the combination of multimedia technology and computer aided instruction. It not only inherited the

traditional computer aided instruction, with students as center, teaching students according to their aptitude and timely feedback the advantages, it also has the rich multimedia performance, features simple operation can maximize meet the students the basic requirements, greatly enhance the efficiency of learning, it is another milestone of the computer aided teaching. The further development of multimedia computer aided instruction will undoubtedly cause the reform of modern teaching mode, teaching content, teaching method and teaching method. It will eventually lead to a huge change in teaching ideas, teaching theory and even teaching system [13-15].

**3. CURRENT SITUATION OF MULTIMEDIA IA C IN SCHOOL PHYSICAL EDUCATION**

**3.1. Sports Teachers' Modern Physical Education Concept**

The sports teachers' modern sports teaching idea lagging behind, because the school is subject to the teaching

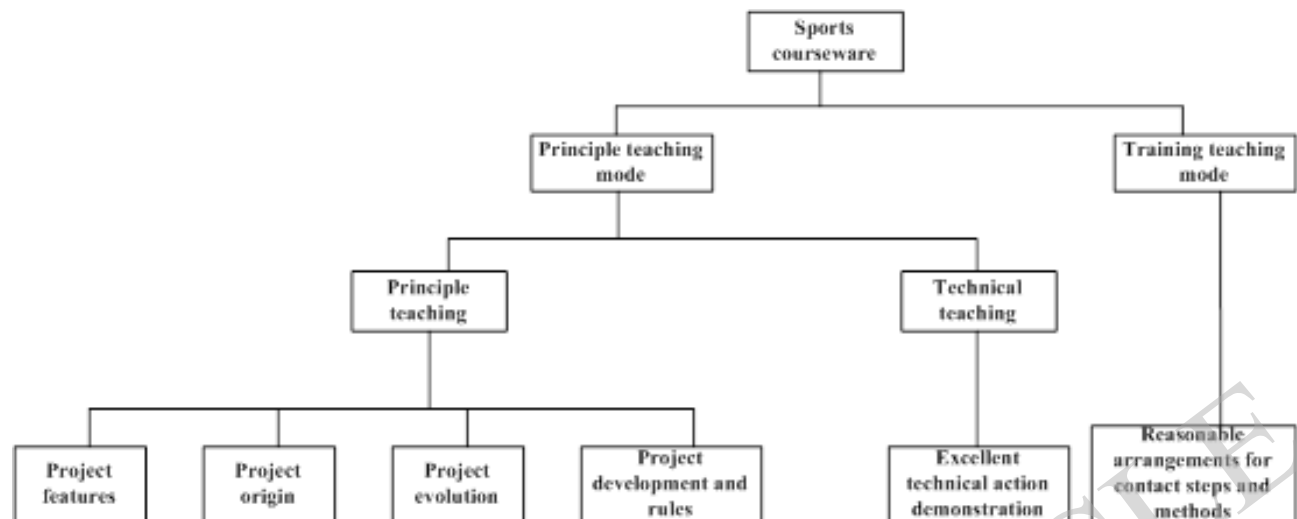


Fig. (3). Training teaching mode.

condition, the technology and so on factor limit. CAI has not been comprehensively promoted in the physical education, and it has the insufficient cognition to the modern sports teaching hand section. At present, many physical education teachers in the teaching still exist "heavy technology, light theory" outdated teaching ideas.

### 3.2. The Application of Multimedia CAI for Physical Education Teachers

Because of the limitation of the traditional physical education concept and the information ability of the teachers themselves, the sports multimedia CAI is not reasonable and effective in the process of physical education and education. According to the survey, in the middle school in Shanghai, the teachers' initiative to use the multimedia CAI assisted physical education is not optimistic. Which often use the multimedia courseware, slides and other information technology to help the physical education teaching of a small proportion (15.38%), the occasional application of CAI assisted physical education for 25.58%, and from the use of 5.903%.

### 3.3. Investigation on the Operation and Development of the Multimedia CAI for Physical Education Teachers

Through the research on the operation and development of the physical education teacher and the development of the multimedia CAI, the results show that, in physical education, most physical education teachers (70.92%) do not have the ability to use frontpage, PowerPoint and other multimedia software to make courseware. Which can skillfully use PowerPoint, fontpage according to the teaching task oneself develop CAI teacher only for 4.6%, obviously this can't adapt to the use of multimedia for sports teaching requirements. In addition to the CAI courseware application because most of the sports teachers (45.41%) can not master the operation process and its use of CAI, resulting in the intangible waste of multimedia CAI teaching resources. Because the restriction by the teacher's information ability, so many teachers (42.35%) in sports teaching in only a relatively simple operation of CAI piece, so that CAI can

not play its due role, and influence the effect of the sports teaching.

### 3.4. The Development of the Multimedia Teachers in the School of Multimedia CAI, the School Sports Work Should be Further Developed

According to the survey, the school in the research team of CAI development, mainly for the language, physics, computer and other cultural courses (3.980%); it is only 48% to the physical education courses; in order to participate in the design of CAI for 1.786%; for other reasons for the 17.35%. Schools did not organize a research team of a CAI developed for 20.92%, although a handful of PE teachers in the preparation of a CAI, however, due to the lack of attention of the school, and the limitations of physical education teachers, that the development of sports CAI greatly discounts.

## 4. THE TRADITIONAL SPORTS TEACHING PROBLEMS

### 4.1. A Lot of Technical Demonstration Difficult for Teachers

On the one hand, there are a lot of sports teaching is not suitable for high speed, flight and flip action. However, the use of the full teaching method, these moments to complete the action, the students are not easy to see clearly, so a complete action presentation is difficult to quickly build up. On the other hand, the objective conditions such as age, gender, professional quality and physical quality in the teaching process restrict the teachers, and many technical movements can not do the standard demonstration. This student is very difficult to establish the correct action concept through the teacher's explanation demonstration.

### 4.2. Students Learning Effect Feedback Channel Single

Sports skill teaching, students' learning effect mainly comes from teacher feedback. The basis of student simulation exercise is the teacher's explanation and demonstration, through observation and analysis of the

teacher feedback to students. On the one hand, the feedback of the middle link, each link information will happen attenuation, the students are not easy to establish action imagery; On the other hand, when the students can't see what they do, there is no self feedback, that the error can not be corrected in time, and the error may be formed.

#### **4.3. Monotonous Teaching Form, Not Easy to Mobilize the Enthusiasm of Students Learning**

P.E.classroom teaching, for a long time failed to break the traditional teacher oral explanation "demonstration - imitate the student - teachers correcting wrong movements - students practice" monotonous teaching form. Although this traditional teaching mode is a student's practice as the center, in the student movement skill formation has its not to neglect the merit. However, the students in this mode of teaching in a passive position, that can not make the students with a happy mood to learn, and not easy to mobilize the students to learn the technology and the enthusiasm of the action and enthusiasm.

### **5. THE ADVANTAGES OF MULTIMEDIA CAI IN PHYSICAL EDUCATION**

#### **5.1. Multimedia CAI is Helpful to Highlight the Difficulty of Technical Action**

Sports technical action is often the occurrence of an instant, and the action is rapid and difficult, the teacher can only through the repeated explanation, and many times to complete the work of the professor, but this method is still can not grasp the essentials and action of the key difficulty. The multimedia CAI not only can each action through the slow camera way, and will a complex action into several parts, the teacher can according to each action one to explain. At the same time, each action can also be amplified, the students can clearly see every tiny detail of the movement, and thus grasp the essentials of action. When the teacher in the lecture, you can also highlight the focus and difficulty, each step will be a thorough and prominent difficulty. For example, in the track and field hurdles, we can use the slow camera, multi hurdles every step of the demonstration, but also allows students to see the focus. Again in the pedal distance jump flight movement teaching, the teacher in the absence of Multimedia CAI, it is not possible to stop in mid air to you do demonstration, through simple to explain, students may not understand. Through the multimedia CAI, students can not only see the vacated jump steps, but also see the difficulties put off the leg movements.

#### **5.2. The Multimedia CAI Helps to Improve the Students' Comprehensive Ability**

The multimedia CAI plays a great role in promoting the students' observation, analysis and judgment. For example in fosbury flop high jump training, the teacher is impossible in the body rod and positive cross state when it came to a halt, can not be a rod body, the body center of gravity moves, leg to rejection, such as a series of actions repeated demonstration and explanation. So it is difficult for students to understand the essentials and key of the action, which makes it difficult to teaching. The multimedia CAI teaching can not only some of the excellent athletes in the world of

action technology by way of slow motion decomposition to the students, in the process of looking can not only stimulate students' abstract thinking, so as to grasp the essentials, to enhance the understanding of motor skills. In addition, through the multimedia CAI can also greatly stimulate the passion of learning, and enhance their learning initiative and consciousness.

#### **5.3. The Multimedia CAI is Propitious to Improve the Teaching Effect**

In the sports teaching, we can always see such a situation: a lesson, the teacher is thirsty, because in the process of teaching teachers need to repeat essentials and action of neat and uniform, but the actual teaching effect is not ideal. For example, in the early stage of Aerobics, We should use the multimedia CAI teaching, from the beginning of the use of multimedia to stimulate students' interest, let the students practice the demonstration with the music and the movement, and carry on some simple movement practice on this basis. This is not only conducive to the cultivation of students of music, but also help them to action learning and understanding, with the passage of time, students can follow the demonstration, the listener to music, devotion, the successful completion of each action. This class not only boring, but will bring a kind of enjoyment, can effectively improve the quality of teaching to the students, and greatly promote the exchanges between the students and the teacher, bring more conducive to improve the teaching effect. And as the basketball training, can be combined with multimedia CAI teaching will be a few elite athletes of the shooting action into teaching, student easily generates interest, and is filled with enthusiasm in the next study to obtain good teaching effect.

#### **5.4. No Age Limit for Multimedia CAI**

In the teaching of physical education, teachers' demonstration and explanation is very important to sports' teaching method, but a lot of action once a teacher a little older is difficult to through the demonstration teaching, such as gymnastics, hurdles and projects. Through the multimedia CAI has no age limit, old teacher as long as according to the standard action demonstration to explain it, even the difficulty again big action, the teacher can successfully explain the end, students in listening, look at the process can be more understanding.

### **6. THE INFLUENCE OF MULTIMEDIA CAI ON THE TEACHERS AND STUDENTS IN PHYSICAL EDUCATION**

Physical education teaching activity is a practice of the strong teaching and learning of the bilateral activities, through the application of multimedia CAI in physical education, the teacher's teaching and students' learning have a great influence.

#### **6.1. The Influence of Teacher Teaching**

In the traditional mode of teaching, knowledge transfer is relatively simple, with teachers as the center of teaching mode, the teaching center mainly on teachers "talk", ignoring the students take the initiative to "learn". The teaching

method of "speaking, evaluating and practicing" can not make the students' brains be in the state of excitement for a long time, and it can restrain the students' thinking and reduce the learning efficiency, which hinders the cultivation of innovation ability. Thus through exploration and research of modern teaching mode, multimedia CAI is one of them, the center of teaching put to inspire students to take the initiative to explore, take the initiative to find the take the student as the center of teaching mode. CAI multimedia teaching can help teachers to find the differences of students, truly teach students in accordance with their aptitude. Combination of Multimedia CAI teaching and technical course, help teachers to adapt the contrast between right and wrong method, timely correcting students' wrong actions. In addition, teacher's physical strength and energy saving to ensure teachers have a good state of mind to creative preparation and teaching.

### 6.2. The Influence of Students Learning

Multimedia dynamic effect will stimulate students curiosity, stimulate a variety of sensory organs to participate, it is conducive to the improvement of the students' learning enthusiasm, intelligence factors, non intelligence factors and innovation consciousness. Multimedia CAI is a set of images, animation, sound and text in one, in sports teaching, the students' attention to the teaching content, strengthen the cohesion and appeal of the classroom, and stimulate students interest in learning, learning desire and motivation to seek knowledge, in order to mobilize students learning enthusiasm and initiative. The important aspect of the quality education is the cultivation of the psychological quality, the mental quality and the non intelligence factor. Intelligence factor includes observation, memory, imagination, thinking and attention. The non intelligence factor includes emotion, will, habits, etc. Multimedia CAI is a set of dynamic and static in one, the teaching can excited students learning enthusiasm, enhance interest in learning, cultivate positive emotions, full of sentiment and bright personality, all belong to the intellectual factor and non intellectual factor training, let students learn along the road "grind music learning - learning" development.

To cultivate the students' creative consciousness: the students have unlimited potential, and there is the potential to stimulate the stimulation. Using multimedia CAI teaching, guide students independent learning, cooperative learning, inquiry learning, stimulate students of high-tech sensitive awareness, encourage them to explore new things, to dig out the new potential and cultivating innovative thinking ability.

### 6.3. The Problem that Multimedia CAI Should Pay Attention to in Physical Education Teaching

Multimedia CAI is the product of the modern information era, it is certainly significant. But the emphasis on Multimedia CAI in sports teaching application simultaneously should also pay attention to, the classroom teaching is the teacher as the leadership, the student as the main body teaching the main position of. Although the use of multimedia technology can greatly optimize the structure of the classroom, but can not replace the teacher, the teachers become the operator of the instrument, courseware to

explain. Teachers are still teaching guide, organizer and coaching them, also need to students of all learning response required feedback. Practicing sports imposed on students as the main form of learning, practical exercises, tend to have a wide variety of action deformation. Therefore, courseware can not replace the teachers' initiative, it can only show several typical movements, still need to play a leading role for teachers. The purpose of using multimedia courseware is to provide students with a more ideal environment for learning, so that students in the well-designed environment more active, active and happy to learn. Therefore, the students must not become the follower of the multimedia, should have own time and space, carry on autonomous learning. Students can take the media as an educated teacher, but according to their own circumstances to choose the content and learning methods.

## 7. CONCLUSION AND SUGGESTION

(1) Multimedia CAI has great prospects for development, the school and government of the new curriculum standards for physical education that should be fully paid attention. We should increase the investment of education funds, with hardware facilities, so as to implement the multimedia application comprehensively.

(2) The majority of physical education teachers should update their educational ideas, use the multimedia CAI technology appropriately, highlight the students' dominant position in the multimedia CAI teaching, and make the students change from passive learning to active learning.

(3) Relevant departments should attach importance to the cultivation of PE teachers of modern science and technology theory of the quality of and improve practical operation level of modern science and technology equipment, regular training of Multimedia CAI, timely replenishment of the latest technology.

(4) Multimedia CAI teaching must be combined with the traditional teaching. "To the leading role of teachers, student's main body status" principle, teaching multimedia CAI and traditional teaching organic combination together, mutual penetration, mutual promotion, in order to use the least resources to achieve the highest effect.

(5) According to the purpose of teaching, teaching tasks, teaching steps and students' specific circumstances, choosing the use of courseware for teaching do not achieve the learning effect, and achieve the purpose of teach students in accordance with their aptitude.

(6) Using computer network and multimedia CAI technology for distance education, it is beneficial to the cultivation of students' independent learning and innovation ability.

(7) Establishing the sports teaching professional website, providing the sports professional material, attaining the resources sharing.

## CONFLICT OF INTEREST

The author confirms that this article content has no conflict of interest.

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