Smart Classroom and Computer Multimedia Application in Physical Education and Wushu Movement Analysis

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Abstract

Smart classroom is a new learning environment. In this environment, the new digital teaching equipment and digital content can be effectively integrated, which can give full play to the enthusiasm of teachers and students. In this paper, the author analyses the smart classroom and computer multimedia application in physical education and Wushu movement analysis. Multimedia technology has opened up a new field of Wushu teaching, enriched the teaching methods of Wushu, improving students' enthusiasm and interest. Computer multimedia with images, video content, can carry a variety of information. Students can carefully observe the demonstration action from different angles, speed, in different directions, so the formation of the impression in the brain more clearly. It is proved that the use of information technology to promote martial arts teaching is the development and innovation of traditional Wushu teaching and training methods.

Key words: Smart classroom, Computer multimedia, Physical education, Wushu movement

1. INTRODUCTION

The new era of information technology support the real impact on learning in the classroom is still within the current educational technology researchers pay more attention to the tools, materials and equipment as the teaching resources, and the lack of implementation of the carrier as the teaching process, classroom or attention. However, at present, most of the research on intelligent classroom in the future only stays at the theoretical level (Jian, 2012). In the practice level also just stay in on some high-tech hardware combination, to achieve the science and technology for teaching science and technology, the system configuration and not according to the actual teaching needs to be optimized. This situation increased the burden of school education activities carried out, resulting in unnecessary waste of resources, limiting the popularization of intelligent classroom in school education; on the other hand also has the problems of teachers teaching, but also to students have more cognitive load (Mastrolo, 2010; Sabella, 2010). In this context, the future research of intelligent classroom is becoming more and more urgent and important, is particularly important to explore how to learn to achieve a comprehensive integration between new technology and learning activities of students in the process of specific courses, teachers and students in the environment of two kinds of intelligent classroom activities of the new model or method.

With the deepening of teaching reform in our country, many scientific and technological achievements are directly introduced into the field of school teaching. Multimedia technology with its own vivid, interesting, intuitive, efficient, and to accommodate the message compatibility and comprehensive features, provides intuitive and efficient auxiliary means for teaching, development and the continuous improvement of the level of martial arts, martial arts teaching and scientific training is to represent the general trend (Dai, 2012). How will a variety of modern teaching media with traditional teaching, especially the multimedia technology into the classroom to meet the needs of modern martial arts, martial arts teaching, is an important issue faced by the development of martial arts teaching (Huang, 2013). At present, in order to make the function of sports teaching is more prominent in the sports teaching, many schools are about multimedia technology into the teaching, which not only effectively stimulate the students of sports theory knowledge, but also effectively improves the students of sports skill mastery (Zhang, 2012). The multimedia teaching mode to bring the students is a lively atmosphere in the atmosphere, leading every student to actively participate in sports learning, for students of sports career brought infinite wonderful, and the multimedia technology in the modern teaching system has become increasingly prominent wonderful. The quality of physical education also plays an important role. To this end, on the basis of the characteristics of multimedia technology combined with the particularity of martial arts teaching, the use of modern multimedia technology to improve the effectiveness of martial arts teaching.

2. SMART CLASSROOM AND MULTIMEDIA TECHNOLOGY

2.1 Smart classroom

Some scholars and experts believe that the smart classroom is an enhanced classroom, integrating all kinds of high-tech hardware and software equipment, make learning space and omnipresent, conducive to seamless
access in the teaching and learning activities; some scholars and experts believe that the smart classroom is a new learning environment, in this environment, the digital teaching equipment and digital content the new can be effectively integrated, and supplemented by appropriate teaching modes and methods, can give full play to the enthusiasm of teachers and students learning. Smart classroom is compared with the traditional and modern classroom speaking, refers to the related theory and technology support, the various components in order to give full play to the classroom the role of the implementation of teaching and learning activities and the environment to promote people's cognition, skills, emotion, learning and development(Krstev,2014; Khansa,2015). Throughout all kinds of definition or understanding, "smart classroom" is a new science and technology development and product application in the classroom education. It is a kind of ubiquitous network environment and other advanced technology as the foundation, with appropriate and digital curriculum resources as the prerequisite, the interaction as the core, realize the teaching and learning process to optimize the new learning environment and space.

![Figure 1. Smart classroom](image1)

The core of intelligent classroom interaction, this interaction is highly coupling between people, technology, resources and environment in the classroom teaching, it is the biggest with the traditional classroom, it is with the help of advanced science and technology to break the learning space restrictions, and more emphasis on the initiative to give students more. In the intelligent classroom, the teaching mode is no longer the traditional teaching mode, which is based on learning resources and problem solving(Jutla, 1999). Intelligent classroom system emphasizes the ability to solve problems of information technology ability and the cultivation of students' diversification, through the creation of a collaborative combination of the virtual learning environment, encourage students to active learning, the depth of interaction and positive thinking. "Smart classroom" concept is the classroom information effectively processing and integration, in the realization of various existing learning and teaching ideas while maximizing the students experience to maximize the convenience of the information age, to enhance students' skills required to understand and master in twenty-first Century. Smart classroom in terms of technology is mainly for students' individualized teaching students, provide the greatest possible and space. Teachers can easily make teaching arrangement and design different for different students, can easily show his thoughts and teaching, and have ample resources for students to control and disposal, can also provide plenty of opportunities to make up for deficiencies or defects in the past for students. At the same time, students can give full play to their own ability to learn independently and actively participate in the actual classroom teaching activities.

![Figure 2. Smart classroom data system](image2)
Intelligent classroom should be able to support all kinds of learning, so in the design of construction should be especially efficient interaction, group discussion, cooperative learning, inquiry learning, problem based learning and learning activities of students characteristics. Learner centered, cooperative learning is the main way to construct, on knowledge transfer at the same time, pay attention to students’ skills and emotional learning, the ability to solve the development of higher order thinking and learning problems in the actual situation. Through field observation and case analysis, it is found that there are three kinds of basic teaching activities in the intelligent classroom: Lecture type, virtual operation and group cooperation. These teaching modes are based on full use of smart classroom structure characteristics, promote and encourage students to use interactive communication, discuss share participation, focus on training students’ ability of thinking and problem solving in the real scene.

1) data collection: this stage requires teachers to make full preparation before the class according to the teaching objectives and content, use the resources of the network and the resources of the learning process database, to provide resources for students to learn.

2) the presentation of information: in the course of teaching, teachers use double electronic whiteboard, physical display and LCD TV and other equipment, with the map, text, images, sound and other forms of the overall presentation of the information presented.

3) the creation of the situation: the use of teachers in the classroom equipment to create the scene, stimulate students' interests, and guide students to conduct follow-up study.

4) communication thinking: teachers can use smart classroom in e-Schoolbag and electronic whiteboard, according to the needs of teaching design, communication problems, and timely results are presented on the electronic whiteboard, and uploaded to the database for subsequent learning and learning process.

5) summary of the upgrade: the use of electronic whiteboard and other equipment, the summary of the teaching, and upload the formation of a new generation of resources for learners to see.

2.2. Multimedia technology
The significant mark of multimedia technology is that the network and computer technology are playing more and more important role in the classroom teaching. The entry of modern network information technology not only changed the traditional teaching methods, but also changed the teaching content, teaching form and teaching methods. Interactive learning systems such as computer network will completely change the traditional teaching mode, the teaching focus from "teaching" to "learning", teachers change from passive learning state synchronization control for two-way communication and active learning, the students' initiative has been fully reflected, the students become completely the main part of the teaching process.

The use of multimedia technology in teaching can accurately analyze the actions of Wushu students correct work, can break through the difficulty of action, the perfect martial arts classroom. Multimedia technology can combine text, graphics, video images, animation and sound and other information, and through a comprehensive treatment, to complete a series of random interoperability. Before the implementation of multimedia technology, in order to better highlight the physical movement of the body in the teaching of physical education, the teaching method is to take the audio-visual teaching mode. Although the electrochemical model to a certain extent, voice, text, pictures and music etc. these specific things appeared, but in the electrochemical mode of these functions are independent, is unable to achieve fusion, but in multimedia technology, audio-visual teaching the insufficiency of mode can be to overcome, play an important role in improving the quality of teaching in PE teaching, the sports teaching effect more perfect. In the sports teaching process, the multimedia...
technology can not only increase the communication between the student and the teacher, at the same time, teachers can better draw the needs of the students, and students can have a more detailed understanding of the teachers on the contents, so as to promote the efficiency and quality in the teaching of physical education to improve the. Organize the sports teaching goal and the teaching content also had a higher level.

3. THE APPLICATION OF MULTIMEDIA TECHNOLOGY IN WUSHU TEACHING

3.1. Problems in Wushu Teaching

With the rapid development of computer technology, the rapid development of computer technology has broken the original teaching mode in the twenty-first Century. The multimedia technology into the teaching of martial arts, opened up a new field of martial arts teaching, to enrich the teaching methods and means, active classroom atmosphere, improve students’ enthusiasm and interest can not be ignored, finishing the teaching material contents and can help teachers better and learning channels, therefore, imperative of Wushu Teaching by multimedia technology. The action effect of multimedia technology in the rich and colorful, not only to the attention of students has been improved, but also effectively stimulate students interest in sports learning, improvement of teaching methods in modern sports teaching can effectively promote.

- Monotonous teaching methods: At present, the techniques of martial arts teaching and theory courses are limited in dictation and imitation. Also the blackboard, books, slides, video and other media. The use of these media, but also to express certain words, values, sounds, images. However, due to the use of video in the practice of teaching hours is not very convenient, therefore, only in the conditions allowed to use. The use of multimedia computer can realize the integration of information, control.

- Martial arts movement has high demand: Wushu is difficult to grasp the sports project, each action consists of direction, route, structure strength, posture, spirit, charm stop cadence, and many other requirements, and the action between a fast and slow, dynamic and static, rigid and soft, and the changes of movement and dynamic change of cohesion between complex and in order to get a good martial arts class, no teaching method is difficult to produce good improvement. Multimedia technology is a new way to improve the teaching level of wushu. At the same time in order to make the movement to achieve the specification requirements, it must be emphasized in the analysis method of attack and defense, if only empty talk is unable to achieve the desired effect, and the practice of defense, no multimedia technology there is a certain danger.

3.2. The application of multimedia technology in Wushu Teaching

Observation of multimedia materials in tissue of students, teachers should be familiar with and understand the multimedia content, students can clearly observe the key, can mention some related problems can also ask students to think, while watching the side to explain, let students concentrate, avoid just looking. Self made slides, videos, etc., should strive to achieve tight theme, the picture is clear, vivid, otherwise, not only can not
achieve the desired effect, on the contrary will be a waste of time, and even cause dissatisfaction and resentment of students. Teachers use computers to prepare lessons, usually should be increased at any time, the accumulation of new information and information, add new content. Rely on the purchase of multimedia teaching materials can not meet the needs of teaching, collective action can give full play to all the teachers, to collect all kinds of video media data, mostly around now installed cable TV, martial arts programs are by subscription TV newspaper, write down what Taiwan have related programs, and audio-visual center teacher recorded convenient after use of the teaching, and pay attention to editing, classification and sorting of data in a timely manner.

- **Application of multimedia technology in Wushu Theory Teaching:** Teachers can make multimedia teaching courseware through 3D, POWER-POINT, FLASH, PHOTSHOP and other software in the teaching of Wushu theory. In addition, the friendly interface of human-computer interaction, the teachers will be talking about the content through multimedia with vivid images, animation, the teacher's teaching ideas to accurately express. So, on the one hand, the distinctive characteristics of intuitive, vivid, colorful illustrations, and mobilize Students 'senses also stimulated, can attract the attention of students, arouse their interest and improve the teaching effect; on the other hand, the multimedia courseware can also convenient for students' self-study or review, but also can deepen students' knowledge of understanding.

- **The application of multimedia technology in Wushu Training:** The characteristics of Wushu determines the particularity of Wushu teaching. In the process of Wushu teaching, we should emphasize the intuition and the demonstration. And in the martial arts teaching in some difficult movements, not only the structure is complex and need to be completed in an instant, in the air can not stay or slow down. Such as flying kick, kick action, it is difficult for a teacher in a demonstration to explain, in the demonstration after explain students difficult to understand. To make the courseware using multimedia technology, on the one hand, can save a lot of time demonstration and explanation, so that teachers have sufficient time to carry out error correction work on students, on the other hand, when some demonstration can not fully display difficulty movement structure, process, and key details of the teaching, can through the lens of scheduling, using vision, panoramic, close range, or use the close-up lens of the push, pull, shake and shift, with other methods, effectively from various angles and sides of action performance orientation, distance, relative position and trajectory characteristics of space; also by high-speed photography, the moment of action slowly show, in order to break the limitation of time and space.

- **The application of multimedia technology in improving Wushu Training:** In the martial arts training, the students should master the skill of sports through generalization, differentiation and consolidation until the automation of the movement. Students learn new actions often from the imitation of the technical action began. However, in this stage, the students' sense of time and space is often generalized, and it is difficult to fully understand what they do. But if we use the multimedia technology to the whole process of students' practice by high speed photography, and then use the computer multimedia technology, the demo he completed action, and others and the correct action were analyzed, then pointed out that the key to his mistake, let students clear at the completion of the...
action process, what is wrong, it helps students to correct the mistakes, form the correct technical movement, shorten the time into the stage of differentiation, help to improve the quality of teaching.

Figure 6. 3D human body motion analysis

4. THE INFLUENCE OF MULTIMEDIA TECHNOLOGY ON THE QUALITY OF PHYSICAL EDUCATION

4.1. Characteristics of multimedia teaching

In the education industry, especially in the classroom teaching, information technology has been widely used as an important means of classroom teaching information presentation. Information technology can collect a variety of functions in one. For example: we can create a rich and colorful teaching courseware using multimedia computer technology, capable of carrying a variety of information processing ability; text, images, animation, video and other content, focused on the advantages of the slide projector, film, television, audio and video, stereo model of teaching media, and has the unique function of human-computer interaction. The use of information in teaching can improve the teaching media display and interaction, greatly enrich the teaching content presentation. School of martial arts teaching objectives through Wushu teaching to make the students learn to enrich the connotation of the cultural treasures of martial arts, martial arts master sports skills, methods, rules, and in the process of Learning Wushu in the promotion of health and self shaping. Therefore, in the process of Wushu teaching, teachers should actively explore and innovate, enrich teaching methods and methods, fully mobilize students' interest and enthusiasm in the study of martial arts, and get better teaching effect. In this context, the integration of martial arts teaching and information technology is becoming a hot spot to further enhance the vitality of martial arts teaching in schools.

Figure 7. Computer 3D effect of Martial arts teaching

Learning martial arts is a mental and physical strength has a high requirement of the knowledge acquisition process; students in the learning process is to mobilize the auditory and visual access to the teaching information, but also by limb innervation make imitation, it is easy to feel tired and not keep up the pace, coupled with the martial arts teaching content is various, action change is more complex, so Wushu teaching often makes teachers and students feel terribly fatigued. The emergence of information technology provides a new opportunity for the improvement of teaching methods and teaching methods of Wushu, which changes the inherent mode of traditional Wushu education. The implementation of the teaching process of teachers, can try to use the computer multimedia information technology assisted teaching, the emphasis and difficulty in making multimedia courseware interesting in advance, and the vivid illustrations realize video and stereo effect. As long as teachers do auxiliary demonstration and a word or two can solve the problem, so the application of information technology on Wushu teachers' quality and teaching mode had a significant impact. Teachers to
carry out comprehensive treatment of text, sound, image and animation by means of information technology, to create a vivid teaching environment. Teaching implementation provide the image to express the tool, really change the monotonous teaching mode, the teaching of martial arts alive. In addition, the rapid development of the Internet has opened up a new way for Wushu teaching. For example, in class and holidays, in order to prevent the interruption of training, teachers can through the Internet to the training plan and the content by email or other means to tell students, students through conscious training, the training of the feedback to the teacher, so as to ensure the continuity of training, a solid foundation for the after school training. Now, many schools already have a certain scale of the courseware room, electronic reading room, digital projection classrooms, multimedia language lab, multimedia network classroom etc. Martial arts teachers should give full play to the advantages of information technology teaching equipment, update the martial arts teaching mode, improve the efficiency and quality of classroom teaching.

4.2. Multimedia sports action analysis

The traditional martial arts teaching methods tend to simple explanation and demonstration, easy to let students have tired psychology, students passive learning, learning interest is not high, so that the quality of teaching has been seriously affected. For such a situation, we can use a variety of information technology means to give students a fresh and lively stimulation. The use of a variety of modern teaching methods will be related to the full range of teaching information to the students, through the intuitive and vivid demonstration, the teacher's on-site demonstration and text, sound, picture, image integration. With lively music and vivid explanations, students can intuitively feel the lively atmosphere to the movement characteristics of martial arts, understand the rich connotation of Wushu, inject new life to the dull atmosphere of learning. At the same time because of the unique multimedia interactive and repetitive operation, students can speed from different angles and in different directions to carefully observe the demonstration, formed in the brain image more clear and specific, to enable students to know the appearance of recurrent and persistent action, fundamentally change the students' learning of martial arts fear, stimulate students' interest in learning, thus enhancing students' understanding and feelings of abstract things, to promote students' short time efficient access to knowledge and information, combined with the demonstration and practice, improve the classroom learning effect.

At the same time, students can also according to their own technical movements, flexible choice of different content and progress of learning. We can see that the multimedia teaching has the martial arts action demonstration standard, commentary features concise easy to understand, the atmosphere is relaxed, steps for learning content and methods, a deep impression, to facilitate teaching and counseling for emphasis and difficulty. To further standardize the action of everyone. The martial arts courseware language and demonstration is accurate, so that the formation of the students in the brain the more impressive students get rich perceptual understanding from the courseware, and then rise to rational knowledge, keep the interest and motivation of learning, and active practice, let the student obtain the good psychological experience heart feelings, with full enthusiasm body devoted to active and continuous learning, not only to strengthen the physique, but also cultivate the sentiment, greatly improve the quality of movement and exercise effect, so that the learning effect is greatly improved, and solve the teachers and students in the past, the process of teaching and learning in the rhythm of this problem is not consistent.

It is not a panacea, it is just a kind of advanced teaching method. A good physical education teacher, not only to learn and master information technology, but also flexible to use in teaching. The traditional Wushu teaching method is still the basis of martial arts teaching mode, in many cases, teachers use demonstration allows students easy to understand learning action, receive good teaching effect, if at this time also by means of information technology becomes superfluous. In the process of Wushu teaching reform, teachers need to think positive, more flowering, guide the students to actively take the initiative to solve the difficult problems facing the focus, Wushu learning, flexible use of information technology to the modern teaching methods, to explore the best way of integrating information technology with the traditional Wushu Teaching mode.

5. CONCLUSIONS

The use of multimedia technology in the teaching of martial arts there is no fixed pattern, teachers should according to the actual situation of teaching requirements, schools and students to choose the right use of the best point to accurately grasp the multimedia technology in the teaching of Wushu and the best time for multimedia technology and its teaching organically, give full play to its advantages, to truly achieve the use of multimedia technology to optimize the teaching purpose of martial arts. Martial arts teachers should be based on the content of their own courses related to the production of multimedia software, teachers should be very familiar with the content of the software, in order to guide students to learn at a specific time. At the same time, outdoor and Sports Wushu Teaching add some difficulties for multimedia teaching, should be considered in a reasonable way, in the multimedia classroom into the school allowed under the conditions of multimedia teaching and traditional teaching should be combined.
Information technology to promote the teaching of martial arts is the development and innovation of Wushu teaching and training of the traditional method, and has very positive reference value for other innovative methods of sports teaching and training. It is of great practical significance to improve the teaching mode and improve the learning effect of Wushu class. At the same time, the means of information technology to improve the martial arts professional athletes’ training enthusiasm, improve the athlete’s technical level and improve the coaches training methods can also play an important supporting role, therefore, the promotion of information technology assisted teaching in Wushu training is very valuable and necessary, there are broad prospects for development.

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