Research on the New Model of Physical Education Teaching Based on Network Modularization

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Abstract. In order to further improve the level of physical education teaching, this work introduced the idea of network modularization teaching reform, and put forward the research of physical education network teaching mode. The model is divided into online teaching, on-demand teaching, online communication and resource download. The experimental results show that the network teaching model of physical education can deepen students' understanding of the physical education content compared with the traditional model, which can greatly improve the evaluation score.

1 Introduction

Compared with other subjects, physical education teaching is relatively complex and requires higher action essentials. While mastering theoretical knowledge, it is necessary to understand the action essentials in depth, which needs a lot of class hours, while physical education teaching hours are limited. In order to cultivate students' physical education skills meticulously, it is necessary to open up their own learning channels for students [1]. The emergence of network technology has opened up a new path for the reform of physical education teaching mode. At present, mathematics and English subjects have tried to use the network to open online video teaching, which results in better practical teaching efficiency [2]. This work would try to introduce the network module and put forward a new type of physical education teaching model.

2 The Demand of Network Physical Education Teaching Mode

2.1 Analysis of present situation of physical education teaching

According to statistics, students have less physical activity and are in a sub-health state since receiving heavy curriculum education. Mastering the movement essentials of physical activities can help students effectively relieve physical exhaustion and mental tension [3]. At present, most schools adopt the traditional physical education teaching mode, that is, to explain some basic knowledge and action essentials based on the physical education teaching curriculum. Due to the limited classroom time, teachers seldom have the opportunity to introduce theoretical basis and function of some movements to their students. The action essentials are also explained in a concise way, and some time is reserved for students to move freely [4]. Under this teaching mode, students are tested on the main points of their movements. In order to facilitate the analysis, the average value is taken as the analytical value. As shown in Table 1, it is a statistical table of students' mastery of movement essentials under the current physical education teaching mode.

According to the statistical results in Table 1, most students can master 41–60% of the movement essentials in the current physical education teaching mode, accounting for more than half of the students, and the proportion of students who master the movement essentials below 40% is also very large. From this point of view, the current physical education teaching mode is difficult to help students master the learning essentials of physical movement, and it is difficult to improve physical education skills, as a result, physical education cannot play a full role.
### Table 1. Statistical table of students' mastery of movement essentials under the current physical education mode.

| Mastery of movement essentials | 0-40% | 41-60% | 61-80% | 81-100% |
|-------------------------------|-------|--------|--------|---------|
| Statistical results           | 23%   | 58%    | 14%    | 5%      |

#### 2.2 The demand for the transformation of the network mode of physical education teaching

With the rapid development of network technology, it provides a reliable tool for the development of education. Some schools have applied network technology to the teaching of mathematics and English, and carried out network video teaching for students, including online learning, video learning and other teaching methods, which provide students with convenient learning conditions. Students are no longer subject to classroom time constraints, and they can use after-class time to deepen the understanding of knowledge [5]. At present, this teaching mode has been well received, and many schools have introduced network technology to carry out teaching in succession. Both primary and secondary schools and universities have put forward the reform of teaching mode, and the network teaching mode is covering a large area.

The network teaching mode mainly uses the network platform to upload some learning materials to the resource platform for students to download and learn. In addition, it can also create online learning, online one-to-one, or one-to-many teaching mode. Plus, mobile devices and network equipment can also be used to establish network video connection, which can provide convenient conditions for teachers and students to teach and learn. With the gradual improvement of the network teaching mode, the network on demand teaching mode has been set up, which means that students can choose what they need to learn according to their own need, and they have exclusive learning channels [6]. At present, this teaching mode is popular with students, and its teaching effect also proves that the network teaching mode can effectively make up for the deficiency of the traditional classroom teaching mode, and the improvement of teaching achievement is higher [7].

From the theoretical level analysis, the network teaching mode is of great help to physical education teaching, so it is necessary to reform the teaching mode with the help of network technology. Since most schools still adopt the traditional physical education teaching mode without introducing network module, they lack understanding of the network module application in physical education teaching [8]. Therefore, the network teaching mode of physical education has become the focus of current research.

#### 3 Main Teaching Methods Used in Network Teaching

##### 3.1 Distance learning

Distance learning mode means that students can use network equipment to establish wireless connection, so as to watch teacher's presentation at the other end of the network platform, and they are no longer limited by space. At present, this teaching mode has gradually formed the network course teaching, and become an opportunity for the development of the educational field. Many educational institutions offer distance teaching courses with good effect.

##### 3.2 On-demand teaching

Considering that if students miss the learning of a certain knowledge, they will waste a lot of time by using distance online teaching. In order to make up for the deficiency of distance online teaching, the network platform has opened on-demand teaching. Teachers can select the required courses on demand according to students’ own situation, which greatly saves the study time.
3.3 Online answering

Network teaching is different from traditional classroom teaching, since teachers and students are not in the same space environment, teachers cannot observe the expression of students, so that they do not know how well the students understand the lecture. In order to understand the learning status of students, the online teaching mode has added the online solution teaching method. The teaching mode is to create communication opportunities for teachers and students, and teachers wait for students’ questions online after the explanation of the contents. In addition, it is possible to set a fixed time during which the teacher waits online for questions from students.

3.4 Resource-sharing teaching

The network teaching method is to create a network resource sharing platform, where teachers upload learning materials, and divide them according to different subject categories and the degree of difficulty, so that students can download to learn. Students can download their own teaching resources according to their needs in the resource-sharing platform, and can also leave messages about their needs on the platform, so that teachers can screen resources.

4 Physical Network Teaching Model

4.1 Physical network teaching framework

This work introduced the network teaching mode, reformed the traditional physical network teaching mode, and propose the frame structure design plan of physical network teaching, as shown in Figure 1.

![Figure 1. Framework of the physical network teaching.](image)

The framework structure consists of four parts, that are, online teaching module, on-demand teaching module, online communication module, resource download module.

4.2 Physical network teaching methods

4.2.1 Online teaching based on mobile learning platforms

With the help of mature mobile learning platform, the teaching window of physical network courses is created, and according to the teaching demand, the multi-person learning window is set up to generate password, which is sent to students and opens at a fixed time. For example, 2pm to 4pm is the online teaching time of physical online course. Students can enter the correct account number and password in the teaching window to log on this platform and enter the online teaching class. In this course, teachers mainly explain the teaching content of this class, in addition to a certain physical movement skills theory knowledge, teachers also demonstrate the movement for
students on the other side of the video, and explain the main points of action. Students can type questions in the interactive column, and teachers answer these questions while explaining, so that students can better understand the knowledge.

4.2.2 On-demand teaching based on AVI teaching video

Different from online teaching, on-demand teaching is a detailed explanation for a certain sports project or action essentials, so that students can study pertinently. This work constructed on-demand teaching module with the help of mature AVI teaching video. In order to facilitate students' learning, the physical network teaching mode proposed in this work records each classroom teaching content, and divided the lecture into several sections according to the theory and demonstration, sports action and other differences. Students can choose the video that they need after online learning, so as to deepen the understanding of this lecture. In addition, this module also adds other sports knowledge and practice demonstration related video teaching content for students to learn on demand in their spare time.

4.2.3 Online communication based on interactive platform

Considering that students will encounter some problems in their own study, the online communication module is added in addition to the online teaching communication bar setting. This module uses the network communication platform and creates the chat group, so that students can ask questions in the group, and teachers will answer these questions in the fixed time. If the problem is too complicated, teachers can use this part as the next lesson. At present, there are a lot of chat software in China, for example, QQ and WeChat are all suitable for physical education teachers and students to communicate.

4.2.4 Excellent course resources download based on database

Considering that students have different needs for physical learning, they also need to learn other sports knowledge in addition to receiving knowledge online, or they need to learn some difficult sports movements, so this physical network teaching mode also adds the download function module of excellent course resources. This module covers a lot of physical education video courses, theoretical text and other types of resources. Under the control of the platform administrator, the information uploaded by the teacher will go through a series of reviews and then be uploaded to the resource platform for students. In fact, the module uploads all the course resources to the platform database and forms the database with the help of the platform database. When students are in need, they can obtain relevant teaching resources by applying for download and calling the platform database, which is also a way for teachers to impart sports knowledge to students.

5 Analysis of Teaching Effectiveness

Taking the teaching of table tennis sports as an example, this work used the network module to establish a new physical teaching mode, and judged whether the teaching mode is helpful to improve the physical teaching level compared with the traditional teaching mode.

This test takes one month duration, the traditional teaching mode as the control group, and the network teaching mode as the experimental group, then adopts these two modes to carry on the teaching, and contrasts students’ mastery situation of table tennis fake movement technical essentials. Among them, 100 students are in the experimental group and 100 students are in the control group, and the experimental test results are shown in Table 2.

According to the statistical results in Table 2, students in the experimental group are more proficient in the technical essentials of table tennis fake movements compared with those in the
control group, and more than half of the students can master this technique more than 60%, which is a major breakthrough in table tennis teaching. From this point of view, the use of physical network teaching model can help students master the technical essentials of physical movement in a short period of time.

Table 2. Experimental teaching test results (n=100).

| Mastery of movement essentials | 0-40% | 41-60% | 61-80% | 81-100% |
|-------------------------------|------|-------|-------|--------|
| Control group                 | 23%  | 58%   | 14%   | 5%     |
| Experimental group            | 5%   | 17%   | 52%   | 26%    |

6 Summary

This work focused on the problem of physical education teaching, introduced network modules through analyzing shortcomings of the traditional physical education teaching mode, carried out network teaching according to mathematics, English and other subjects, and boldly put forward the new teaching mode of physical network teaching. According to different functions, the teaching mode of physical education network is divided into four modules, including online teaching module, on-demand teaching module, online communication module, and resource download module. The experimental results show that the physical network teaching mode can effectively help students deepen their understanding of physical teaching contents.

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