Integration of Information Technology and PE Teaching Process

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Abstract. Since entering the new era, with the rapid development of information technology and the acceleration of the process of global economic integration, many aspects of my country's social life and economic fields are undergoing profound historical changes. The integration of information technology and physical education is becoming a hot topic in my country's current information technology education and even the entire education informatization process. The purpose of this article is to study the integration of information technology and physical education process. This article uses modern information technology to integrate with physical education. The teaching effect produced by it is significantly better than the traditional teaching model. It can more effectively solve the difficulties in the textbook, and can help students establish movement representations and understand movements faster. Essentials to stimulate students' interest in learning. This research systematically elaborates the connotation and significance of information technology and the impact of information technology on middle school physical education, and scientifically explores the physical education curriculum, analyzes the basis and conditions of the integration of physical education and information technology education, and studies the information technology and middle school through teaching experiments. The mode and effect of physical education integration. This article takes the university's physical education major curriculum integration as the research object, and conducts research and analysis through literature method, questionnaire survey method and mathematical statistics method to define the level of information technology and physical education major curriculum integration. Investigation and research show that more than 30% of physical education humanities teachers can often find a suitable resource bank and obtain relevant teaching materials, but the lack of targeted physical education software largely affects teachers’ access to resources.

Keywords: Information Technology, Physical Education, Curriculum Integration, Integration Mode

1. Introduction
The integration of information technology and other courses is becoming a hot topic in the current information technology education and even the entire education informationization process in China.
In the development of information education in other countries with a high degree of educational informationization in the world, the integration of information technology and other curriculum teaching is gradually placed in a very important position. Making full use of information technology in school physical education and actively developing network teaching is a good way to carry out quality education. It will make outstanding contributions to cultivating talents in the information age.

In the research on the integration of information technology and physical education process, many scholars have studied it and achieved good results. For example, Findikoglu F created a student-centered and teacher-led learning environment for students through information technology. Technology, which expresses the boring and abstract theories in the course in an intuitive and vivid way, and enriches the teaching content [9]. Karamat uses electronic schoolbags to expand learning content and realize real-time interaction between teachers and students in the process of pre-class self-study. The main display and communication in class are classroom detection feedback and classroom teaching content extension [10].

This article proposes different information technology and curriculum integration modes for different teaching environments and teaching modes. According to the current situation of the integration of information technology and physical education professional courses, this paper proposes different integration modes for different courses that adopt different teaching modes, and tries to promote the deeper integration of information technology and physical education professional courses.

2. Integration of Information Technology and Physical Education Process

2.1. Problems in the Integration of Information Technology and Physical Education Courses

(1) In terms of teaching resources
Teaching resources include teaching hardware facilities, teaching software, and teaching resource library construction. First of all, the lack of basic computer equipment in the training hall makes it impossible to use information technology in the classroom teaching of training courses [1]. One computer per person and LAN or Internet connection, the classroom teaching conditions of most courses in our school currently cannot reach this level.

(2) The content of information technology courses
Information technology courses, namely computer courses. In the teaching plan of the physical education major, the information technology courses only have two courses: the basic public basic course Computer Application Foundation and the professional limited elective visual programming. Obviously, this is far from meeting the needs of students to learn information technology, and the two courses are not suitable. The characteristics of physical education major. In sports training and sports science courses, students need to use data processing software and sports drawing software, and students can only learn these two software through other means.

(3) Teachers do not fully use the Internet.
Some teachers can check some news, educational information, search for teaching resources they need or use them to transfer files, send and receive emails, etc., but some teachers use it for games, chat and other activities, and only a few teachers use it to make Own website, form your own or teaching and research group teaching resource library [2]. It can be seen that the network has played a certain role in the process of information technology and curriculum integration, and has provided extensive resources for teaching. However, many teachers have not yet given full play to the huge role of the network in teaching.

2.2. Perfect Countermeasures for the Integration of Information Technology and Curriculum

(1) Information technology construction
Integration requires a certain educational technology environment and equipment, and the construction of infrastructure must be practical, and should not overemphasize quantity, but should focus on quality and practical results. Based on the consideration of education and teaching, the school should
strengthen the construction of the campus network in order to serve the teaching better and efficiently. The construction process should focus on the following aspects:

1) The school's network center is mainly responsible for the management of the school campus network and the sorting and summarization of teaching resources, and ensuring the smooth operation of the entire school network environment.

2) Informatization of teacher's office. Every office and every teacher should have a computer, and the teaching and research group pays attention to the accumulation and upload of the usual teaching resource library.

3) The student classrooms and laboratory buildings should be equipped with necessary multimedia equipment, and should be equipped with computers, projectors, physical booths, televisions, etc.

4) The electronicization of the library. An electronic reading room should be gradually formed to provide convenience for students to access information online. The library should also be equipped with an automatic book lending system, so

(2) Construction of information technology resources

1) The best way is for teachers to make and develop excellent courseware, teaching plans, study plans, etc., to enhance the content of teaching and be more relevant
In the course of curriculum development, front-line teachers organically integrate information technology and curriculum through their understanding of the new curriculum reform concept, and strengthen the accumulation of teaching design, teaching courseware, experience papers, study plans, and course materials; they can also use the large amount of audio-visual education accumulated by the school Materials, such as teacher’s open lectures, lectures, school-based curriculum resources, are selected and built into an information retrieval system by category to form a resource database. This can assist students in learning, and facilitate teachers to learn from each other, and is more conducive to the realization of curriculum and Sharing and updating of information technology resources.

2) The construction of teaching resources is a huge systematic project, which requires support and cooperation from all aspects
To establish a teaching resource system that is rich in content, convenient and quick to use, and can meet the needs of educational informatization, requires the active participation of educational administration departments, education experts, enterprises and front-line teachers, students and other departments, collaborative research, and more [3]. Hierarchical, multi-role analysis. On the one hand, the country can use its own advantages in human, financial and material resources to build a remote education resource database; on the other hand, professional companies in society or various regions and schools cooperate with companies to build a teaching resource database; teachers can also develop independently Subject knowledge website; students are also a good force in the development of teaching resources.

2.3. Information Fusion in Possibility Theory
In the point-by-point fuzzy set operation, the logical multiplication and logical addition fusion of the probability distribution can be defined by the following methods. Let $\pi_i$ be the probability distribution of information source i, then:

$$\forall u \in U, \quad \pi_i(u) = \pi_i(u)$$  \hspace{1cm} (1)

$$\forall u \in U, \quad \pi_i(u) = \perp \pi_i(u)$$  \hspace{1cm} (2)

In the formula, "\(*\)" is defined as $a * b = \min(a,b)$, $a * b = a \cdot b$, $a * b = \max(0,a + b - 1)$; "\(\perp\)" is defined as $a \perp b = a + b$, $a \perp b = \min(1,a + b)$. If the information of all information sources is not necessarily reliable, the priority fusion principle is adopted first, and quantitative weighting is performed.

3. Experimental Research on Integration of Information Technology and Physical Education Process
3.1. **Research Objects**  

(1) Students  
Investigate students' use of information technology in the learning process and information technology courses that students need to learn urgently. The third-year students of physical education major have taken most of the courses of physical education majors, and they know more about the information technology that physical education students need to learn, so the author randomly selected two classes of physical education majors in the third-year university [4]. Of students filled out the student questionnaire.

(2) Teacher  
Taking university teachers as the experimental subjects, the courses in the education plan of the university physical education major are sorted and classified [5]. There are 75 physical education major courses, including public required courses, professional required courses and professional limited optional courses. Due to the excessive number of courses and limited personal energy, it is impossible to conduct research one by one. According to the usual classification method, this article divides the professional compulsory courses and professional limited elective courses of physical education major into three categories: sports humanities and sociology courses, sports training courses, and sports human science courses.

3.2. **Questionnaire Survey Method**  
The questionnaire used in this research is based on the premise of consulting a large number of literatures, according to the purpose and content of the research, the survey indicators are selected after many consultations with experts, and the principles and requirements of the questionnaire formulation of sports scientific research methods and sociology are followed [6]. The questionnaire adopts semi-open and closed answer methods, and its purpose is to facilitate teachers and students to fill in correctly.

3.3. **Mathematical Statistics**  
Use software to perform statistical processing on relevant data and analyze relevant data.

4. **Experimental Research on the Integration of Information Technology and Physical Education Teaching Process**

4.1. **Teaching Resource Library**  
In the daily teaching process, teachers need a lot of teaching resources and materials. With the development of the Internet today, whether we can find suitable teaching resources and materials is a major issue before us. Whether there is already an integrated teaching resource library [7]. For teachers, this is a problem that we urgently need to understand. Table 1 is a survey of teachers' use of the teaching resource library.

| Usage            | Humanities and Sociology of Sports | Physical Education and Training | Sports Human Science |
|------------------|-----------------------------------|---------------------------------|----------------------|
| Always find      | 3                                 | 2                               | 4                    |
| Often found      | 14                                | 12                              | 6                    |
| Sometimes found  | 4                                 | 26                              | 16                   |
| Occasionally found | 2                           | 27                              | 1                    |
| Can't find       | 1                                 | 2                               | 0                    |

*Table 1. Teaching resource library*
As shown in Figure 1, more than 30% of physical education and humanities teachers can often find appropriate resources and obtain relevant teaching materials. The resource bank of sports humanities can learn from and use the resource bank of humanities and social subjects, while the teaching resource bank of physical education training and sports human science is still lacking, and the resource sharing in sports is still relatively small.

4.2. Students' Use of Information Technology

With the unblocked campus network, students can access the Internet in their dormitories and computer rooms, and can collect course-related materials through the Internet. Therefore, teachers in all courses choose this method to cultivate students' information literacy and the results of the survey on the use of information technology by students as shown in table 2.

Table 2. Analysis of students' use of information technology

| Usage               | Humanities and Sociology of Sports | Physical Education and Training | Sports Human Science |
|---------------------|-----------------------------------|--------------------------------|----------------------|
| Internet data collection | 18                                | 37                             | 24                   |
| Network submission  | 11                                | 4                              | 5                    |
| Programming         | 2                                 | 1                              | 1                    |
| Make video          | 1                                 | 0                              | 3                    |
Figure 2. Analysis of students' use of information technology

As shown in Figure 2, it can be seen that the teachers of sports humanities and sociology use the forms of allowing students to submit homework online and make video files to improve their information literacy ability. Relatively speaking, teachers of sports training and sports human science do it a little worse. Students do their own hands and use information technology to complete homework. The computer course itself is an information technology practice course [8]. Students not only collect materials through the Internet, submit homework online, and make videos, but they can also write simple software programs to further improve their information literacy ability.

5. Conclusions
Teachers of public compulsory courses and physical education and humanities can often find suitable resources and obtain relevant teaching materials. Relatively speaking, the construction of the teaching resource bank of public courses has been relatively mature. The resource bank of sports humanities can learn from and use the resource bank of humanities and social subjects, while the teaching resource bank of physical education training and sports human science is still lacking. Resource sharing in sports is still relatively small. In the public compulsory courses, except for the computer, sports humanities and sociology, and sports human science courses, the main role of the teacher is the knowledge giver. In the physical education training course, teachers are mostly in the role of activity organization and teaching guide, helper computer course teacher role Most of them are teaching guides and helpers.

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