Design an aerobics teaching resource management platform based on computer system

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Abstract. This study takes the design and application of aerobics teaching platform under the background of "Internet +" as the research object, uses the method of literature, interview, observation and logical analysis to design the teaching platform of aerobics, and explains how to apply the platform in detail. Based on the analysis of the importance of the design and application of the aerobics teaching platform, the advantages and necessity of using the platform for learning are expounded, so as to design the teaching platform for aerobics. Through the design and application of calisthenics teaching platform, we can enrich the learning content of calisthenics, expand the learning scope of students, change the learning form of students, improve the drawbacks of traditional calisthenics teaching and optimize the implementation process of calisthenics teaching. It makes calisthenics teaching more systematic, improves students' autonomous learning ability, cultivates students' innovation ability and improves students' learning effect, and provides certain theoretical and practical basis for the future innovation and development of calisthenics teaching, and provides reference for the future integration and innovation of "Internet +" and physical education curriculum.

Keywords: Resource management; Teaching aerobics; Computer aided

1 Overall system architecture design

By integrating the existing teaching resources, TV resources, satellite signals, teaching and classroom conditions, network resources and other resources, a system database based on teaching resources is established. With the help of the system administrator, the communication link between the database and the application program is established to provide users with calisthenics teaching resources and realize the comprehensive management of physical education teaching resources [5]. According to the development idea of the system, the network platform is chosen as the development tool of the system, and an overall architecture is constructed by computer, as shown in Figure 1. With the continuous progress of computer technology, the construction of teaching resource management system has been greatly developed, not only the service function of this system has been greatly improved, but also the performance of the whole system has been greatly improved. With the rapid expansion of educational resources and the increasing richness of information resources, various types of courses have been launched online teaching and online teaching. At present, the various types of course resource management system has not reached the unified requirements, many courses are still using the traditional resource management system, these systems can not adapt to the current development needs, also do not adapt to the development

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of The Times. The aerobics resource management system is a typical "off track" management system in today's social development, it needs to be improved in the aspects of resource sharing, course on demand and so on. On the basis of the existing research results, this paper tries to choose the computer as an auxiliary tool to design the new system.

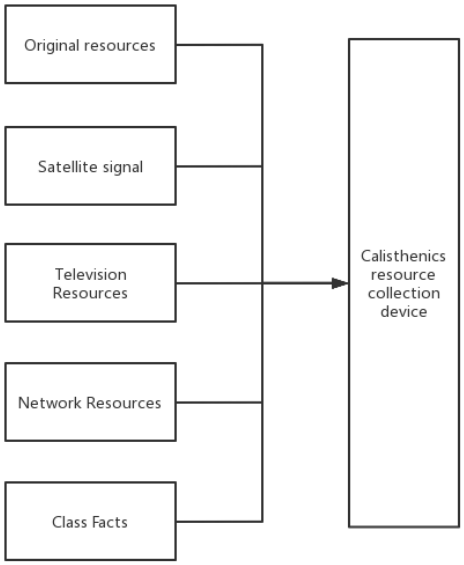

Figure 1 Overall architecture design of the system

The system consists of two modules: database module and application module, through the server to achieve communication. The system is mainly composed of database server, calisthenics resource collection equipment and a variety of resources, using the calisthenics resource collection equipment, to achieve the collection of calisthenics teaching resources, including the original calisthenics teaching resources, TV resources, satellite signals, teaching and classroom actual situation, network resources and so on. Give full play to the advantages of calisthenics resources, give full play to the role of calisthenics resources, on the Internet and other ways, the resources of sports and fitness courses are shared with the majority of users, at the same time, the content of sports and fitness activities are diversified management, the content of sports and fitness activities presented to users in a variety of ways. The application is a client-based user service mechanism. The user sends the request for resource access to the application server through the computer, and then transfers the request content to the database server. The server configures the fitness course according to the request content, and displays the operation results of the database in the corresponding form.

2 System function module design

This paper introduces an aerobics teaching resource management system based on multimedia technology, computer sharing technology and data management technology. According to the resource management requirements of this course, the function of the system is divided into four parts.

2.1 Design of calisthenics multimedia teaching function

Aerobics teaching resources include video, audio, text, image, data table and other forms, through the multimedia platform can be properly combined and adjusted, so as to obtain more vivid teaching content. In order to improve the teaching effect, many teachers and students take video, audio and other resources as the main target of access. In view of the high operation technology required for the display of such resources, the author of this paper chooses multimedia technology as the research tool, and develops the corresponding resources on this basis, so as to meet the needs of the management of teaching resources such as video and audio. In order to improve the user experience, the system has new requirements for voice and video processing. In addition to downloading course videos, it also needs to provide online teaching viewing services. The development of these functions requires a higher process, so this paper optimizes the way resources are handled on this basis. Among them, in the teaching video buffer at the same time, the use of computer technology to the teaching video buffer buffer, and in the buffer buffer buffer, so as to form a pre-shooting system. When reading teaching resources, users can access and download resources at the same time to buffer resources, thus effectively improving the efficiency of resource access and download. As the above operations will be interfered by the network, resulting in the actual network connection speed is lower than the current operation required network speed, resulting in the interruption of download/play, therefore, in the resource buffer to join an automatic playback program, it can realize the buffer resources of the automatic playback, to ensure that the playback of sound/video smooth, even can continue. In addition, this feature also supports the playback of other files such as plug-in scripts.

2.2 Design of aerobics course content sharing function

This capability enables XSLT file transformation and XML file parsing, and configures them to the middle tier of the system. When the system application layer puts forward the access requirements to the data layer, the system content sharing module will call the system database according to the access content requirements, lock the audio, video, data table, image, text and other related information, and send it to the user according to the specified format. On this basis, the user requests to access the system to achieve the content sharing service, after receiving the request, start the database call function, according to the data information display needs, modify the format of the file. It supports WML, PDF, XML, HTML and other display forms. In order to protect the interests of course development and management personnel, the system in the development of sharing function, set the user's access permissions, according to the user's identity set different access permissions, to prevent the content of aerobics course tampering, and provide users with different experience. Among them, the higher the level, the higher the access, the more resources to share aerobics lessons with the public, and the higher the value of their lessons.

2.3 Aerobics course data management function design

The system uses Filesystem, Indice, OracleRDBMS and other software development software to encapsulate BD files, XML files and IDBC files, realize data access and access, and realize data interaction through content sharing, multimedia management and other ways. On this basis, the data access operation uses XML data format, including data planning, data storage and so on. Depending on the type of data, data can be divided into media fragments and text fragments. Without any processing of the text data, it is stored directly in the XML document and stored in the specified XML document. Compared with other data management modules, the data storage efficiency of this module has been improved. For the access connection between the module and the application layer, the access request is submitted to the content sharing module, and the image resources are called through the remote control to obtain the shared course resources that need to be accessed or downloaded, and the response is made on the computer operation interface.

2.4 Aerobics course on-demand function design

On this basis, a course on demand module is added so that users can easily use the system. This module includes three parts: course on demand, course content component integration and component manufacturing. With the Web application platform as the main function module, through the access of SMIL documents, this type of documents are extracted from the server and retrieved, and then displayed in the outline of courseware. Through the system, the user can enter the system through the computer, input the required content in the specified course, and then the system automatically generates the corresponding course resources. At this point, the RealPlayer control starts to work, showing the course on demand and playing the course content in the speech area.

3 System test and analysis

In this paper, the system performance, the system page operation as the test object, the design of the system was tested and analyzed, in order to verify the reliability of the system design scheme. On this basis, the teaching resources of calisthenics are randomly selected from the database, and the resources are used as raw materials to carry out experimental research. It can be seen from the data in Table 1 that the traditional system development mode has large time delay and relatively high loss. Therefore, the resource management system proposed in this paper can better solve the problem of teaching resources of aerobics.

Table 1 System performance test results

Performance Indicators	Type of system	Number of concurrent systems per unit								
		10	50	100	150	200	300	400	500	600
System latency/%	traditional	5.3	5.9	6.4	7.1	7.9	8.5	9.7	10.4	11.5
	Inthispaper	0.2	0.5	0.6	0.7	0.8	0.8	0.8	0.9	1.0
System packet loss rate/%	traditional	0.9	1.3	1.9	2.2	2.8	3.4	4.0	4.9	5.8
	Inthispaper	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.4

Table 2 System page operation

Serial number	Operating in dicators	Traditional system page operation	The operation of the system page
1	Total number of users/persons	18	18
2	The runtakestimepersecond	518	339
3	Numberofactiveusers/persons	14	14
4	Stateofoperation	A fewnevermakeit	complete
5	Number of completedusers/people	17	18
6	Displays computer/%	Mostconsoles, about75%	AllHosts

The statistical results in Table 2 show that the operation time of this system is shorter, and all the participating users have completed the required operation and access, and the operation results are displayed on all the hosts. However, the traditional system scheme fails to complete the access application operation of all users during the operation, and the operation rate of the host fails to reach 100%, only about 75%.

4 Conclusion

This paper takes aerobics class as an example, aiming at the defects of traditional PE teaching resource management system, puts forward a new curriculum resource management system. Using the resource collection equipment on the network platform, the teaching resources are extracted from the actual teaching and network platform, and saved to the system database. In this paper, according to the actual use requirements of students, the communication link between the database and the establishment of calisthenics teaching resources access and download. The test shows that the packet loss rate of the system is less than 0.5%, which improves the working efficiency and the utilization rate of the main engine.

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