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Retraction

Retracted: Topic Search Algorithm for Network Multimedia Tennis Teaching Resources Using 5G-Enabled Internet of Things Technology

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] H. Chen, Y. Yang, and S. Xie, "Topic Search Algorithm for Network Multimedia Tennis Teaching Resources Using 5G-Enabled Internet of Things Technology," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 1155522, 13 pages, 2022.

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Research Article

Topic Search Algorithm for Network Multimedia Tennis Teaching Resources Using 5G-Enabled Internet of Things Technology

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With the emergence of the knowledge economy, computing, media, and networking technologies have developed rapidly. With the development of reforms in China's education system, the use of computer-assisted instruction has become an essential part of modern teaching methods. Under such circumstances, computer-assisted teaching methodologies have been gradually introduced in physical education teaching. Compared with other disciplines, physical education has many limitations, such as the size of the venue, the type of equipment, environmental conditions, and climate factors, which will affect the teaching. This brings about the difference between theoretical teaching and practical impact. Due to the differences in physical education teaching, it is indispensable to improve the quality of physical education teaching through the use of rich media teaching system, and the rich network teaching system can perfectly replace the shortcomings of traditional physical education teaching. This paper investigates the design and development of a tennis network rich media teaching system based on 5G Internet of Things and resource-based algorithm by using literature method, survey method, interview method, statistical method, learning laboratory method, and other methods. Based on the tennis cyber media learning system, this study provided recommendations and guidelines for the expansion of the cyber media learning system to other sports programs and explored the future prospects of the cyber media learning system in teaching. The results show that 93.3% of all students are very interested in this learning method, 96.7% of students deepen their memory of tennis technical movements, and the satisfaction rate is 86.7%.

1. Introduction

The teaching process is the process of imparting knowledge and skills, developing students' intelligence, and comprehensively developing students' personality. It includes teaching and learning, teachers, and students. Teachers are the imparters of knowledge and control the way of imparting knowledge, and at the same time, they are the organizers and guides of the teaching process. In this process, we should try our best to stimulate students' interest in learning, mobilize their enthusiasm, ensure the accuracy and integrity of knowledge acquired by students, and supervise and correct mistakes made by students in the process of learning. From this aspect, teachers are the main aspect of teaching and the main body of teaching and learning. Traditional classroom teaching is a successful model based on this concept. However, on the other hand, the teaching process is a process for students to acquire knowledge. Only when students fully understand and master the content of the subject and its logical clues can the final goal of the teaching process be achieved. From this point of view, students are the main body of the teaching process and the main body of teaching. Based on this perspective, this paper proposes a new teaching method. By emphasizing the subjectivity of students in the teaching process, we can create an environment that stimulates learning interest, stimulates thirst for knowledge, and satisfies individualism to acquire knowledge. It provides a method of providing help at any time and correcting mistakes in time, which makes up for the deficiencies of traditional teaching methods.

This article is aimed at discussing the design and production of a multimedia tennis training system based on

5G Internet of Things technology and the practical application of the multimedia tennis training system in tennis training. This paper examines a sample test of the real impact and effectiveness of the education system. It scientifically and reasonably analyzes the impact on training before and after the application of the system and then puts forward corresponding solutions and measures for existing problems. Tennis lessons must fully optimize and improve the learning process in order to improve the quality of teachers' education and the effectiveness of students' learning and achieve the goal of improving the quality of technology. Due to the particularity of physical education, it is decided that sports network multimedia training should have its own characteristics and requirements. The teaching method of physical education is different from other subjects. Physical education is based on theoretical learning and mastering skills learning as the main method. Its full use is based on theory, beyond the principles of theory, combined with the characteristics and requirements of physical skills teaching, using the properties and patterns of proprioceptive awareness and muscle movement. There will be some differences between theoretical preparation and practical results. The reasons for this phenomenon are many, mainly the characteristics of physical training. Among the many problems and limitations of physical education teaching, teaching will be affected by the size of the venue, the type of facilities, environmental conditions, and climate factors. Due to the uniqueness of physical education, it is particularly urgent to use the multimedia training system to strengthen physical education. Only the networked multimedia training system can make up for the deficiency of physical education.

2. Related Work

Experts at both home and overseas have also conducted a lot of study on 5G IoT technology and network multimedia tennis teaching. According to Fu, multimedia has a significant positive effect on tennis teaching, such as stimulating pupils' study hobby, breaking through the difficulties of teaching contents, improving learning efficiency, and expanding extracurricular knowledge points and broadening pupils' horizons [1]. Ahmadjonova believed that the purpose of using multimedia technology in foreign language teaching is to substantially improve the effectiveness of teaching and learning, and its main purpose is to improve of everyday and professional communication. This is because the use of multimedia technologies plays an important role in modern methods of foreign language teaching [2]. Di and Hongye believed that with the rapid advances in computer technology and network communications, multimedia learning is playing an increasingly important role in higher education and is now widely used. Therefore, it is important to explore research on the application of multimedia learning system in physics education in colleges and universities [3]. Li proposed to apply the usefulness of multimedia in school music education and the additional role of music education. In addition, brain computing tries to solve problems by mimicking the architecture and information processing of biological networks of interneurons. A deep knowledge algorithm for an intelligent learning function has been presented [4]. According to Lueth, the evaluation of the quality of education is an integral part of the regulation of teaching in the academy. There are many influencing factors, and the relationship between assessment indicators and quality of teaching in education is complex, disconnected, and nonlinear [5]. According to Wu, the purpose, content, and model of comprehensive education of university students under the platform of artificial intelligences and multimedia teaching have a natural commonality; they promote and influence each other [6]. The basic approach to the study of comprehensive development of Abdurasulovich is based on multimedia technologies. The prospect of multimedia education and its application in higher education has aroused a high level of authority among students due to the many issues that need to be addressed in the area of their interests and opinions [7]. According to Sulaiman, digital advances in higher education have created challenges for maintaining effective teaching and learning processes. It is important to maintain effective communication of the content with multimedia teaching aids designed by lecturers [8]. Marii created a multimedia model for teaching and learning. The quality of students' knowledge is tested through posttests, while the persistence of knowledge is tested through retests [9]. Yan argued the practicality of introducing a multimedia approach to physical education in higher education from three perspectives. The factors affecting the effectiveness of multimedia-assisted teaching were analyzed in terms of multimedia teaching environment and teachers' teaching ability [10]. These studies provided a lot of evidence for our experiment, but the short duration of the study and some doubts about the tested sample made the test results need to be confirmed by everyone.

3. Content Organization Structure Method Commonly Used in Multimedia Courseware

Linear structure: students receive information in sequence. This is a preset sequence from the previous frame to the next frame. Tree-like structure: students carry out learning activities along tree-like branches, and the tree-like structure is formed through the natural logical relationship in the teaching environment. The advantage of this structure is that it can clearly show the connections between online courses, but the disadvantage is that it cannot cross branches. Mesh structure: the hypertext structure where student learning activities can freely navigate internal units without default path restrictions. The advantage of the network structure is that it can best reflect the connections between complex objects. Compound structure: students' learning activities can be driven freely over long distances, but are simultaneously influenced by linear leadership and the hierarchical logical organization of mainstream information. This structure not only avoids the psychological limitations of the linear structure but also overcomes the drawbacks often caused by the network structure. Compared with the tree structure, students have more freedom of choice. Figure 1 shows four commonly used content organization methods in multimedia teaching [11].

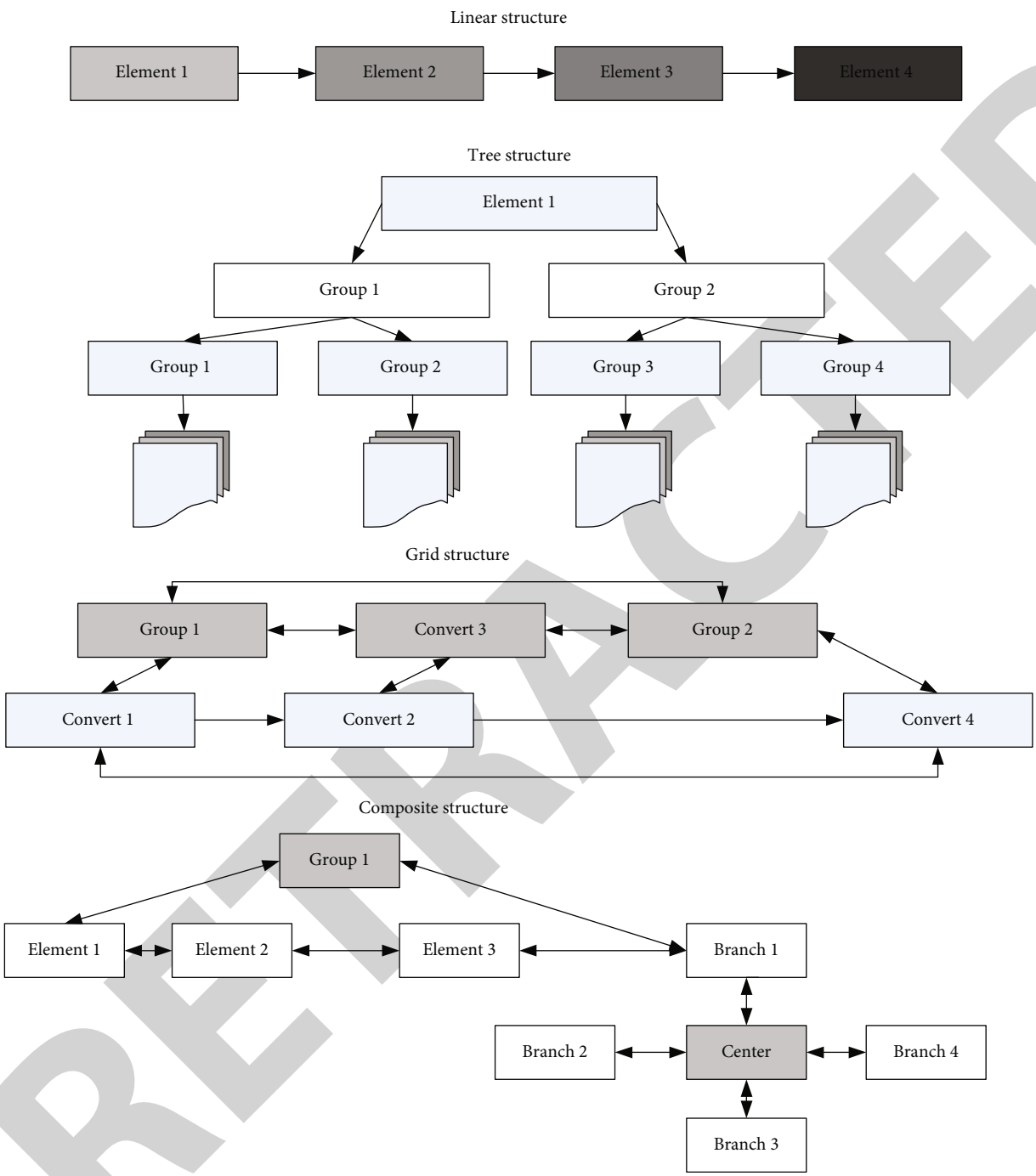


Figure 1: Composition of different structures.

3.1. Demand Analysis. Using software to analyze the collected questionnaire data, the results show that the students believe that there are some drawbacks in the traditional teaching method; they are eager to try a new teaching mode and have considerable demands on the teaching system, as shown in Table 1 and Figure 2 [12].

The dissemination and use of the system require a certain environment and background, so the future application of the system is based on the results of the questionnaire and the software is used to evaluate the feasibility of the data. The results of the analysis are displayed in Table 2 and Figure 3.

3.2. System Functional Structure. The resource service providing layer is the core layer of the overall architecture, which provides basic resource services and basic services for business applications. This layer system is mainly composed of resource management system, resource scheduling system, and resource service system. The resource management system provides the establishment of standard resource metadata specifications and resource catalogs, and the resource scheduling system is to reasonably schedule teaching resources, reasonably schedule resources to service nodes, make resource storage distribution reasonable, and

Table 1: Requirement analysis.

	Does the current teaching method of tennis technique need to be improved?				
		Frequency	Percent	Valid percent	Cumulative percent
	Very satisfied no need	2	6.7	6.7	6.7
Valid	Needs improvement	28	93.3	93.3	100.0
	Total	30	100.0	100.0	
	Teacher's explanation or network multimedia, which is better?				
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Combining the two	28	98.5	98.6	97.4
	Need to apply multimedia teaching?				
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Need	28	98.6	98.6	97.4

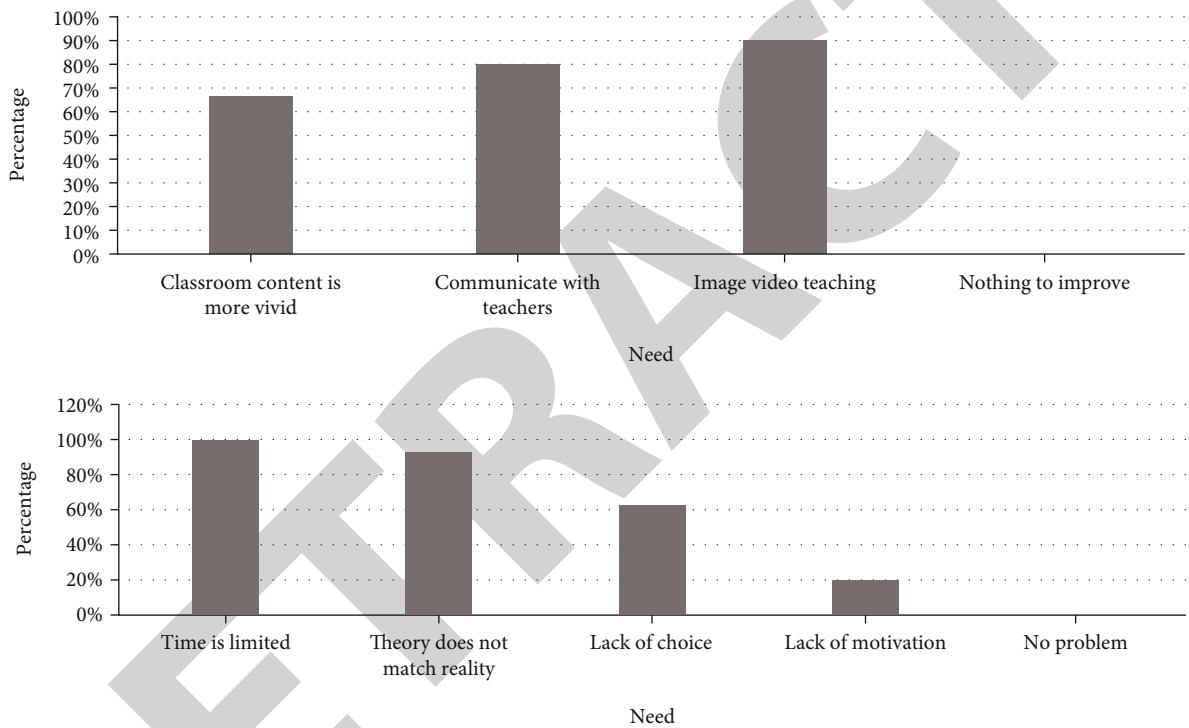


Figure 2: Requirement analysis.

Table 2: Feasibility analysis.

	Internet environment				
		Frequency	Percent	Valid percent	Cumulative percent
	You have your own computer and can access the Internet at any time	21	70.0	70.0	70.0
Valid	There is no computer, but the Internet is very convenient	9	30.0	30.0	100.0
	Total	30	100.0		
	Whether to accept multimedia teaching				
		Frequency	Percent	Valid percent	Cumulative percent
Valid	Accept	30	100.0	100.0	100.0

provide functions such as resource registration, resource release, and resource content information management. The resource service system is the basic module that provides external media resource services for resources, mainly including node service, streaming media service, file access service, resource load service, and several other services. The application layer mainly provides teachers' lesson preparation application system and teaching and teaching

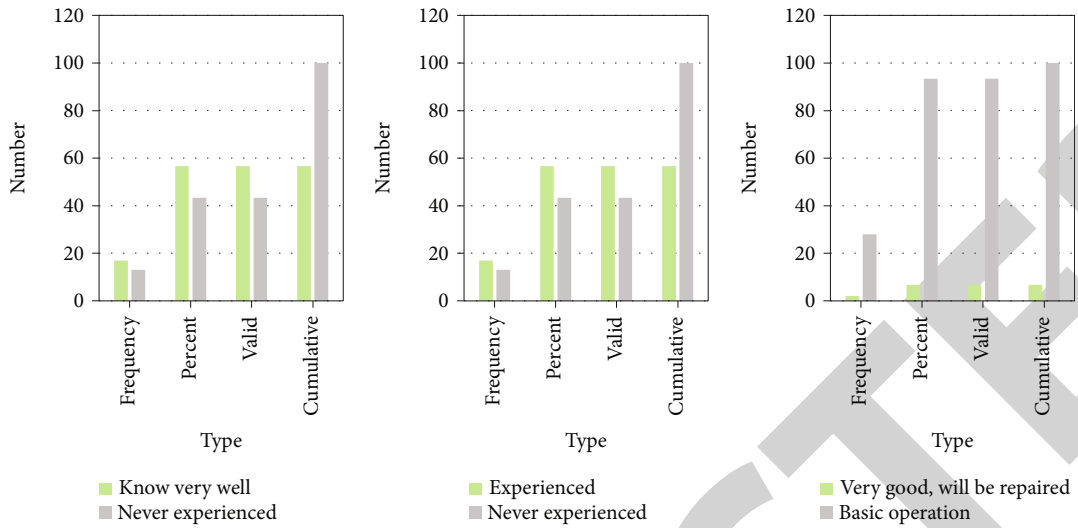


Figure 3: Feasibility analysis of various types.

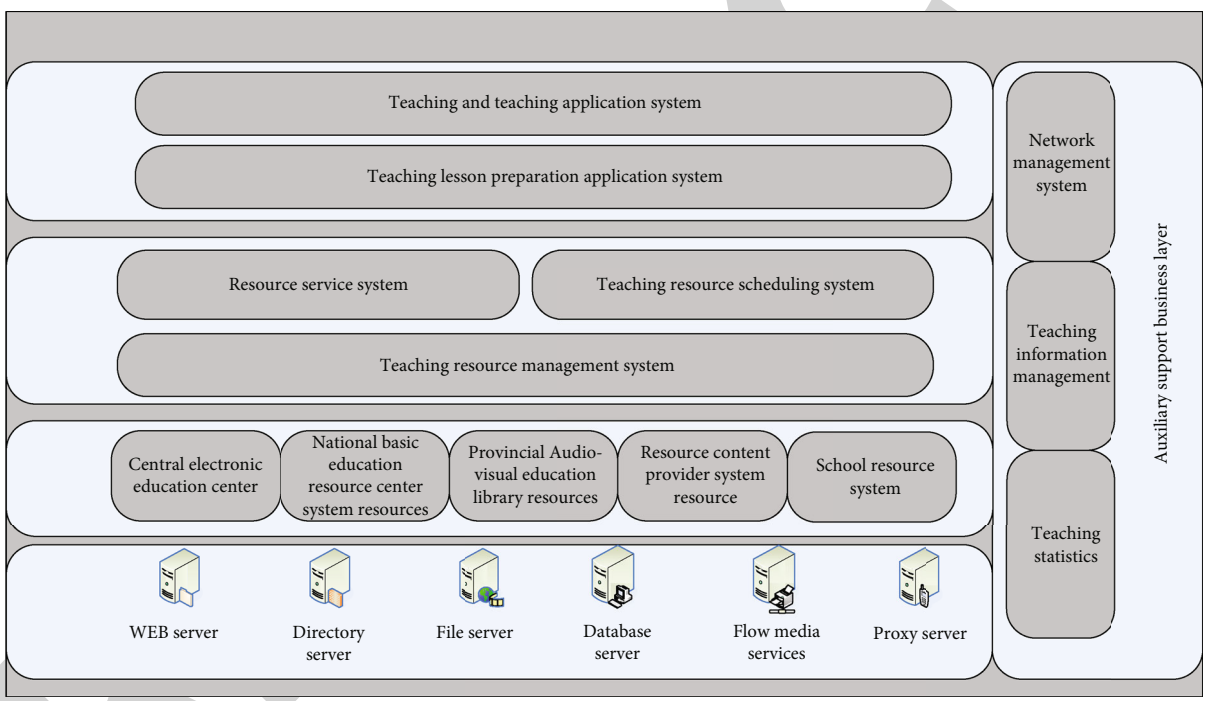


Figure 4: System business model diagram.

application system according to the actual teaching business needs, realizing resource sharing and practical application in teachers' lesson preparation and teaching system. The auxiliary support layer provides basic support functions such as teaching information management, statistical analysis, and network management [13]. The teaching information management system provides standardized teaching information metadata, unified management of user information, and unified identity authentication. The statistical analysis system mines and analyzes the data of the teaching platform and provides analysis data in the form of various reports. The network management system ensures the safe operation of the system, and the specific architecture is shown in Figure 4 [14].

The platform is divided into city platform, county platform, and school platform in terms of space application; the actual implementation of the system can be based on the network architecture, based on the education metropolitan area network and campus network, and is divided into three levels of distributed deployment: city, county, and school, as shown in Figure 5. The citizen-level platform is mainly used for the integration and creation of teaching resources, the scheduling and distribution of teaching resources, the management of teaching information, and the safe operation and management of network-wide equipment. To integrate and create regional teaching resources, arrange and distribute teaching

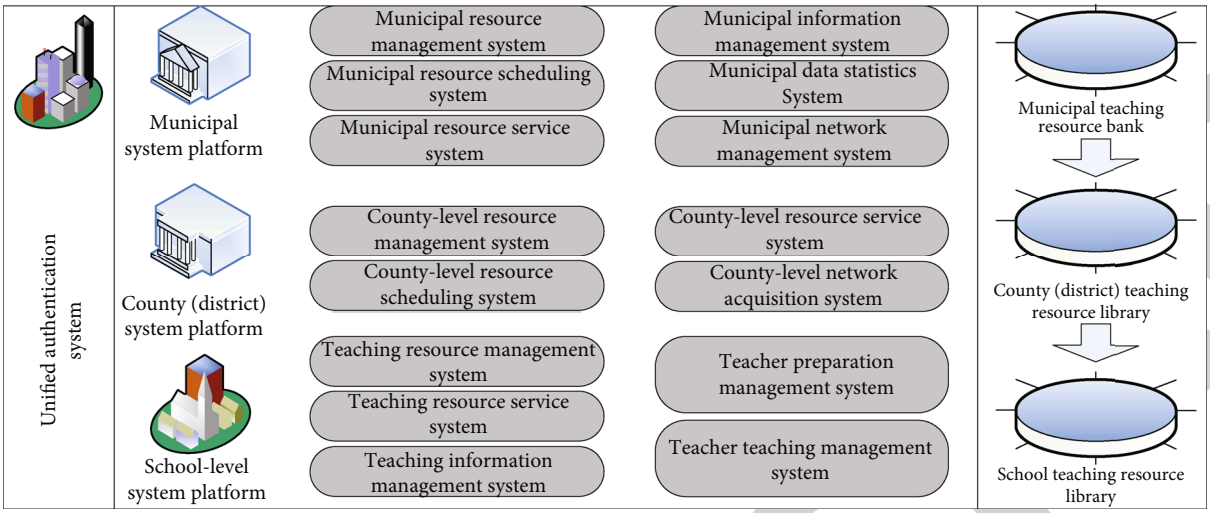


Figure 5: Business system distribution model diagram.

resources, schools need to adjust and download basic teaching resources, integrate and manage school-based resources, prepare lessons with teachers, teach daily teaching, and provide school administrators with teacher application analysis [15].

3.3. Courseware Integration. The courseware integration process is the process of combining materials. It uses the courseware integration tool software to complete the productization of the courseware according to the idea of software structure design. Under the guidance of detailed script and courseware structure design diagram, the focus of courseware integration work is to make interface and link material. Interface production: the display of multimedia courseware is based on pages, which is similar to the structure of books, and all the basic elements (sound, image, text, etc.) that need to be displayed are attached to the page. Therefore, one of the important contents of courseware integration is to make the interface of each page. Figure 6 is a statistical graph of teachers' and students' demands for multimedia teaching.

First of all, both students and teachers gave a high evaluation to the online teaching system and fully affirmed the design of the online teaching module in the system. The educational, scientific, artistic, and technical aspects of courseware are highly valued. The intermediate link from system design to curriculum development is script design. The script design is aimed at further refining the teaching content and teaching strategies of the course, the specific presentation information, the screen design, the interaction method, and the control of the learning process of the students on each screen. It is a means to achieve teaching goals and is carried out according to teaching content, teaching strategies, teaching methods, and media selection. The development of the course is directly based on the script design. Just like the production of TV and movies is not directly based on the script, but is shot through the subscript, the script will directly affect the production of the lesson plan.

3.4. Implementation and Application of Research on Topic Search Algorithm for Teaching Resources. The system platform uses JSP language to design the system user interface, which can be implemented by creating JSP files and writing program codes in the "war" directory of the Eclipse integrated development environment. User interface beautification work needs to apply JavaScript scripts, CSS styles, image animations, and other effective elements in JSP files, which belong to the dynamic documents defined by the GAE platform. These dynamic documents can be stored on the server. The mapping relationship needs to be solved by using the balanced mapping function of the histogram, and its formula is

$$S_k = \sum_{j=}^{k} \frac{n_j}{n} k = 0, 1, 2, \cdots, L-1. \tag{1}$$

$Ii\,(x, y)$ represents the sum of all upper-left corner values at the image (x, y), and its formula is

$$ii(i, j) = \sum_{k \le i, l \le j} f(k, l). \tag{2}$$

The formula for constructing the integral graph is

$$s(x, y) = s(x, y-1) + i(x, y), \tag{3}$$

$$ii(x, y) = ii(x-1, y) + s(x, y). \tag{4}$$

The formula for calculating the sample weight is

$$w_{ij} = \frac{1}{2m}, \frac{1}{2l}. \tag{5}$$

Calculate the normalized sample weight value with the formula

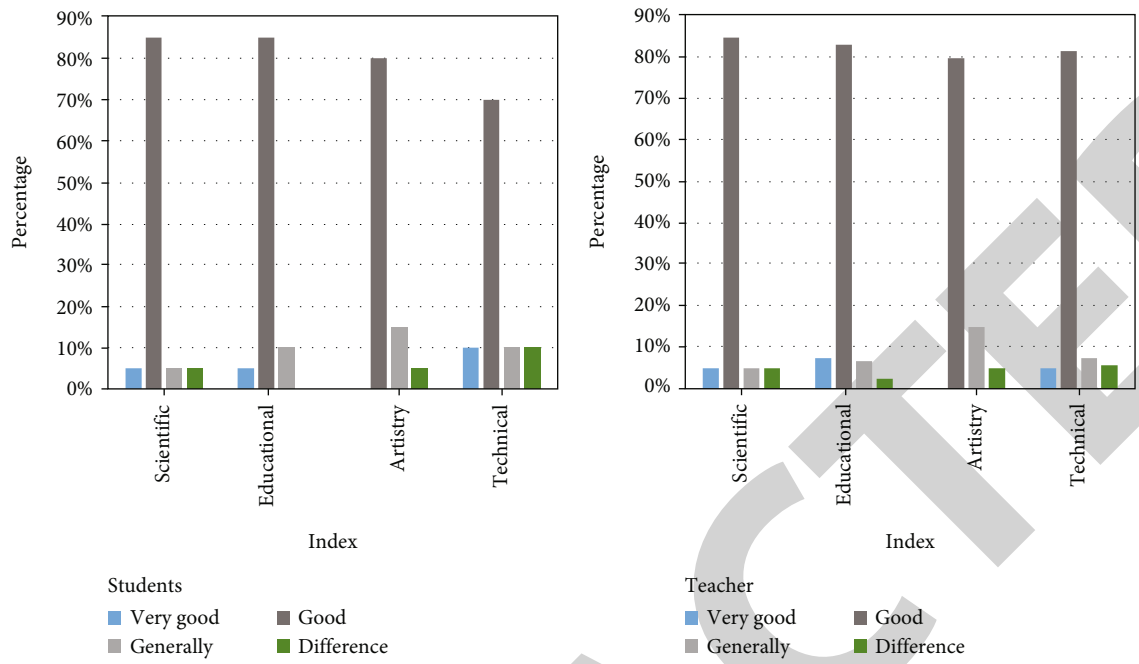


Figure 6: Questionnaire analysis.

$$w_{ij} = \frac{w_{t,j}}{\sum_{j=1}^{n} w_{t,j}}, \quad t = 1, \cdots, T. \tag{6}$$

The formula for weighted average is

$$\varepsilon_f = \sum_i w_i \left| h_j(x_i) - y_i \right|. \tag{7}$$

Recalculate the sample weight values:

$$w_{t+1,i} = w_{t,i} \beta_t^{1-e'}, \tag{8}$$

$$\beta_t = \frac{e_t}{1-e}. \tag{9}$$

Construct the covariance matrix according to the formula

$$d_i = x_i - \phi, \tag{10}$$

$$\phi = \frac{1}{n}(x_1 + x_2 + \cdots x_n), \tag{11}$$

$$C = \frac{1}{200} \sum_{i-1}^{200} d_i d_i^T = AA^T. \tag{12}$$

Then, there must be two orthogonal matrices and diagonal matrices that satisfy the mathematical formula, and the formula is

$$X = UQ^{1/2} V^T, \tag{13}$$

$$U = (u_1, u_2, \cdots, u_n), U^T U = 1, \tag{14}$$

$$V = (v_1, v_2, \cdots, v_n), V^T V = 1, \tag{15}$$

$$Q = \text{diag}\,(\lambda_1, \lambda_2, \cdots, \lambda_n), \quad \lambda_1 \geq \lambda_2 \geq \cdots \geq \lambda_r \geq 0, r = \min\,(M, N). \tag{16}$$

The formula for calculating training samples is

$$\phi = \frac{1}{200} \sum_{i=1}^{200} X_i. \tag{17}$$

Subtract the training samples to calculate the difference between the two; the formula is

$$d_i = X_i - \phi (i = 1, 2, \cdots, 200). \tag{18}$$

Construct the covariance matrix of the training Yang Ben set, and its formula is

$$u_i = \frac{1}{\sqrt{\lambda_i}} A v_i i = 1, 2, \cdots, p. \tag{19}$$

Take the eigenvector corresponding to the feature of the contribution value, and its formula is

$$\varphi = \frac{\sum_{i-1}^{p} \lambda_i}{\sum_{i-1}^{200} \lambda_i}. \tag{20}$$

4. Overall Design of Tennis Teaching System

4.1. Feasibility Study. Realizing the client-side browsing of class materials, plan summaries, teaching videos, and teaching pictures, as well as server-side administrators such as online messages and questions and answers to update,

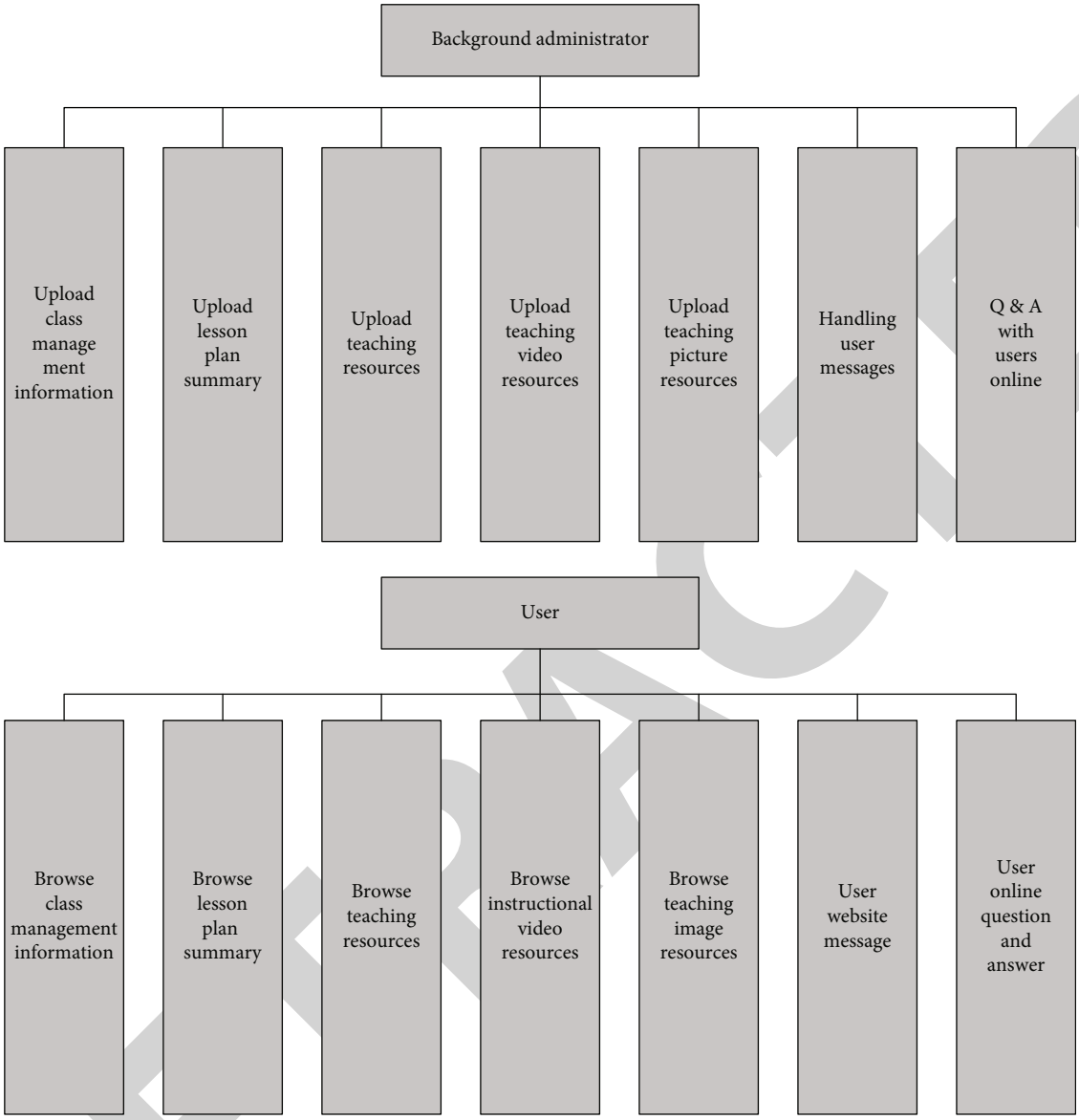


Figure 7: User and administrator structure diagram.

upload, and message management of teaching resources teaching videos, teaching pictures, plan summaries, etc. The system is required to be stable and fast, people other than managers are prohibited from operating background information, and there are countermeasures for power outages, crashes, system crashes, etc. to ensure data security.

4.2. Existing Systems. Due to the increasing amount of data and more and more data formats, it is obvious that the current system cannot adapt to the current massive data, and the workload of the system is very large. As the workload of the current system is severely overloaded, a series of support services such as labor, equipment, space, and materials invested in the current system continue to grow, resulting in huge development costs and a serious impact on availability. Because the technical content of the original system is relatively low, it does not require high-tech personnel to operate, but due to the increase of data, the number of operators required continues to increase. This is no longer suitable for the speed of today's information age. The technological content of the equipment is also relatively low, and it has not reached the level of popularization of many computers. After in-depth analysis, it can be seen that the original system has backward technology, heavy personnel workload, high maintenance and system costs, low technical content of internal personnel and equipment, and a series of major defects, which make it difficult to adapt to the system of the new information age.

4.3. Overall Design. Users can browse classroom materials, plan summaries, teaching videos, and teaching photos, as well as online message and question and answer operations through the multimedia teaching system, and administrator users can conduct knowledge management operations through the multimedia teaching system. Please refer to use case in Figure 7 for detailed functions.

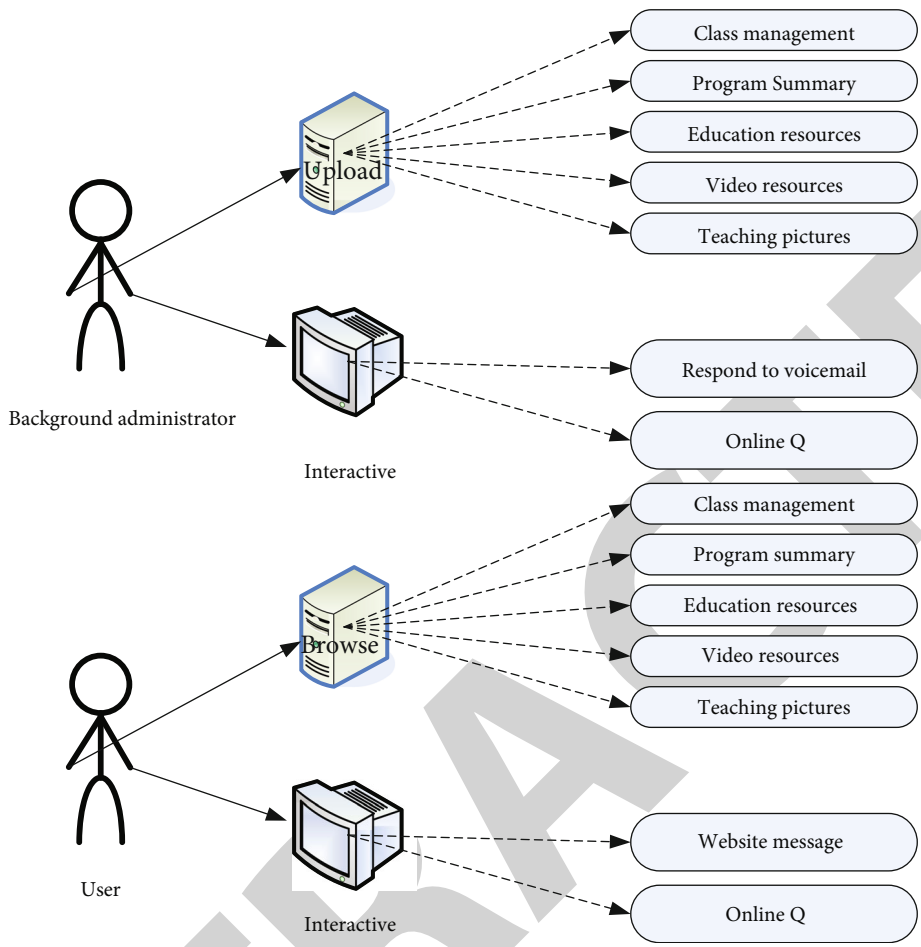


Figure 8: Backend administrator and user use case diagram.

Table 3: Physical performance-related technical parameters of the experimental and control classes.

Category		$X1$ 800/1000 meters	$X2$ Standing long jump	$X3$ 50 meters	$X4$ Medicine ball
Test group	Average	14.2	14.53	14.87	14.9
	Standard deviation	3.1428	3.1154	2.7258	3.2135
Control group	Average	12.1	14.36	14.47	14.5
	Standard deviation	2.9825	3.041	3.1986	3.0934
Mean difference		0.1	0.17	0.03	0.03
t value		0.1262	0.2141	0.0391	0.0368
p value		>0.05	>0.05	>0.05	>0.05

4.4. Use Case Diagram. Figure 8 shows the use case diagram for administrators and users.

4.5. Teaching Experiment Design. A comparative experimental study on the effect of using networked multimedia tennis learning system was conducted to obtain comparative experimental data and to conduct theoretical analysis to test the effect of networked multimedia tennis teaching system-assisted teaching on theory. In the experiment, two groups of 30 students each were randomly selected from a tennis elective course in Yulin Normal University as the experimental and control groups. The experimental period was from September 2020 to September 2021, with a total of 32 credit hours. The lesson hours were allocated according to the conventional teaching method. The experimental group was taught with the aid of a web-based multimedia tennis teaching system, all 32 credit hours, of which every 3 credit hours were active technical tennis learning weeks. The laboratory and controlled classes were taught following this number of hours to ensure the same number of hours of

Table 4: The comparison of the experimental group and the control group.

Category		$X1$ Theory	$X2$ Technical action	$X3$ Hitting stability
Test group	Average	15.43	32.96	32.65
	Standard deviation	2.0692	3.4732	3.1692
Control group	Average	13.62	30.74	39.19
	Standard deviation	1.9214	4.2965	4.0226
Mean difference		1.50	2.16	2.39
t value		3.122	2.3249	2.4637
p value		>0.05	>0.05	>0.05

technical theoretical knowledge so that both the experimental and control classes were taught and compared in the same manner and under the same conditions. Blind tests are used for both theoretical and technical tests, that is, the scoring teacher does not know which students are in the experimental class and which are in the control class.

During the whole teaching process, when teachers assign homework after class, let students use their own computers to log in to the system for self-study in their spare time and can communicate with teachers on the Internet. While the control class did not use this system, the teacher gave theoretical explanations according to the traditional model, and the students in the experimental class were assigned to log in to the online multimedia tennis teaching system after class for self-study.

4.6. Difference Test between the Experimental Class and the Control Class before the Experiment. The participants in the experimental and control classes had no contact with tennis, no basic knowledge of tennis theory and technique, and no knowledge of the essence of tennis. Prior to the start of the teaching laboratory, students in both classes were tested for physical fitness, taking into account the results of the university students' physical fitness tests and the need for a specialised tennis quality. Four test results were selected: shot put, standing long jump, 50 m race, and 800 m race (1000). The shot put primarily assessed the explosive strength of the students' upper limbs, while the standing long jump assessed the explosive strength of the lower limbs. Explosive strength requires students to apply maximum force in the shortest possible time. This force is determined not only by power but also by the integration of power and speed. The 50-meter race tests the students' speed and agility, and the 800 (1000)-meter race tests the students' endurance. The final results of each indicator are scored on a 20-point scoring system. The results of the test on the differences in the fitness index between the two classes are presented in Table 3.

A comparison experiment was conducted in which the baseline condition indices and comparison classes were tested in the laboratory. The results show that the learning and comparison experiment was conducted under the assumption that there are no obvious differences in the parameters and that the baselines are essentially the same. After the experiment, a contrasting analysis of the objective data of the test class and the control class is useful. Table 4 shows the comparison between the laboratory group and the control group.

A statistical calculation of the theory, technical movement, and impact stability scores obtained for the test and control classes showed that all three scores were higher in the test class than in the control class. There was a meaningful difference ($p < 0.05$). Upon completion of the laboratory experiments, copies of the survey questionnaires were distributed to the pupils in the testing class, and a postsurvey was conducted. The questionnaires were analyzed after the interviews, and the questionnaire responses were analyzed and manipulated as shown in Figure 9 and Table 5.

On the basis of the learning and application of the web multimedia tennis pedagogical system, 93.3% of the patients were very enthusiastic about this teaching mode, which also enhanced their interest in playing tennis. With the support of the web multimedia teaching and learning system, 96.7% of the participants improved their retention of the technical actions of tennis. Through the online multimedia teaching system offered by the platform, the majority of students think this can strengthen the interaction between them and their teachers. All the students thought that the teaching result of the online media tennis education system was better than the routine teaching. 86.7% of the students in the experimental class were satisfied with the teaching effect of the online media tennis education system. All students in the experimental class thought that the web-based database system was helpful to their tennis learning. The students in the laboratory classes all believed that this web-based media teaching system could be used in future physical education. Figure 10 shows the graph of the changes of the grades.

5. Discussion

Simple and clear text description can stimulate students' emotions, attract students, and make them interested in learning. The combination of media such as photos, videos, and texts with the teacher's explanations and demonstrations creates a more acceptable teaching style, and students are in a better mood to learn and consequently learn more effectively. On the other hand, the simple and clear pictures of the action and the visual videos on the web make it easier for students to learn the more technical tennis strokes. In the early stages of learning tennis technique, students feel that there are too many technical points to focus on. Now, with the web-based multimedia tennis learning system, there are reference samples to know what the correct steps look like and what the correct learning steps are, so no more awkwardness like having to knock down the east wall to fix the west wall. Simplify complex things for students to digest, and the network multimedia teaching system makes tennis technology easier to be accepted and mastered by students.

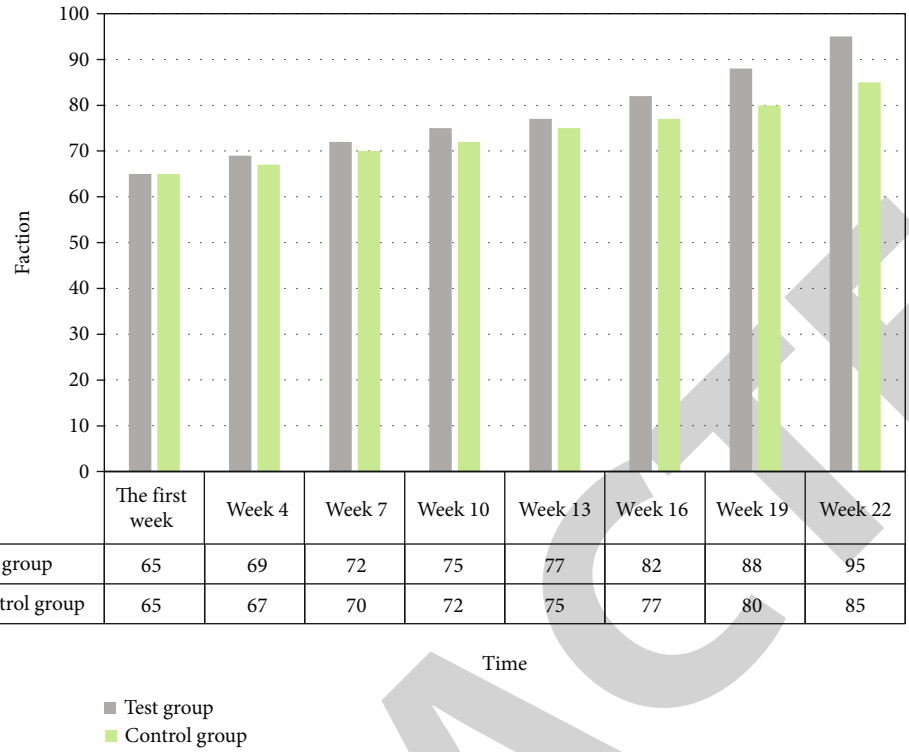
In today's student world, where the Internet is an integral part of student life, the convenience of the Internet allows students to learn sports skills easily and quickly.

Figure 9: Two groups of students' evaluation of teaching methods.

Table 5: Postexperiment questionnaire analysis.

		Frequency	Percent	Valid percent	Cumulative percent
	Your interest in learning in online multimedia teaching				
	Very interested	28	93.3	93.3	93.3
Valid	Generally	2	6.7	6.7	100.0
	Total	30	100.0	100.0	
	Whether the network multimedia teaching system can deepen the memory of actions				
	Can	29	96.7	96.7	96.7
Valid	Generally	1	3.3	3.3	100.0
	Total	30	100.0	100.0	
	Whether the online teaching system has strengthened communication with teachers				
	Significantly strengthened	24	80.0	80.0	80.0
Valid	Generally	6	20.0	20.0	100.0
	Total	30	100.0	100.0	
	Compared with conventional teaching, how do you think the effect of online multimedia teaching is?				
Valid	Very good	30	100.0	100.0	100.0
	Are you satisfied with the teaching effect of the network multimedia teaching system?				
	Very satisfied	26	86.7	86.7	86.7
Valid	Generally	4	13.3	13.3	100.0
	Total	30	100.0	100.0	
	Do you feel that online multimedia teaching is helpful to your study?				
Valid	Very helpful	30	100.0	100.0	100.0
	Do you want the network multimedia teaching system to be used in physical education in the future?				
Valid	Hope	30	100.0	100.0	100.0

The survey results also showed that the students in the pilot class were able to learn very quickly how to use the interactive online tennis learning system. This demonstrates that the students can handle a web-based media learning system from their knowledge of the Internet, which reflects well operability of this system. In addition, the students showed a very supporting approach to the application prospect of the online multimedia tennis instruction system. This shows



	The first week	Week 4	Week 7	Week 10	Week 13	Week 16	Week 19	Week 22
Test group	65	69	72	75	77	82	88	95
Control group	65	67	70	72	75	77	80	85

Figure 10: Changes in the grades of the two groups.

that the network multimedia tennis teaching system itself has strong strengths and also shows that students think the conventional tennis teaching methodology needs to be enhanced. The application of the network multimedia tennis teaching system makes the teacher change gradually from the instructor of learning to the guide of students' learning on the basis of the existing teaching mode. From the students' point of view, they learn about the actual needs of students and help and guide them to learn. By teaching with the application of network media tennis teaching system, the subjects which are very difficult for teachers to express when they explain or demonstrate, or the length which is long and difficult for students to catch, can be easily and vividly shown through the text, pictures, or videos of network media tennis teaching system. Through the picture decomposition, presentation, and complete showing of tennis technical action videos, as well as the cross-application of various multimedia technics, the teaching ideas of teachers can be more comprehensively expressed. The network multimedia teaching system is also more conducive for teachers to manage the class, easily mobilize the class list, and understand the basic information of students, which is conducive to teachers' differentiated treatment and individualized teaching. The application of Internet teaching system can also reduce the teachers' workload of preparation for theoretical lessons. It can make teachers have more time and energy to explore teaching mode, improve their own high-quality, ensure to stay ahead of students, and keep their advantageous position. Physical education teachers should not only be proficient in their own professional theories and skills but also continue to develop comprehensively and strengthen their learning of computer expertise and technology. Only in this way can they create a network multimedia tennis teaching system that suits their requirements and manage and maintain it according to their teaching content and teaching needs.

Students are the main body of learning and the discoverer of knowledge. The teacher's task is to create conditions for students to fully think, communicate, and discuss, focusing on discovery learning. Students do not passively learn, but take discovery as their main task, and let students speak their minds and speak their minds on the Internet. Teachers seek different opinions to create better conditions for students to discover knowledge and explore skills by themselves, form an effective multidirectional communication, and make students' thinking inspiration flash unknowingly. However, the important guiding role played by physical education teachers cannot be ignored in the process of assisted teaching by the network multimedia tennis teaching system. First of all, the teaching content, teaching methods, and teaching objectives displayed in the network multimedia teaching system are all with teachers' autonomy and innovation. Secondly, in the process of teaching practice, many special situations have strong contingency and flexibility, and teachers need to guide and solve them personally. In the teaching process of physical education, the guiding role of physical education teachers cannot be replaced by any teaching method.

6. Conclusion

The outcome of the teaching and learning trials shows that the web-based system can enhance the students' grasp of tennis knowledge and test performance of tennis skills. As

a new approach to teaching, the multimedia education system has a large networks of students. It perfectly mobilizes students' enthusiasm and initiative to learn, stimulates their wonder, and aids in the educational reform and evolution. Changing the situation of what teachers teach and what students learn so that the content of the teacher's description is no longer blank, but has a solid foundation, allows to continue contact with pupils at any time through the network so that teachers can better personally understand the reality of pupils at any stage. A more specific lesson is developed based on the student's situation. This feedback-improvement-feedback cycle ensures that the teacher's teaching at each stage is scientific and rational. The network multimedia teaching system enables teachers to have special remote management capabilities for students, organize assignments more scientifically, make students more receptive to teachers' arrangements, and enable teachers to "teach to each other." The design and development of a web-based teaching system are much more complex than the previous single slide or video courseware format. It needs strong material support from the school to sustain its development so that the network teaching system has room to show its unique charm. While increasing material resources, the appropriate department should set up a development team for the teaching system and let capable teachers put in the development of the system to ensure sufficient human resources.

Data Availability

The experimental data used to support the findings of this research are available from the corresponding author upon request.

Disclosure

I confirm that the content of the manuscript has not been published or submitted for publication elsewhere.

Conflicts of Interest

There are no potential competing interests in our paper; the authors have seen the manuscript and approved to submit to your journal.

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