An Evaluation Model of College Basketball Teaching Quality based on Multimedia

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Abstract: The traditional basketball teaching quality evaluation methods to evaluate performance is low, thus put forward for the university basketball teaching quality evaluation model based on multimedia design, combined with the QFD method to look at the university basketball teaching quality, optimizing evaluation steps, to ensure the accuracy of assessment of the quality, specification of quality evaluation value, finally realizes to assess the quality of basketball teaching, and finally confirmed through the experiment, the college basketball teaching quality evaluation model based on multimedia improved performance compared with traditional model.

Keywords: Multimedia technology; Basketball; Teaching quality

1. Introduction

Basketball is one of the compulsory courses for public physical education in universities. Students mainly master motor skills, and theoretical learning is also an important part of basketball teaching process. Today, with the rapid development of science and technology, the traditional basketball teaching mode cannot meet the needs of social development. The development of physical education, to a certain extent, depends on the progress of educational technology, so the introduction of multimedia into the field of basketball teaching is the inevitable reform of contemporary physical education. In today's information age, computer-centered multimedia technology, software technology and network communication technology are rapidly rising and booming. Their applications have spread all over the society, constantly influencing our lives and changing people's thinking, consciousness and tradition. Multimedia provides the most ideal teaching environment for teachers because of its features of pictures, texts, sounds and even moving images. The traditional evaluation method of college basketball teaching quality has some problems such as low evaluation efficiency. Teaching practice has proved that the appropriate USES the multimedia teaching, is advantageous to the breakthrough teaching difficulty, make abstract questions like, is helpful to arouse the enthusiasm and initiative of and stimulates the student to study, but also to improve the efficiency and effect of classroom teaching, at present colleges to develop multimedia teaching as one of the important development direction of teaching reform, flower vigorously develop various practical multimedia teaching software. Physical education teaching field is no exception, it is a strong imitation of teaching, the requirements of intuitive, image, vivid, specific. Multimedia teaching is a modern sports science theory and teaching theory as the instruction, with the help of modern teaching equipment quickly provide intuitive, authentic, accurate and reasonable feedback information, he is different from traditional teaching method, this method is based on the analysis of multimedia college basketball teaching quality evaluation model is put forward, QFD method is put forward through the real-time observation of the teaching quality, the application of data evaluation, analysis of demand and demand trend to establish quality house network, each link of teaching for teaching quality evaluation.

2. Evaluation Model of College Basketball Teaching Quality

2.1. Steps for evaluating basketball teaching quality

College basketball teaching quality assessment algorithm based on multimedia, is based on QFD method by real-time observation of the students, collect students' demand, application data evaluation, analysis of demand and demand trend to establish quality house network, transfer student voice quickly to the service of each link and the dimensions of the service system, so as to improve the quality of basketball teaching in colleges and universities. The basic idea of multimedia quality function deployment (QFD) is that all activities in the teaching process are motivated by students' needs, preferences and expectations. The purpose of improving teaching quality is to design students' needs, preferences and expectations into products and processes through "what to do" and "how to do". The QFD process is

accomplished by a series of column charts and matrices. The shapes of these matrices and charts are very much like a series of houses, so they are Figuratively called "houses of quality", which is the core of the whole QFD process. The structure of the house of quality borrows the architectural appellation, easy to understand and easy to remember, and vividly indicates that the result of QFD method is that students can enjoy high-quality teaching services under the shelter of the quality building. In a large number of teaching applications, this scheme has good applicability. The main structural elements of multimedia teaching "house of quality" are as follows, as shown in Fig.1.
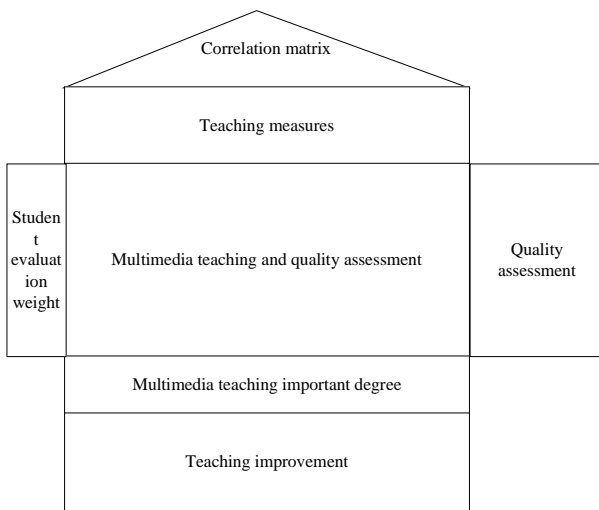

Figure 1. The house of quality multimedia teaching structure

As can be seen from the Figure above, the teaching needs of students can be obtained by means of the survey to obtain the importance of student evaluation Wi, which can be quantified by taking 1-5 grades. On the basis of obtaining relevant data, the corresponding calculation method is used to solve the student evaluation weight Wbj. Through the above calculation, we can get the weight of student demand Wbj, and substitute the obtained weight of student demand into a series of calculation formulas to obtain the teaching quality evaluation level.

From the perspective of statistics, it is necessary to carry out the proposed quality assessment method. The purpose of multimedia based college basketball teaching quality assessment is to improve the teaching ability of teachers. The system design includes four modules: login, student evaluation, teacher query, leadership query and background management. The system module is shown below.
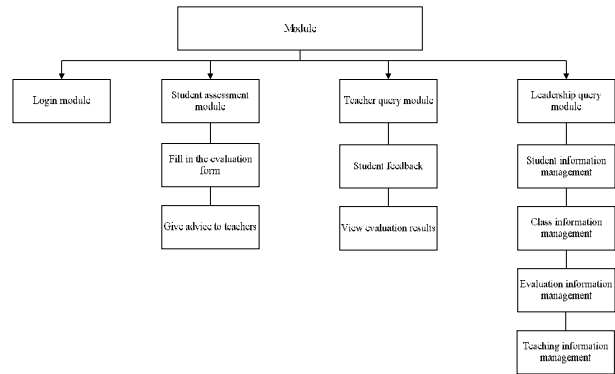

Figure 2. Multimedia college basketball teaching quality evaluation system module

Login module. After the user login, need to user action mode and management mode of a detailed analysis, the overall grasp, and then will work in detail for many times to communicate. Among them, the login module includes the following parts: student assessment module, data management module, leadership query module and teacher query module, which have different display forms for different users.

Student evaluation and teaching module. This module includes students filling in evaluation forms and giving Suggestions to teachers. Students can enter the student evaluation module through the login module, evaluate the teaching quality of teachers, and collect the evaluation results.

Teacher query module. After collecting teachers' evaluation results in the student evaluation module, teachers can log in the module to view the evaluation results and inquire students' opinions, so as to accept students' opinions in time and improve teaching methods.

Leadership query module. Leadership inquiry module includes: student information management, class information management, course information management, evaluation information management, teaching information management. Teachers can know the first information of teachers and students in the first time through this module.

In order to improve the teaching quality of teachers, the hardware structure design of the system shall be analyzed from the four modules of login, student evaluation of teaching, teacher inquiry, leadership inquiry and background management. According to the collected evaluation data to judge the teaching quality, improve the accuracy of teaching quality evaluation of teachers, so as to complete the hardware module design.

2.2. Evaluation standards for college basketball teaching quality

To evaluate the teaching quality of college basketball courses, and to ensure the accuracy of the evaluation, the evaluation standards of college basketball teaching quality are designed.

Six experts were selected, and the correlation of basketball skills, basketball training, management and other courses in cultivating excellent graduates of information management and information systems was given according to the score from 0 to 9. The correlation degree was placed on the roof of the room in the primary evaluation quality house model.

The relationship between the ability to train graduates and the curriculum should also be given by experts and written into the room of the primary assessment quality house model.

At the same time for the freshman to senior students about basketball demand questionnaire survey, statistical students demands for the ability, with 1 to 5 to represent the students' ability to demand and its different levels, in order to avoid one-sided sex, single people will fuse professional students are divided into four types and each type of average (for the convenience of round take its integer), the demand for various abilities by W1 freshman CRi's important degree of the vector; W2 is used to represent the importance vector of the iCR of all ability demands of sophomore students. Use W3 to represent the importance vector of CRi of junior students' needs for various abilities; W4 is used to represent the importance vector of CRi for each ability requirement of senior students, and it is written into the left wall of the primary assessment quality house model.

Basketball teachers are required to evaluate the market competitiveness of basketball courses in China by analyzing and comparing the gap between the information management major of our school and other universities in the three aspects of talent cultivation, development of science and technology, and service to the society, so as to reflect the competitiveness of basketball courses in China. In other words, C1i, C2i and C3i are given, and the above integer is used to represent the market competitiveness of basketball courses.

$$S=\sum_{i=1}^{m} w_i u_i = W^T U \qquad (1)$$

Since the improvement of students' ability demand satisfaction level is obtained through the improvement of their ability and quality target value, which to a large extent needs to be obtained from the curriculum, it can be seen that the improvement of students' ability demand satisfaction level needs to be improved on the curriculum. The linear relationship between UI and the actual improvement level of the curriculum is set as follows:

$$S=W^T RY = (R^T W)^T Y = V^T Y \qquad (2)$$

Where V is the absolute weight vector of course features, written in matrix form:

$$Y=P^T X = PX \qquad (3)$$

According to the above formula, the weight of demand for basketball courses can be obtained. We can see that among all abilities, enterprise strategic planning ability and organizational management ability are the most important, which are the most needed ability for students

majoring in information management and information system, and also the main goal S of cultivating talents majoring in information management. By according to the student ability requirements and course characteristics of correlation matrix, we can get the important degree, in the course, the greater the important is that the more important the course, important degree of these courses are between 6 to 9, we can infer that the courses are very important, and then by the course between the autocorrelation matrix Y can see these courses is very strong, the correlation degree between some of the course is another first class. Basketball technology is a very important course, in order to improve students' overall satisfaction with ability needs in a short time and most effectively, we must strengthen the importance of basketball courses and improve students' satisfaction with them. From a qualitative point of view, this course is the leading course of basketball course. If the foundation is not well laid, it will have a great impact on the subsequent learning of students and hinder the cultivation of students' abilities in various aspects.

2.3. Realization of basketball teaching quality assessment

The implementation of the quality assessment model is the product of the combination of multimedia development and artificial intelligence technology, so the generally said quality assessment is often similar to a normal mining process. The whole process can be divided into three stages, namely, data preparation stage, data evaluation stage and evaluation result display. The workflow is shown below.

Figure 3. Quality evaluation system work process

As can be seen from the workflow above, the workflow includes the following steps:

Data information: fully understand and analyze the application domain knowledge, and define evaluation objects and objectives. In the basketball course, the professional knowledge helpful to the process of data evaluation is obtained by analyzing the satisfaction of students in the basketball course and added to the knowledge base of data evaluation tools, so as to determine the data information of student evaluation

Data evaluation: search all internal and external data information related to basketball courses, select data suitable for data evaluation application, conduct data preprocessing, fill the missing fields, delete invalid data, etc. The functional types of data evaluation are divided into verification type and discovery type. Verification type refers to the hypothesis first proposed by the user; Discovery type refers to the use of data evaluation tools

to discover facts, trends, classifications, etc. unknown to users from the data, or the correlation and data deviation between regression models and database records. select the appropriate data evaluation algorithm and select the corresponding algorithm according to the type of data function and characteristics of data. Common algorithms include artificial neural network, decision tree algorithm, set theory algorithm and genetic algorithm. Scalability, accuracy. Interpretability to evaluate the selected algorithm and performance. Carry out data transformation, organize data according to the specified method according to the target, function and data evaluation algorithm of data, get the qualified variables according to the known knowledge, transform the data type and map the data to the feature space that is easy to find the solution.

Teaching quality evaluation. The teaching quality was evaluated on the purified and transformed data set.

Evaluation results Output the result of evaluation to evaluate the data interpretation and evaluation, into will eventually be users understand knowledge and comprehensive analysis, has been of the knowledge and existing knowledge synthetically, check and deal with the conflict between them, the final result by the method of simple report to the user, and evaluate the performance of the process. The main steps are shown below.
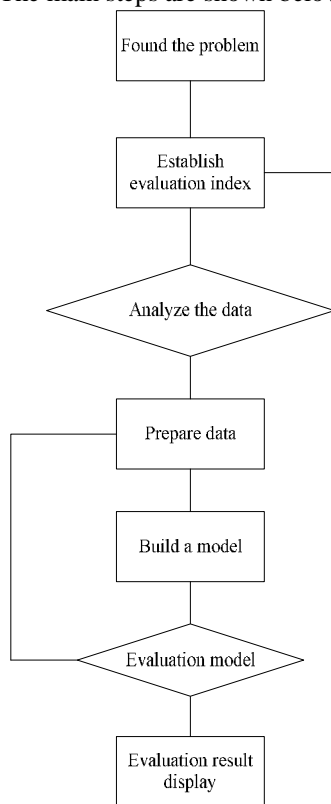

Figure 4. Main steps of teaching quality assessmen

Through the above steps to evaluate the quality of efficient basketball teaching, the evaluation efficiency can be effectively improved and accurate evaluation results can be obtained. Teachers can timely adjust the teaching content and improve the teaching quality.

3. Experimental Results and Analysis

In order to verify the accuracy of basketball teaching quality evaluation, a simulation experiment is carried out on the college basketball teaching quality evaluation algorithm based on multimedia. A basketball theory teaching class of 400 people, divided into control group and experimental group of 200 people. The teaching of the experimental group adopts the "multimedia optimization combination method" designed in this topic, which combines the multimedia theory teaching with the traditional theory teaching form organically. The experiment lasts for 4 class hours. The control group adopted the conventional theory teaching method. At the end of the experiment, the difference of teaching effect was analyzed. After analyzing the students' listening to the lecture, the results are shown in the Figure below.
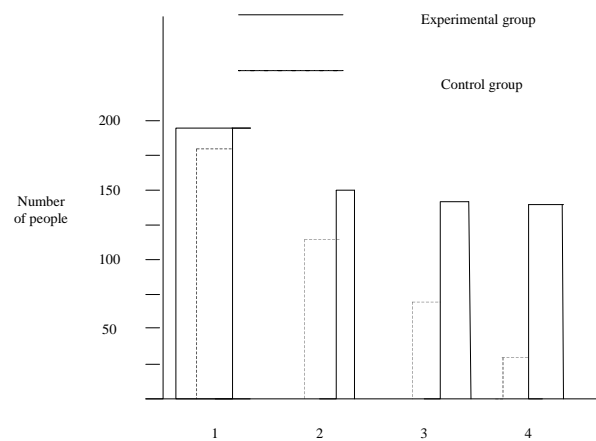

Figure 5. Analysis of experimental results

It can be seen from the results that the experimental group is in a good condition compared with the control group, indicating that the optimized combination teaching of multimedia can focus students' attention, attract students' interest, improve classroom teaching efficiency and play a good interactive role. The application of multimedia technology and the adoption of vivid and lifelike teaching methods are the means to improve students' interest in basketball theory teaching and enhance the teaching effect. In the teaching of basketball theory, the rigid blackboard writing and monotonous explanation often make students feel extremely dull and boring. Every now and then use the static wall charts or model may not be able to make students to understand human activities in the complex dynamic process, and the use of multimedia technology can be used for real or animation to be displayed in the

form of, such as about the development of basketball and basketball related departments, can be inserted into the relevant images and text animation effects to decorate, make the students to see after the be clear at a glance. Some of the highlights of the broadcast, so that the students remember, improve the ability to appreciate a high level of competition, both to broaden the horizon, and edify the sentiment. In addition, the interactive function of multimedia enables students to take an active part in teaching, from passive learning to active learning, thus greatly mobilizing students' learning enthusiasm. This is of great help to improving students' learning quality, improving learning environment and enhancing learning effect.

4. Conclusion

Traditional college basketball teaching quality evaluation methods to evaluate efficiency is low, in the computer are so popular today, the condition of secondary school physical education teaching with multimedia technology basic has been mature, in our country, the multimedia technology is applied to the sports field is relatively late, although have a large number of research efforts, in such aspects as training, wonderful, scientific research, management have also made many important achievements. Therefore, an evaluation model of college basketball teaching quality based on multimedia is proposed. By observing the teaching quality in real time and establishing the quality house network, this method evaluates the teaching quality of each link of teaching, which greatly improves the evaluation efficiency of college basketball teaching quality.

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