Optimization of Computer-aided Teaching Network Management System for College Physical Education Courses

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Abstract. Traditional educational models, especially universities, have made it difficult to meet the needs of education. Today, computer development has brought great benefits to education. Therefore, the development of the university's sports education is inseparably linked to the support of the computer. The introduction of computer-based learning into sports education can significantly improve pupils' initiatives and enthusiasm. At the same time, the efficiency of the training of sports teachers is improved, and it is not only easier to handle, but also improves pedagogical effectiveness. Students can also quickly learn the nature of the action and learn more relevant technical knowledge in each training and learning. In the example of football training, this paper examines the impact of computer-based learning on the learning of football skills and shows, based on concrete examples, the impact on sports education and university education. The results show that computer-based learning is very important for students to learn football skills.

Keywords: University Physical Education; computer-aided teaching; Faculty of Education
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1 INTRODUCTION

With the increasing spread of networks, networks have been increasingly used in the process of transmitting information in modern distance learning. Its basic form is to provide comprehensive learning content and to create core projects on web-based educational websites so that learners can acquire the purpose of learning knowledge.[1] Students can access the website of distance learning directly via the Internet and communicate with teachers in non-real time. Using the Internet broadcasting function, students can activate the two-way audio and video exchange between teachers and remote stations in real-time and download data to the Internet via a video conference system. And the popularity of modern networks has made a big difference in the way modern college students acquire knowledge, and the network has become an important way for college students to acquire knowledge and all kinds of the information reported by Karp, G.G. [2]. This change has a significant impact on the values, learning, thinking, and behavior of college students. Coppola brings new opportunities and challenges for higher education through A. M [3]. The level of information technology is an important objective which emphasizes the international competitiveness of the country and region, the degree of modernization, the comprehensive

national capacity, and the capacity for economic growth [4]. Information and overall status, as well as economic, social, cultural, political, and national security, were strategic allies of future national development. Herold, F et al. believed that the information industry was the foundation of the national economy, national security, and strategic industries [5]. The information network represented by the Internet is the infrastructure of the modern economy, and network and information security are important elements of national security. As an important part of the high-tech industrial group, the information industry is the first sector to take over among other high-tech industries. The information industry is expanding further and the continued spread of information technology to the economy is creating new categories of industry. As an important part of the high-tech industrial group, the information industry is the first sector to take over among other high-tech industries. The information industry is expanding further and the continued spread of information technology to the economy is creating new categories of industry. In traditional education methods, teachers are the most important source of knowledge and the cornerstones of the participants and the educational process. However, it completely ignores the role of learners and sees them as the basis of modern pedagogical views. In recent years, information technology has been integrated into a variety of ways into the curriculum for teacher training, including CDROMs, interactive CD-ROMs, telephone conferences, e-mail, and microcomputers with hypermedia and multimedia programs. Computer-aided instruction is only one of these technology applications. Information revolution technology brings many unique benefits to education programs. Traditional educational methods are widely accepted in the educational field, but some educational institutions are beginning to use computer technology as a pedagogical method. Education situations require a means of facilitating access to information and the speed of learning at the same time. As an advanced audiovisual education technology, multimedia technology is increasingly used in university sports education as time progresses and science and technology development. Computer aid (CAI) has been used in education for more than fifty years. Computer use is not new, but computer-based education is still a common term in today's educational institutions and schools. Computer-Aided Education (CAI) offers a variety of educational interactions between learners and computers, with or without teacher support.

Recently, research into the effectiveness of the application of technology in the training of sports technology has attracted a great deal of interest among researchers. Also, many researchers are experimenting with the development and application of digital multimedia and virtual learning exercises used in the educational environment. The proposed multimedia learning environment combines electronically supported images, voice, text, graphics and live performance to provide individual guidance, collaboration, feedback, and creative interaction between media and users. Your text can be written, for example, on a computer screen or audio format text, but these images are static (photos, graphics, symbols or maps) or dynamic (e.g. video, interactive description, animation), reported by Saraa, L. [6] -Computer-based education has a history of more than fifty years, but research on the effectiveness of computer-based education is in Erwin, H. Eet. al [7]. Some studies have shown that computer-based guidance does not affect some topics. In general, research into the efficiency of computer-based education has led to inconsistent results from Kielevyaynen, L. M., and others. al [8]. Computer education combines abstract theories with actual manipulation to improve pedagogical effectiveness, and students need to use a variety of means to arouse their interest in learning. Teachers must, therefore, pay more attention to the development of educational theory while using multimedia technology. Always use advanced pedagogical theory to guide the practice of multimedia education and pay attention to the benefits of general multimedia education. The relationship between multimedia and traditional education and the relationship between education content and forms of education must be handled correctly.

Football skills are complex and difficult to train, but it takes a lot of effort to achieve the perfect effect of learners. As you know, football is a special balancing sport. When a footballer takes a balanced stance and holds it for a few seconds, the stability of the body posture impresses the experts very much.

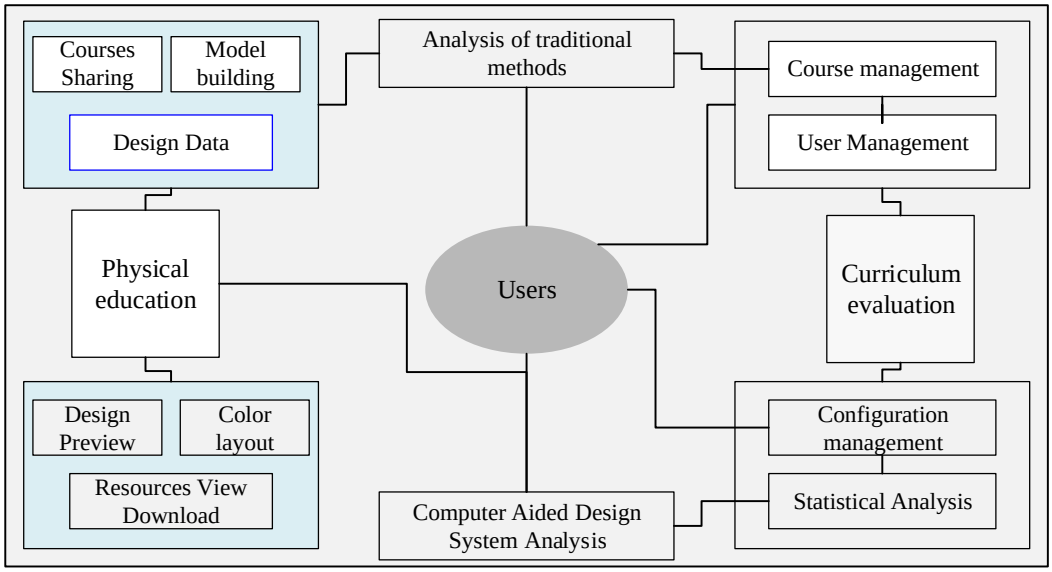

Figure 1: Interactive teaching strategy.

There is little research on the use of computer-based learning technologies in the field of football learning. By strengthening traditional teaching methods with modern technology, learners can improve their learning efficiency and their ability to interact with education. It provides a variety of educational interactions between learners and computers, with or without teacher support. Figure 1 is based on a sports education strategy based on computer-based learning. It is divided into four aspects of computer-based sports education: basic, core, educational conditions, and the most important parts of education. An important aspect of computer-based sports education is the introduction of rational computer technology in student education so that an important part of sports education can easily create the fourth stage of student etiquette. E. 183, a study of computer-based learning in university sports education, absorbs and understands. It is important to establish a reasonably computer-based sports education unit, especially for students. This allows us to fully exploit the benefits of computer helpfulness and improve educational efficiency [9-12].

2 COMPUTER AIDED LEARNING DESIGN

2.1 Define the Participant Phase

Thirty-two undergraduate male students, with an average age of 20 years old, came to the Institute of self-Education. The experimental group was equally divided into 2 groups, and each group was composed of 16 students. The research group used computer-assisted learning to participate in physical education for 6 weeks, and the second group used the traditional method, that is, teacher guidance as the control group to participate in football lessons. Height, weight, age and academic level are taken into account in the parameter setting. Also, they are all beginners, that is, they have not participated in football training before. None of the subjects had any diseases known to affect performance, such as fractures, osteoporosis, diabetes, and cardiovascular disease, and other diseases. Participants did not report the use of any antiepileptic drugs or alcohol. Also, all participants were fully aware of the purpose of the study and agreed voluntarily before participating. The measurement procedure is consistent with the ethical human experiment.

2.2 Process Stage

The test group completed the leadership of the football skills under five minutes of leadership, including pass, shoot, catch, dribble, and headline. In a computer-aided learning group, teachers act as instructors in the laboratory, use computers to support students, and provide materials and other resources to help students. Computer-based learning uses a computer to promote pupil learning. If a student uses the computer at a high speed, the responsibility of the teacher lies with the teacher or trainer. One of the main tasks of computer-based learning is to guide pupils to do so without paying attention to different parts of the learning sequence with the help of teachers. The first computer-based learning project presented in Figure 2. Computer software offers a comprehensive educational opportunity to pass the ball. The program is a computer tutorial that contains information and quiz about equipment, rules, strokes, labels, and strategies as well as videos that explain and demonstrate the basic steps of football. Football Task Analysis, the second computer-aided learning project, is a solution that can facilitate the development of observation skills for PE students and teachers. Improve your basic skills in football analysis through concept mapping, task reorganization, and video. The teacher advisory group received a 45-minute teacher who taught the football skills of key researchers as a comprehensive educational method, including demonstrations, discussions, and practices. The knowledge test of the basic skills of football is special expertise that provides information on what you can learn. To test the basic skills of football, the most important investigators have compiled a collection of 14-fold-choice examination questions. This test aims to measure knowledge of the five stages of basic football skills: the preparation phase, the leg stress phase, the core phase, the poverty phase, and the harmonization phase. The core phases include passport, shooting, catching, dribbling, heading, foul ball throwing, capturing, and gate maintenance capabilities.

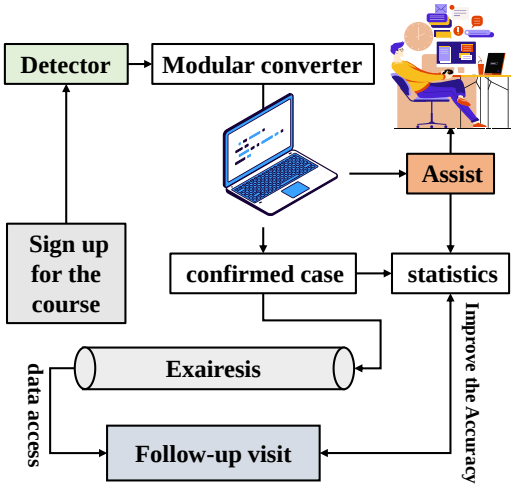

Figure 2: The first computer-assisted learning project.

2.3 Network Teaching System

The use of multimedia technology and the Internet not only facilitated the development of networking processes but also gradually established sports federation classes in universities and universities. By building a training space on the website, students are opening up a second platform for sports education and training, improving the learning of sports lessons after school, and exercising nerve training and enabling students to gradually acquire good habits for lifelong movement. The main purpose of opening a learning website is to increase pupils' interest in extracurricular learning, to exchange sports experiences and sports records of pupils in the form of words, photos, video images, etc. to be completed. It helps students to reflect more comprehensively and carefully on the problems they encounter in the learning process. The strong

resource integration ability of this kind of website provides a platform for the accumulation of sports teaching information and the display of teaching plans so that students who have not selected relevant elective subjects can also view the teaching progress and teaching videos of relevant courses. to avoid the regret that students are unable to choose relevant subjects because of the conflict of class hours. Also, the establishment of the website closely combines network teaching with life. Given the current situation that college students are keen on surfing the Internet and using all kinds of chat tools, the sports teaching website has attracted students' attention with its rich picture resources, visual video tutorials, and novel teaching methods. make them willing to enter the website to learn sports knowledge in their spare time. Because of the large amount of information and the fast updating speed of the content of the web-based course, the personnel responsible for website management must timely classify and sort out the release of the teaching information. so that students can have a clearer understanding of the update process of teaching progress and the special structure of network teaching mode, to improve learning efficiency. The network teaching system includes not only a comprehensive teaching platform as shown in Figure 3 but also a discussion group with strong flexibility and pertinence. Similar to the discussion group in the ordinary classroom, the discussion group in the network teaching is divided according to the students' learning direction and interests, and the group chooses to fully respect the students' voluntary. so that students can complete the after-class study of physical education in a relatively active and relaxed learning environment. The establishment of the discussion platform is based on common social discussion platforms such as QQ so that the communication between students is no longer limited to short class time. Based on interest, the discussion group avoids the emergence of students' boredom to the greatest extent and makes students' study and discussion more flexible and interesting. Also, the establishment of discussion groups not only helps students understand the keys and skills of related sports but also makes it possible for students to organize extracurricular activities on their own. For some students who are keen on mountaineering, hiking, diving, rock climbing, and other outdoor activities, network teaching makes a long-distance information exchange and activity organizations more convenient. By exchanging travel information on the discussion platform, summing up the relevant sports experience and matters needing attention, outdoor physical exercise has become more and thorough. At the same time, this form of communication and discussion has also become a powerful supplement to the teaching content of the network classroom, promoting the interaction and interest of the network classroom.

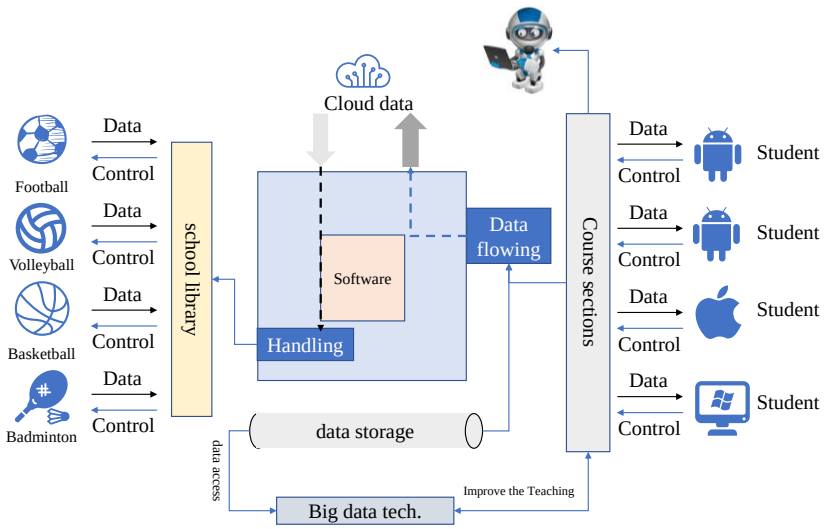

Figure 3: The establishment of the discussion platform based on the software.

3 ANALYSIS AND DISCUSSION

3.1 System Function Analysis

First, we will analyze the results of the above experiments. Here we used software package SPSS statistics to characterize the data analysis. The difference in these experimental groups was shown as the common difference between 95% confidence intervals (95% average difference). The student's learning tasks were tested with a separate example, which defined the adjustment parameters of the two groups. 0.05 is the main difference between statistics and learning [13-16]. This includes an average value reflecting each pupil's learning ability and a standard deviation reflecting [the pupil's general learning level], as shown in Figure 4. [17,18]:

$$X = \frac{1}{n} \Sigma X_i \tag{1}$$

$$s = \sqrt{\frac{1}{n} \Sigma (X_i - X)^2} \tag{2}$$

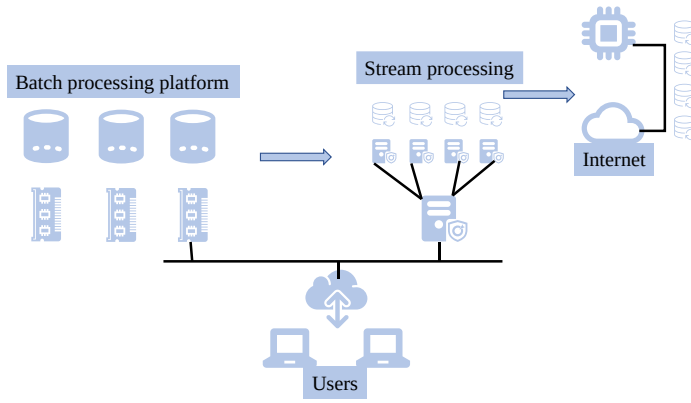

Figure 4: The platform for overall learning level of the student.

3.2 System Performance Analysis

According to the results of this study, computer-aided counseling offers not only pedagogical skills but also educational learning tools, so that after all the tests of basic football skills there is a statistically significant difference between the two experimental groups. The quality of learning is measured not only by the ability to provide but also by the ability to interact with learners and meet different needs. Students with computer-aided learning skills can analyze and correct errors in the performance of football skills. There is also the most common evaluation method. This is a qualitative analysis of the movement. This is defined as observing the movement for a certain period and determining whether a particular characteristic of the movement and the continuous pattern is closely related to the perceived criteria of that particular skill. Computer-based learning improves the quality and effectiveness of sports education. His lively language and vivid photos can attract the attention of students and arouse interest. This contrasts with traditional strict education, as shown in Figure 5. Raise, analyze, and fix problems. Computer-based education technology also allows you to control the speed and playback of videos, which makes it easier to learn at the university, as you can easily explain new learning movements that are difficult with precise movements.

To mention the deep meaning, when a teacher imparts skills, task sequences are an important part of competence analysis, as teachers follow these pedagogical models. For all PE teachers, skill analysis is an important skill. This is because sports teachers need to understand the skills and key features of sport and give feedback immediately.

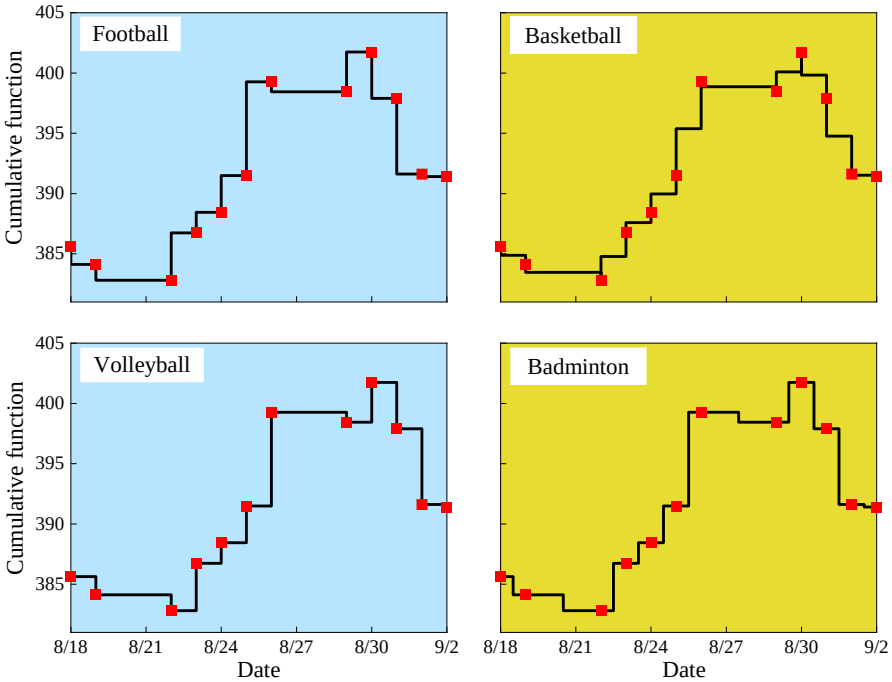

Figure 5: The quality and effect of physical education.

Technical energy analyses may lead to errors in initial inspections, but corrections and feedback will help improve technical proficiency tests. Today, the widespread use of computer-based education technology in university sports education has dramatically changed traditional teaching methods, improved educational efficiency, and made the educational process clearer. The study showed that these participants were better able to detect errors than other participants who had few errors and had no computer-trained training. It should be noted, however, that the use of computer-based football coaching skills and problem analysis is rarely used in universities. However, earlier studies have used a variety of qualitative methods to analyze and train skills, including written text, interactive video discs, and videotapes. Simply put: Computer-based learning technology can send higher quality data within a limited time range than conventional media. Besides, large amounts of data such as photographs and words can be processed and expressed, which facilitates the understanding of vocabulary data and teaching materials. Fast and efficient processing and simulation mechanisms for text, audio, images, and animations enable computer-based learning technology to make your lessons clearer and more intuitive without being influenced by traditional media. Since computers are a very common part of all classes, pupils' consciousness for computers is an important concept. Although research on the general curriculum has different results in the attitudes of pupils to computer-based learning. Sports studies have shown that students are more positive about computer-based learning, as shown in Figure 6, and are ready to use computer-based learning as a learning tool for future activities.

3.3 Evaluation of Network Teaching

The establishment of the computer-assisted education evaluation system is synchronized with the creation of network classrooms. The evaluation of network training focuses on the discussion of the differences between network teaching and traditional teaching methods. By explaining the different benefits of multimedia and Internet education, as well as the reform of educational methods and content, you can identify and improve the shortcomings of existing in-network education and improve the educational efficiency of sports education on the network. The

evaluation of the content and format of the network education system shall form the basis for the evaluation of that system.

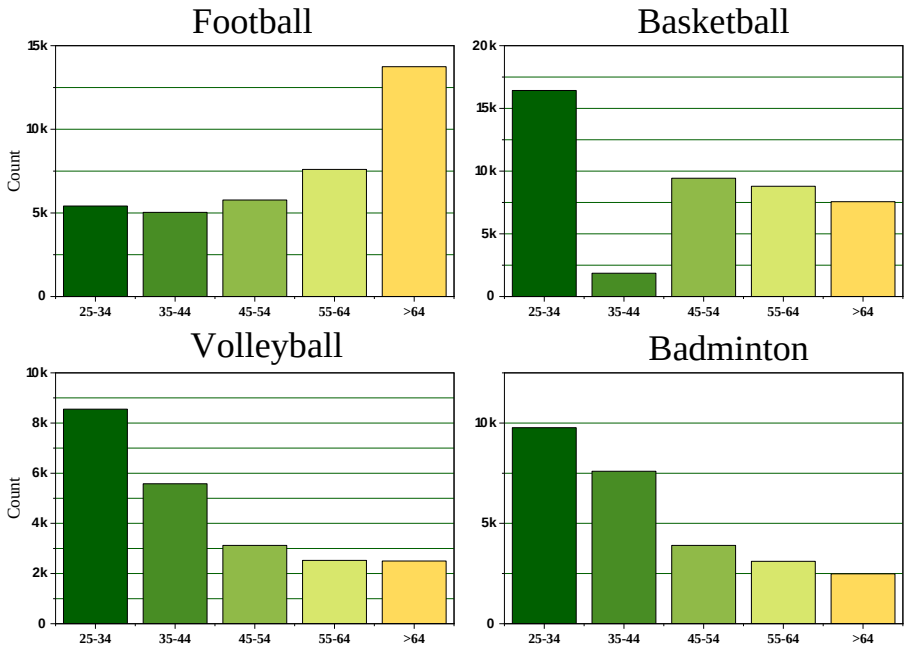

Figure 6: The attitude towards computer-assisted learning.

Firstly, it is necessary to review the content of teaching materials and the selected materials in the network teaching materials system. In contrast to the pedagogical model of class education, networking training focuses on the evaluation of pupils' awareness and attention, as there are no necessary interactions or questions. For students to complete the learning of relevant content by text or video, we need to select materials that are close to the content of outdoor training courses and tailored to the acceptance of the participant. We also need to ensure that the format of the networking platform is new and clear, in line with the aesthetic value of today's college students, and that students are not motivated to learn about networked sport because there is a lack of interest in education. System. Secondly, the evaluation of the University's sports education should focus on assessing the interaction between teachers and students. As it is impossible to ask questions or interact with teachers or students in the classroom, you can set up a specific discussion area in the network education system to help teachers solve problems they face in time, "Self-study" and ensure students' readiness to learn. The openness of the online education platform allows students to learn about related sports over and over again and to develop a better understanding by combining materials and event highlights on the Internet. As a result, the progress of the study of students with different principals and understanding also varies. Therefore, most students need to communicate on an interactive platform in time to meet the requirements of the curriculum standards and bridge the gap to a small number of students who cannot achieve their goals. As shown in Figure 7, standards for the appropriate response to the training method of the network training system.

4 CONCLUSIONS

With the development and dissemination of computer technology, sports education has become very practical. The use of computer platforms enables students to have a faster and more flexible understanding of the art of the sport. With its rapid expression and rich network resources,

computer-aided technology can better generate and process words, languages, pictures, and videos, which is conducive to the updating of knowledge.

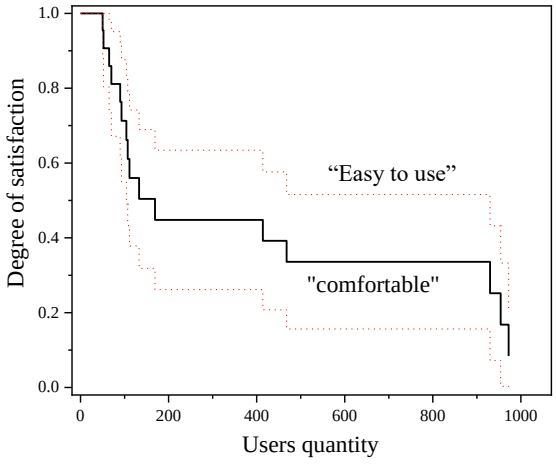

Figure 7: The degree of satisfaction for users.

In this paper, the research status of computer-aided teaching is analyzed, and the sports-computer-aided teaching strategy model is established. finally, the excellent effect of computer-aided teaching is verified by grouping experiments (taking football as an example). At the same time, it also shows that computer-assisted learning plays a greater role in promoting physical education.

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