



Design and Realization of Interactive Learning System for Art Teaching in Pre-school Education of Artificial Intelligence Equipment

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Abstract. This paper analyzes the needs of art teaching and research interactive study of preschool education major, and designs related functions. It can realize various functions of art teaching and research interactive learning system through the network. Through the design of access rights and the control of user roles, the security of the system is fully guaranteed. Through the design and implementation of the system, online learning, online homework, online examination and other functions are realized. Finally, the interactive system of art teaching and research is tested. The results show that the system can achieve the functions of landing, online learning, forum communication, online homework and online testing in art teaching, and achieve the goal of the system.

Keywords: Art teaching system · Design · Implementation

1 Introduction

Its main task is to maximize the use of modern computer and network communication technology to strengthen enterprise information management, through the investigation and understanding of the human, material, financial, equipment, technology and other resources owned by the enterprise, establish correct data, process and compile various information materials, and provide them to the management personnel in time, so as to make correct decisions, Continuously improve the management level and economic benefits of enterprises. At present, the enterprise computer network has become an important means for enterprises to carry out technological transformation and improve the level of enterprise management. University information system is one of the main tools of university management in recent years, and it is also the development direction of university management in China [1]. Nowadays, with the rapid development of information technology, computer network is no longer unfamiliar to most people. People's dependence on the network has become more and more. It can be said that people have been closely linked with the network. The network has penetrated into people's study, work and life, and played an important role, causing major changes in the field of education. In recent years, with the rapid development of software engineering technology, information communication technology and other related technologies, network education

has been gradually popularized in people's educational activities [2, 3]. In these related education, network testing has become an indispensable part of network education, is an important part of network education.

2 System Analysis and Main Functions

2.1 System Setting Principle

The advent of information technology makes the rapid development of modern digital education and digital campus. The information age of school management has arrived. The network has become the most important technical basis and the carrier of resource acquisition in modern education. Important changes have taken place in the form of modern education [4]. The rapid development of distance education and network education has put forward new challenges for China's education. And after making clear the design principles and functions of the system, the system finally adopts the three-tier BS design mode based on Web technology. In the development process, it strictly follows the development principles of practicability, universality, integrity and openness, and the development platform is selected VS.NET The background database is SQL Server 2005, And using the web form technology of aspnet and adonet database connection technology, a brand-new art teaching and research system is successfully developed and implemented. The system has the following functions: Students' basic information management, automatic examination database management, students' online test, automatic evaluation of test results and management of teachers and students [5, 6]. The establishment of such a course website can achieve low-cost operation, and the website has good functions at the same time.

2.2 System Setting Purpose

It is a powerful breakthrough to help students realize their achievement motivation and get a sense of achievement in teaching. If there is a result, there must be a cause. "Students' sense of achievement" is a result, so what is the cause? The author summarizes it into the following two aspects. 2. Guide students to find their own value. Every student has unique personalized value, which sometimes appears dominant and sometimes recessive. Sometimes in the process, sometimes in the result. This requires teachers to actively guide different students to present diversified values with an attitude of respect, understanding and tolerance [7, 8]. For example, every student sees and thinks different things about the same piece of wood art. Some students will analyze it from the perspective of culture, some from the perspective of emotion, some from the perspective of society, and some from their own experience. Therefore, teachers should pay attention to observe students, find out the unique value of their thinking, guide and affirm them, and then stimulate their intrinsic achievement motivation.

3 System Performance Analysis

3.1 System Objectives

The mutual aid system of teaching and research requires students to realize the purpose of self-education and learning. Through the platform of art teaching and research system,

we can realize the interaction of art teaching and learning, and stimulate students' self-learning potential. The system mainly includes students' autonomous learning, online homework, forum communication, online self-test and other functions. Through the analysis of students' learning and testing, the system can help students master their own learning effect, and can learn the relevant knowledge in time. The design and development of BS (Browser / server) mode art teaching and research system realizes the instant learning, and can carry out interactive learning without any time and geographical restrictions: teachers upload learning materials, which can be easily used by students and other users; they can independently select test questions information resources, and combine these resources together, And these resources can be assigned to students [9–11]. The student's test machine should install a browser, and then enter the user name and password to log in to the art teaching and research mutual aid system.

3.2 System Function Analysis

The art teaching and research system comprehensively considers three types of users: teachers, students and administrators. Through the use of the system, it is very convenient to carry out the whole education and teaching activities: examinees log in to the test system to participate in learning through identity verification, while students can inquire about all kinds of relevant information; teachers manage test questions through identity verification, At the same time, realize the management of students' information, learning situation and other related information, teachers can easily release the relevant information about education and teaching in the information system, while administrators can manage the whole process of the whole test.

1. Teacher users

- (1) Release information: after passing the identity authentication, manage the test database, including uploading, modifying and deleting [12]. The test questions are selected by the teacher. Each teacher user authorized by the administrator has the right to publish assignments and enter test questions. The information entered can be displayed on the management test page.
- (2) Student management: students manage their information through identity verification, mainly including viewing relevant information, viewing courseware, viewing homework assigned by teachers, online testing, forum communication, etc.
- (3) Forum management: forum management is mainly for teachers to realize the function of news management through the release and management of learning related information.

$$s, t \sum_{j=0}^r \lambda_j, x_j \leq x_j \quad (1)$$

$$\sum_{j=0}^n \lambda_j = 1, \forall \lambda_j \geq 0 \quad (2)$$

2. Student users.
 - (1) Participate in learning: select students to log in and jump to the main page directly. Check the teacher's courseware, homework forum, communication and online test, and master the learning content in time. Through online self-test, we can master our own learning situation. Students can achieve the combination of learning and practice through the submission of online homework.
 - (2) Forum View: search and browse the learning materials and related information released by teachers, and realize interaction between students and teachers.
3. Administrator user.
 - (1) Teacher management: management of teacher authentication information, that is, user name and password.
 - (2) Student management: manage the teacher's identity authentication information, that is, user name and password.

4 System Overall Design

B/S structure has some advantages in system design, development and implementation. Information system based on B/S structure has good openness and expansibility. B/S structure is easy to realize in modular design management. B/S structure (Browser/server, browser / server mode) is widely used in the development and utilization of modern information technology. It is a network structure mode emerging after the development of web. After the installation of web browser and other related database software, it can easily operate the information in the system. Its main features are: simple maintenance and upgrading and low development cost. There are many kinds of implementation technologies of art teaching and research system [13, 14]. The most common network test system is the traditional architecture based on client / service model, In this mode, the smooth progress of each test must be related to the installation and configuration of each client, so the work efficiency is relatively low, and the operation is more cumbersome.

B/S structure features: it has strong operability, and is conducive to the maintenance of the system. The opening of the system is more prominent. In addition, aspnet technology has the characteristics of flexibility, security, expandability, friendly access and browser independence [15]. This test adopts browser server structure, which is composed of client and database server. Because the system adopts Internet related technology, the fine arts teaching and research system based on B/S mode adopts the web solution based on aspnet technology proposed by Microsoft. The solution is shown in Fig. 1.

The implementation process is as shown in. Users can send requests to the server to call the dynamic page through is server. The system will return the dynamic browsing page to customers through the automatic execution of foot code. Users can operate the static page through their own needs ADO.NET Directly access the background database, query the learning information, and then generate the HTML page, The system will return the corresponding query results to the user, the client department needs to install any application, only need to install the relevant application in the server; the maintenance and upgrade of the system are concentrated in the server.

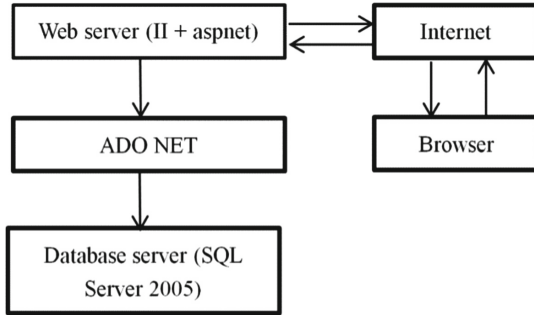


Fig. 1. General scheme

5 Detailed Design of Art Teaching Interactive Study System

The design and implementation of the art teaching and research system must be able to meet the needs of teachers and students in all aspects of education and teaching. At the same time, the school educational administrators should also be able to manage the system. The main purpose of the system website is to realize the combination of art teaching and research and information system, which can provide strong support for teachers and students [16–18]. Using this website, teachers can answer questions online, upload courseware and assign tasks; students can learn more information and knowledge by logging on the website; school educational administrators can have both the authority of teachers and students, and manage the information of teachers and students as administrators (see Fig. 2).

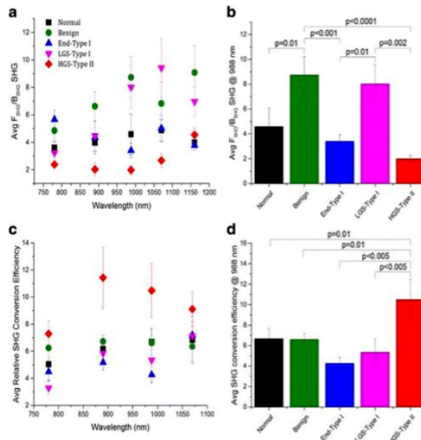


Fig. 2. Simulation result with art teaching interactive study system

5.1 The Design of the Main Function Modules of the System

In the learning system, it can provide certain navigation and search functions, such as arranging the location of network courseware in a certain order, and providing the keyword search function according to certain knowledge points, so that the system users can easily and quickly find the learning resources they need. The learning system can also record the individual learning situation of learners at any time, so that learners and teachers can master the relevant learning progress and make teaching assistant arrangements [19]. The main design of online learning function module is the upload of course resource function, and the main technology of course resource production function is asp.net. Asp.net is a programming framework. It is a new framework based on the operation of common language. It can realize the establishment and generation of Web programs. Web programs have powerful functions. Compared with the traditional web program, the web program based on asp.net has great progress in function and operability.

5.2 Design of Online Operation Function

The design of online homework function requires teachers to arrange homework according to the progress of learning. As far as the art teaching and research mutual aid system is concerned, the assignment of homework is the same as other subjects, but most of the assignments are submitted by students who upload their own works. Teachers comment on students' works, and then realize the online homework function of the system, There is basically no standard answer, because the automatic evaluation of art painting is still very difficult to achieve, so it is basically through the teacher's evaluation of the work to achieve the scoring of the homework, the students' achievements will be recorded in the art teaching and research mutual aid system database, and put forward opinions, convenient for students to consult their homework.

6 Promotion Method

6.1 Interest Stimulation Method

Psychological research has proved that the biggest and most lasting learning motivation is students' internal interest in subject content. Only this kind of inner interest can stimulate students' thirst for knowledge. There are many ways to stimulate students' interest, from the following aspects can mobilize the enthusiasm of students () the use of physical import is the most intuitive, but also one of the most effective teaching tools. For example: in the lesson "perception and emotion of color", what kind of visual effect will a white ball of the same size compare with a black ball? If there is no real object, let the students think out of thin air, it will make the teaching content boring and too abstract, which will make the students lose interest in learning [20]. On the contrary, if the same size of white stone ball and Black shot put are used to import the real object, it will be clear to the students at a glance, It's intuitive and easy to understand knowledge, and the classroom atmosphere will also be active. 2) using riddles to lead into life is boring without humor, and it's boring without humor in art class. In art teaching, if we

can use humorous language, the teaching process will be more relaxed and effective. It makes the distance between teachers and students closer, makes them form psychological compatibility and join in the new teaching situation.

6.2 Imagination Stimulation

In art teaching, we can recite all kinds of methods, such as vivid grammar description, music camp, face-to-face display, students' performance and so on, to create situations for students, so as to improve their imagination. In addition, a good art class in addition to a good lead-in, teachers in the process of carrying out art activities also need to fully mobilize the students' creativity (-) display excellent students' art works, stimulate creative consciousness, in the art classroom homework, collect some excellent students' works, in the process of students' hands-on production, in order to motivate students. -In the process of students' creation, teachers should be good at discovering the talents of each word, and guide them to express their innovative consciousness in their works. In classroom teaching, we should know their ideas in time and encourage their creativity. When evaluating students' works, we should try our best to find some shining points and praise them to make them have a sense of success [21]. Observation is very important in painting. As shown in Fig. 3. Without it as the basis of drawing circles, there would be no artistic expression. People, things and things in life can be regarded as objects of observation. Clear observation, correct observation methods and good observation habits can gradually improve students' observation ability. In the process of observing sketching, constantly improve their own strength.

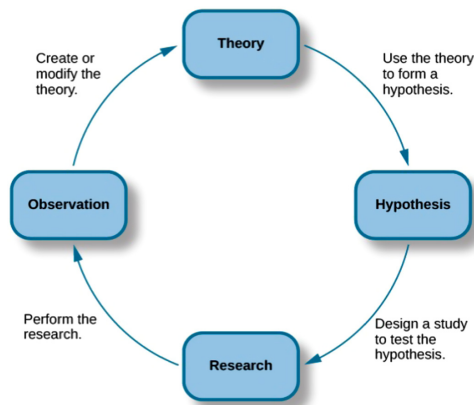


Fig. 3. The importance of observation.

6.3 Integration of Teaching, Learning and Doing

In the art classroom teaching, in addition to the teacher's vivid explanation, more time is the process of students' hands-on practice. This requires students to combine the

teacher's knowledge and hands-on production ability, that is, the integration of teaching, learning and doing. For example: in the lesson "basic knowledge of color", the teacher uses the hue ring to let students understand the three elements and deployment methods of color, but the teacher's explanation is not as intuitive and solid as the students' hands-on practice [22–24]. For example, the teacher explained that Yellow + blue = green, but the result of students' practical operation is that each student's green is not the same, some students' green is light, some students' green is dark. The reason for this is the different proportions of yellow and blue. This kind of practice makes students not only grasp the knowledge, but also find new problems in practice, and finally sum up the reasons and solutions [25]. In a word, in the future life, we will continue to sum up the experience, and make full use of the interactive teaching method of teaching, learning and doing, which is the integration of teaching, learning and doing. And keep their painting naive, simple, full of interesting imagination art style, improve the quality of students' painting.

7 Concluding Remarks

In the development process of this system, a number of technologies are comprehensively applied, which are: asp net page technology, object-oriented programming based on C#, object-oriented programming based on C# ADO.NET SQL database query technology, XML technology. When the system is running, there are three modules: administrator module, teacher module and student module. In the development process of this system, the role of teachers in education and teaching has been greatly improved. Through this system, teachers can upload information related to learning information. For students, they can participate in learning, take part in tests, and check their scores at the same time. The function of the system administrator is responsible for the management of teachers and the system. Because of the advantages of this system, it can be used in other subjects. Through the design and implementation of this paper, the design and implementation of art teaching and research mutual aid system is realized in a low-cost environment. For art teaching, it has the advantages of simple operation. However, in the process of research, there are still great deficiencies, which need to be further improved.

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