

# Research on Classified Teaching of Computer Basic Education in Colleges and Universities Based on B/S

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**Keywords:** B/S; Higher education; computer basic education; hierarchical classification teaching

**Abstract:** With the wide application of computers in various fields, the basic education of computers should also be developed. Based on the research on the progress of classified teaching of computer basic education in colleges and universities, this paper puts forward some ideas and measures for the curriculum design of computer basic education in comprehensive universities. On this basis, this paper elaborates the basic education form of computer in colleges and universities Based on B/S. Therefore, an in-depth understanding and understanding of the computer network architecture is very important for learning the "computer network" course. Computer basic education helps students to deeply understand and grasp the basic working principle of computer network. The ultimate goal of strengthening experimental teaching is to enable students to better grasp the theory and ultimately apply to the application.

## 1. Introduction

The essence of "Internet +" is the onlineization and dataization of traditional industries. Computer basic education has grown from scratch to excellence, and has laid a solid foundation for the development of high-quality talents in China to adapt to the development of the times [1]. After nearly 20 years of exploration, a relatively complete teaching system has been gradually formed, which has played a positive role in the cultivation of talents at all levels [2]. The study of computer knowledge requires not only computer but also computer. For non-computer majors, the purpose of learning computer knowledge is more important to apply computer knowledge to their own professional fields [3]. This kind of social informationization featuring "computers and their services for everyone" will have a profound impact on the traditional industrial structure, labor structure, production methods, and people's spiritual and cultural life [4]. It is the key to improve the quality of computer education to do well in the teaching of computer specialty courses and computer public basic courses [5]. At present, most of the basic computer courses in Colleges and universities in China are taught in large classes with theoretical knowledge and computer practice. Usually, a teacher has to face hundreds of students [6]. And these students' specialty and computer foundation are very different, a single classroom explanation, there are bound to be many problems. Then, how to combine the Internet with the classroom of computer basic education teaching in Colleges and universities, and give full play to the advantages of the Internet, is the key content of this paper.

Since the founding conference and academic seminar of the National Institute of Computer Basic Education in Colleges and Universities was held in 1984, the research on computer basic education in Colleges and universities has gone through 30 years [7]. That is to say, adding a traditional industry to the Internet platform is equivalent to adding a pair of "Internet" wings to the traditional industry, which represents a new economic form [8]. For example, Internet finance, because of the perfect combination of Finance and internet, has produced many financial investment products accessible to ordinary users, such as Yao, Finance Tong and so on. However, for a long time, basic computer education has been aiming at popularizing and eliminating illiteracy. With the advancement and popularization of computer technology and the intensification of international competition after China's entry into WTO [9]. At present, computer basic education in colleges and universities is facing unprecedented pressure, and it is urgent to establish a new teaching mode to adapt to the development of the situation. The main task of computer basic education is to develop

students' computer application skills in their professional and related work. This section cannot but affect our education, especially for colleges and universities. It not only puts forward new requirements for current talent training, but also puts forward new requirements for the future talent quality composition [10]. "Learning to master computer basic operations has become a basic skill for students. The university computer foundation is an introductory course for students to learn computers, and is the basis for learning other computer courses.

## 2. The Status Quo of Computer Basic Education in Colleges and Universities

Computer basic education is one of the important contents of colleges and universities. China has begun to offer information technology courses in primary and secondary schools. The specific implementation plan is as follows: Before the end of 2001, junior high schools in ordinary high schools and large and medium-sized cities in China will set up compulsory courses for information technology. Junior high schools in economically developed areas before the end of 2003 set up compulsory courses for information technology. Prior to 2005, all junior high schools and primary schools in cities and economically developed areas offered compulsory information technology courses; all primary schools popularized information technology courses before 2010. In the teaching activities, the design of teaching content is started from the application, and the case-driven task is applied to the computer basic teaching. To enable students to quickly learn from the application within a limited class time, to solve the confusion of the learning methods of non-computer majors and the confusion of learning applications. At the same time, teaching is carried out in the student group in the form of lectures, which stimulates interest and guides the role of course selection. The trend of reduction in basic courses, the current situation of students' informatization improvement, the speed of rapid update of information technology, and the higher requirements of society for college students' computer application. In today's Internet age, information is updated every second, and the same arguments in different eras, different people may have different understandings. Therefore, if there is a lack of communication, or if communication is not enough, it is not conducive to students' deep understanding and mastery of knowledge.

Statistics show that the research on computer basic education teaching in colleges and universities shows an obvious trend of increasing with time, as shown in Figure 1.

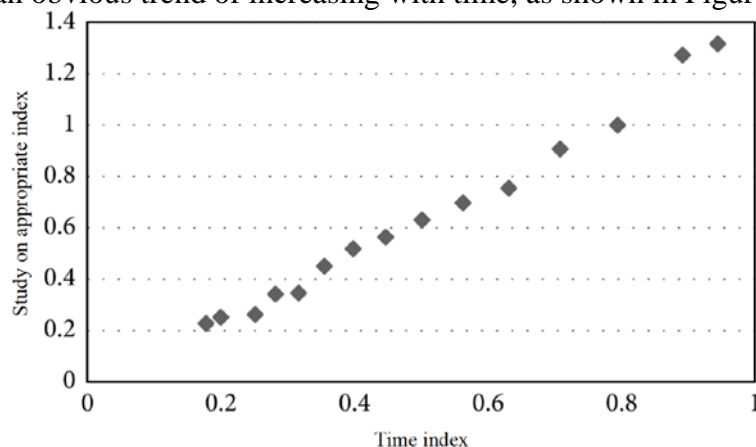


Fig.1. Quantitative Map of Literature in Recent Years

Teachers are the main teaching methods, while students are the main audience. Most students have less opportunities to participate in the teaching process. In traditional teaching methods, teachers and students usually communicate after class through mobile phones, e-mail, homework and other channels. Communication is usually one-to-one. Teaching reform is a very broad concept. From the content of the reform, any measures to change the existing curriculum, teaching content, teaching methods, teaching modes and assessment methods are all reforms. The content of information technology course includes computer basic knowledge and basic operation, operating system knowledge, multimedia application, word table processing, network application, simple web

page design and so on. From the main point of view, it can be a school, a region, a kind of university or the whole university system. With the strong support of the Internet and communication technology, students can query the knowledge related to computer education at any time, and they can explore and question new technologies at any time. The emergence of the Internet has made this all so simple. The foundation of computer application is mainly applied to liberal arts majors. It mainly learns some preliminary knowledge of computers and the initial use of computers, such as word processing, spreadsheets, and the use of some off-the-shelf application software. Then, in this form, if the teacher does not change the original teaching method, it will not be able to adapt to the learning needs of the students in the new environment.

Computer basic education not only teaches students basic skills, but also cultivates the quality of students so that students can easily cope with the challenges of the information revolution. Even in the mastery of basic skills, the curriculum content of colleges and universities is not enough. However, in the theoretical expression, some places still need to be discussed. If the level is suitable for the profession, it is not proper or comprehensive. In contrast, in the "grading teaching", the grading requirements are clear and suitable for operation. Most of the operation of the system on the data is realized by the stored procedure, and the database needs to be operated directly. Therefore, the connection-oriented data access method is mainly used, but for some modules that need to display records repeatedly, the non-connection-oriented method is used, and the data is temporarily stored in the local cache to facilitate multiple reading. The speed of computer technology is so fast that it is impossible to finish everything in primary and secondary schools. In addition, focusing on the foundation is a comprehensive training, and the university is to lay a person's future professional place, so it is impossible to require too much professional knowledge in primary and secondary schools, which should be strengthened in the university. Although this method is more targeted, it is not easy to grasp the overall learning situation of students, and lacks the link of discussion and questioning.

According to the different needs of liberal arts, science and engineering, we can choose the appropriate modules for teaching. Table 1 shows the knowledge modules that the students of science and engineering and liberal arts need to master respectively.

Table 1 Course knowledge structure of students majoring in science and engineering and liberal arts

Science and Engineering	Class hour	Arts	Class hour
Basic knowledge of computer	4	Basic knowledge of computer	3
Operating system	4	Operating system	3
Office software	8	Office software	10
Office Software Computer Network	4	Office Software Computer Network	4
Foundation of Web Design	3	Foundation of Web Design	4
Multimedia Technology Foundation	3	Multimedia Technology Foundation	3
Base of database system	3	Base of database system	2
Foundation of Programming	3	Common Tool Software	3

### 3. The Architecture of Computer Basic Education System in Colleges and Universities Based on B/S

Because in the assistant teaching system, a large amount of teaching information is centralized stored on the server, the processing of information is mainly carried out on the server side, and the user side of students or teachers is mainly some browsing and querying operations. B/S-based three-tier architecture design This system uses Web-based three-tier B/S (Browser/Server)

architecture. The three-tier B/S structure is centered on accessing WEB database, and Http is the transmission protocol. The client accesses the WEB server and the background database connected with it through the browser. DAL is mainly represented as data access layer class, which mainly completes the operation of adding, deleting, modifying and querying specified tables in the database, and also provides the method of judging whether the specified records exist and obtaining the specified conditions of the record list or data set. Therefore, the auxiliary teaching system based on the campus network generally adopts a three-layer B/S structure. Since there are multiple classes in the DAL, each method of each class involves the operation of the database, and the process of operating the database is very similar. To simplify the operation, you can also use the SQL helper class provided by Microsoft. For example, in the teaching of the "Basic Computer and Information Technology Application" course, we emphasize the use of case teaching as a driving force to directly guide and tell students what they can do and how to do it, which improves students' enthusiasm and initiative. Sex. The three-layer B/S structure is improved on the basis of two-layer C/S structure data access logic and application logic, that is, divided into presentation layer, business logic layer and data layer.

The whole system includes three parts: user interface layer, business logic layer and data layer. User interface layer is used to display and collect information on the client side. Strengthen the practice link. For the courses with strong applicability, at the end of the course, we should arrange comprehensive large homework, which can also be combined with students' own specialty, through the way of curriculum design. Make the scattered knowledge of the students string together and apply the computer knowledge to the specialty. In recent years, due to the increasing number of families with computers and the gradual opening of information technology courses in primary and secondary schools, the computer level of college students varies greatly: some students have a very high level of computer before entering school, and some students are almost zero. In fact, this problem also existed in the past, but now it is becoming more and more prominent. It must be noted that stratified teaching is a necessary measure to ensure and improve the quality of teaching in the case of student level differences. "Class stratification" is more thorough and effective than "in-class stratification". The implementation of the business logic layer is also implemented in the form of a class library. At the same time, the Model entity class library and the DAL class library are referenced, and the corresponding namespace is referenced in the file. The business logic layer runs on the web server, performs user requests and establishes contact with the back-end database. The data layer implements the definition, retrieval, and management of data and responds to data requests from the business logic layer.

#### **4. Conclusion**

The B/S-based university computer-based auxiliary teaching system has brought a new form of teaching to computer-based teaching. Because it is not limited by time and place, it can share rich teaching resources to meet the needs of personalized learning, and has played a good supporting role in classroom teaching. The three-tier architecture has become the mainstream of the current development architecture with the advantages of decentralized attention, loose coupling, logical multiplexing and standard definition, which is fully reflected in the development of the operation management system. Specific teaching objectives, teaching objects, and continuous updating of teaching content as the information society changes require us to study and discuss educational theories, teaching organizations, teaching methods, and teaching methods. Therefore, the reduction of class hours has been the practice of most schools, and the number of "taking exams instead of teaching" universities is increasing, and the concept of "canceling courses" is also endless. In the process of exploration, there will be other problems, which are inevitable. The key is that we should learn to use the Internet as a powerful tool to effectively solve the problems in teaching, so that the Internet can better serve modern education. This is our ultimate goal and the focus we will always explore in the future. It is suggested that each school should work out a graded or classified teaching plan for basic computer education, which is suitable for the characteristics of the school, so as to gradually standardize basic computer education.

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