

Original Research Article

## The Application of Computer Science and Technology in the Context of Big Data

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**Abstract:** With the continuous development of science and technology in our country, computer science and technology have made phased progress, and have affected all aspects of people's production and life. However, in the current teaching of computer science and technology majors in Chinese universities, both in terms of teaching strategies and concepts, it is difficult to meet the teaching needs in the context of big data, and it is difficult to improve teaching effectiveness. This article focuses on the current application status of computer science and technology, and proposes the direction of teaching reform in the field of computer science and technology under the background, aiming to promote the further development of computer science and technology in China.

**Keywords:** Big Data; Computer science and technology; Application; Teaching strategies

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### 1. Analysis of the Current Situation of Computer Science and Technology Applications under the Background of Big Data

#### 1.1. Promote People's Production and Life to Be More Convenient

Computer science and technology are widely applied in all aspects of production and life, thereby increasing the frequency of use of various electronic products. Various electronic products such as mobile phones and tablets play an important role in people's daily lives, greatly facilitating people's production and life. In the context of big data, electronic products have freed themselves from the constraints of high-end products and become common electronic products in people's daily lives. Electronic products have become an integral part of people's daily lives and work, closely related to their daily lives, leisure, and work. The use of electronic products by students can improve learning efficiency, achieve cross spatial communication with teachers, enrich teaching resources, and also improve teaching quality. Electronic products have been widely used in various aspects of life. With their own convenience and convenience, they have gradually strengthened the public's understanding of computers. Invisibly, people have also recognized the changes that computer technology has made to people's daily lives and work. Their daily life concepts continue to be influenced unconsciously. In order to meet the diverse needs of various industries in society, it is necessary to continuously innovate computer science and technology, and further promote the diversified development of computer science and technology

#### 1.2. Optimized the Collection and Dissemination of Information Data

With the rapid development of information technology, the Internet covers a huge amount of information resources. Effective absorption and utilization of these information has a positive impact on promoting economic development. To improve the efficiency of information processing and collection, it is necessary to develop computer technology as the foundation, continuously improve the ability to collect, analyze, and process

information data, and enhance the efficiency of data utilization. In addition, in the context of big data, it is necessary to effectively identify information and avoid wasting too much time and energy on invalid information. In order to improve the efficiency of data discrimination, it is necessary to promote the further development of computer science and technology. From the perspective of user needs, it is necessary to improve the efficiency of computer data discrimination and thus enhance the quality of computer services. Promote information resources to better meet the needs of the public, promote electronic technology to better serve the general public, and create a more convenient information-based living environment for the public.

## **2. Implementation Strategies for Teaching Computer Science and Technology in the Context of Big Data**

### **2.1. Create a Big Data Course Group**

In the perspective of big data, there is a close connection between the computing profession and various professions. Effective integration with various professions has led to the emergence of new research fields, while also highlighting the diversified characteristics of big data. Expanding the scope of research in different fields can cultivate high-quality professional talents and better meet the needs of social development for talents. In this regard, universities need to create a big data oriented course group based on big data. This course group mainly covers basic, professional, and practical courses. The basic courses aim to deepen students' theoretical knowledge in computer science, and are the foundation for mastering computer courses. They mainly include basic courses such as mathematics and theoretical knowledge in computer science. By studying basic courses, students can not only enhance their professional knowledge, but also effectively cultivate their thinking abilities, laying a solid foundation for their future studies in computer science and technology courses.

The development of professional courses is based on basic courses, aiming to guide students to deepen their knowledge, mainly covering aspects such as data collection, storage, analysis, mining, and mathematical security. Compared to previous data patterns, big data has more vulnerabilities and is more vulnerable to attacks. So, in the study of computer science and technology, students need to engage in targeted learning, which can help them master various processes and independently solve various problems. The main purpose of conducting practical courses is to cultivate students' innovation and practical operation abilities. Through specialized training, students can better apply the theoretical knowledge they have learned to practice, so that they can better meet the needs of enterprise positions and social development.

### **2.2. Building a Comprehensive Computer System**

Currently, China's computer science and technology have achieved rapid development and significant breakthroughs. Each university has its own relatively mature and complete computer theory teaching system. However, due to the complexity of the course content and the single teaching method, it is difficult to stimulate students' interest in learning, which in turn affects their learning effectiveness. If this system is consistently used to guide teaching, it is difficult to motivate students to participate in learning. Therefore, universities must build a sound computer system, strengthen the organic integration of theoretical knowledge and practical skills, stimulate students' desire to explore the field of computer science, and enable them to fully engage in classroom learning. Universities need to combine their own educational characteristics and create a curriculum system that is suitable for their own development needs. It should be based on the interests and preferences of students,

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according to the principle of individualized teaching, scientifically formulate teaching plans, and use group cooperation teaching to guide students to actively explore and improve teaching effectiveness. In the process of teaching computer science and technology, teachers should combine the learning needs of students, appropriately challenge the teaching system, make it better serve students, and promote students to enhance their theoretical knowledge of computer while achieving synchronous improvement of practical skills.

### **2.3. Strengthening Practical Teaching**

In the context of big data, strengthening practical teaching in computer science and technology courses not only helps students apply their learned knowledge to solve practical problems, but also cultivates their thinking abilities. With the continuous development of science and technology, China has put forward higher requirements for the thinking ability of computer professionals. In this regard, universities must strengthen their emphasis on practical teaching. Teachers adhere to the principle of “student-centered”, ignite students' enthusiasm for learning, and strengthen their team awareness through group cooperation, project-based learning, and other methods. Through cooperation, communication, and practice, they mobilize students' subjective initiative in learning. In addition, universities also need to deepen cooperation between schools and enterprises, provide students with more internship opportunities, strengthen their practical abilities, and promote their core competitive advantages in future employment. Not only that, universities should also expand the internship channels for students. Usually, graduation internships are arranged in the eighth week of the academic year, which helps students become more familiar with various practical units. Universities can also hold various practical competitions and formulate relevant incentive policies to encourage students to actively participate. For students who have performed well in competitions, such as creating high-quality databases or creating excellent websites, universities should give high praise and encourage them through spiritual and material incentives. For students who are perfunctory, the school should criticize them and use this as a lesson to encourage them to develop good study habits.

### **2.4. Update Teachers' Teaching Concepts**

In the perspective of big data, teachers need to adapt to the needs of the times, constantly update their teaching concepts, and avoid the impact of outdated teaching concepts on the better development of students. In the process of teaching computer science and technology, university teachers always adhere to the teaching philosophy of “student-centered”, fully combine the learning needs of students, and constantly update their teaching concepts. When designing teaching content, it is necessary to start from the learning ability and actual learning situation of students, comprehensively consider their interests and preferences, and develop targeted teaching strategies to improve teaching quality. At the same time, teachers should actively communicate and exchange ideas with students, constantly narrowing the distance between them, and continuously improving their teaching abilities through this approach. In addition, teachers also cultivate students' big data thinking to better adapt to the needs of social development. In building a teaching system, teachers should strengthen the use of big data, leverage the advantages of big data collection, analysis, and integration, comprehensively understand the learning effectiveness of students, and analyze their learning performance from multiple dimensions. From this, it can be seen that universities can leverage the advantages of big data to build a scientifically sound teaching system, improve teaching quality, and cultivate more high-quality computer talents.

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