Exploration and Practice of Computer Subject Knowledge Visualization Teaching Based on Text Big Data

Min Chen

Shandong Vocational and Technical College of Labor, Jinan 250000, China.

Abstract: Visualized teaching is an important trend in the development of computer science teaching, and its presence and authenticity make it the key to the expansion of educational dimensions. Under the influence of text big data technology, the visual teaching of computer subject knowledge has a new development direction and new possibilities. Computer teaching needs to introduce text big data to innovate the dynamic teaching mode, enhance the teaching content, broaden the teaching dimension, and achieve the goal of high-quality, high-tech talent training.

Keywords: Text Big Data; Computer; Subject Knowledge; Visual Teaching

Preface

The rapid development of modern data technology has enabled the original knowledge system to have a visual presentation method. The application of technical means such as aggregation association and deep mining in big data analysis has enabled a single knowledge text to have a more comprehensive and three-dimensional display method, which is very important for education and teaching work. It is of great significance for continuous innovation and continuous innovation.

1. Characteristics of teaching application of modern text big data visualization

With the rapid development of modern network information technology, all the knowledge originally existing and single-dimensional text and text can form a new form of visualization in data mining and data management. Two-dimensional teaching tools such as mind maps, cognitive maps, and knowledge maps, as well as three-dimensional technologies such as holographic projection and virtual augmented reality technology, which have been used in education and teaching in recent years, are important technologies for transforming and upgrading original single-dimensional knowledge. Applying it to teaching can bring learners a friendly, realistic and on-the-spot good experience [1]. From the perspective of the visual teaching construction of computer science, the teaching upgrade under the application of text big data has the following characteristics.

1.1 Visual teaching further enriches subject knowledge

From the application form of traditional teaching resources and carriers, it is not difficult to see that traditional subject knowledge teaching has more textual resources such as textbooks and literature, and is more severely restricted by channels in teaching. With the development of technology, visual teaching enriches the original knowledge structure system at the content level. First of all, in the time dimension, visual knowledge structure teaching shows the development process of knowledge more clearly and comprehensively, helping students to more intuitively Understand the causes and consequences of the development of the current knowledge system, and guide students to complete a more visual understanding of the theory of knowledge; secondly, in the spatial dimension, the multi-modal teaching characteristics of big data technology make the entire knowledge system richer and fuller The three-dimensional picture of the original plane knowledge has been added in more details in the process of three-dimensionalization, and the breadth of knowledge that students are exposed to has been further expanded.

1.2 Visualized teaching realizes the teaching purpose of knowledge innovation

On the basis of continuous knowledge dissemination, subject teaching will also carry out knowledge innovation to drive students to form innovative thinking. The core of the application of text big data technology lies in the dynamic prediction of the development of things, forming new knowledge concepts in the old knowledge framework, and promoting the continuous development of knowledge. The visual teaching system constructed by the application of text big data also inherits the spirit and characteristics of continuous innovation relying on technology prediction in the technical field, and finally realizes the innovation of knowledge system through continuous knowledge integration and knowledge sharing [2]. For example, the scientific knowledge map used in teaching completes the display of complex knowledge systems in specific knowledge fields, and at the same time makes judgments on the frontiers of technology and the future direction of technological development. For students, they can be more clear, Objectively understand the history and stage of knowledge and technology development, and form innovation momentum.

2. Construction and implementation of visual teaching of computer science under text big data

2.1 Constructing diversified teaching forms of text big data visualization

As an innovative teaching form, visual teaching form, relying on text big data technology, can form a teaching technology framework with different fields and different characteristics. For the visual teaching of computer science, teachers can choose a specific teaching form according to the specific teaching situation and teaching needs, and give full play to the core advantages of visual teaching. For example, teachers can choose visual teaching methods such as the information science knowledge system, and build a big data system by selecting specific intelligence concepts as the core of the text. In the intelligence concept, a visual knowledge framework can be built by using the co-occurrence graph. In the intelligence process, the time zone graph can be used to explain the computer-related regular knowledge points in detail, helping students in the core concept - divergent concept - development In the conceptual text framework, a more systematic and comprehensive computer subject knowledge cognition can be formed, and the ability to understand the knowledge system can be strengthened [3]; From the perspective of teaching with special subject knowledge direction. The special teaching mainly draws and constructs the co-occurrence map through the key node information, and visualizes the evolution and development trend of the special information through the keywords involved in the special information. Among them, the presentation of the dynamic development characteristics of computer science knowledge can help students quickly understand the birth background, formation process, development and practical application of technological means, help students clarify the relationship between technological development and historical stages, social production and life, and form Technological developmental thinking, thereby recognizing the future trends of technological development. Through different text big data technologies, teachers can build visual teaching forms of different dimensions to help students understand key subject knowledge from different perspectives.

2.2 Technological upgrade of visual teaching of computer science

The key and core of visual teaching technology is the final visual presentation of text big data. Whether the technology platform meets the current teaching needs, whether it can meet the needs of comprehensive presentation, real-time interaction, and accurate push has become the key to teaching technology. Teachers should carefully select visual software tools when organizing and developing the visual teaching of subject knowledge of text big data, and select high-quality software tools that meet the needs of students and actual teaching requirements [4]. For example, in recent years, the simulation software packet tracer, which has been widely used in education and teaching, is a visual simulation software with high application

value. The software is developed by Cisco and its main function is to provide learning assistance for learners. In the study of computer majors, the software can provide a network simulation environment for learners to design, configure, and troubleshoot network failures. Users can directly use the drag-and-drop method to establish network topology on the software's graphical user interface, and can provide detailed processing procedures of data packets traveling in the network, and observe the real-time operation of the network. Beginners can use it to learn IOS configuration and exercise troubleshooting capabilities. We start from actual teaching, combine students' interest characteristics, make full use of the advantages of PT in teaching methods, extract some basic knowledge from teaching content, and carefully organize the teaching process, so as to deepen students' images, trigger students' thinking, and improve teaching effects. the goal of. In the visual teaching of computer subject knowledge of text big data, teachers can choose this software to organize teaching work.

2.3 Optimizing the evaluation mechanism of visual teaching

The visual teaching of computer subject knowledge under the application of text big data breaks through the static teaching organization of single-dimensional text content used in traditional teaching methods. Under the blessing of visualization, the teaching of computer science makes the original abstract knowledge concepts and technological trends appear in front of students in a more intuitive and real way. In addition to continuously consolidating basic knowledge and forming technical cognition, students are learning. More importantly, it has laid the foundation of technical thinking and formed the internal driving force of technological innovation [5]. Correspondingly, the traditional evaluation model that only takes basic technical knowledge as the evaluation standard is naturally no longer suitable for the cultivation of technical talents under the current visual teaching. Under the guidance of visual teaching, students begin to form innovative thinking, develop a sense of self-responsibility for technological innovation, and hope to invest more practice to improve their technical ability and literacy [6]. Therefore, to design the evaluation model, it is necessary to rely on the characteristics of visual teaching, from the perspective of students' dynamic changes and comprehensive performance, introduce a formative dynamic evaluation mechanism, carry out stage tracking and important node information recording, and grasp the students' ability growth and thinking maturity. Details, to achieve a comprehensive evaluation of students, so that evaluation can promote students to continuously innovate and improve technical literacy [7].

Conclusion

From the perspective of text big data, it can be seen that the text interpretation and text deconstruction completed by text big data can realize the rearrangement of existing knowledge, and finally form a new path for knowledge innovation. For the construction of the teaching system of computer science, we can introduce text big data technology to build a visual teaching system to achieve a comprehensive improvement of teaching quality.

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