Research on the Construction of Three Dimensional Learning Resources of Information Technology Curriculum in Ethnic Areas

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Abstract: the teaching of information technology course is of great significance to improve citizens' information literacy. However, schools in ethnic areas have many deficiencies in terms of teachers, teaching ideas and concepts, software and hardware conditions. In this context, this paper studies the construction of three-dimensional teaching resources of information technology curriculum in ethnic areas. Firstly, it summarizes the concept and characteristics of three-dimensional teaching resources; secondly, it introduces the current situation of information technology curriculum teaching resources in ethnic areas; secondly, it introduces the current situation of information technology curriculum teaching resources in ethnic areas. This paper discusses some problems that should be paid attention to in the construction and application of three-dimensional teaching resources of information technology curriculum in ethnic areas, so as to provide beneficial reference for the reform and resource construction of information technology curriculum in primary and secondary schools in ethnic areas and other areas.

Keywords: Three Dimensional Learning Resources, Information Technology Curriculum, Ethnic Areas

1. Introduction
Since this century, information technology has been developing rapidly in our country, which has penetrated into all aspects of our life and work, and has a great impact on the development of all walks of life. In 2018, the Ministry of Education issued the "Educational informatization 2.0 action plan", the purpose of which is to reform the traditional ideas, concepts and modes by means of informatization, improve the quality and efficiency of education, and realize the leapfrog development of China's education in the new period. "Educational informatization" puts forward clear requirements for the teaching of information technology courses in middle schools. The quality of information technology course teaching in middle schools is of great significance to the realization of the goal of educational informatization. However, as an underdeveloped area, there is a big gap between the minority areas and the developed areas in terms of teachers, teaching ideas and concepts, software and hardware
conditions. Therefore, in this context, the construction of three-dimensional teaching resources of information technology curriculum in ethnic areas is studied to cultivate students' autonomous learning ability, explore teaching and learning integrated with information technology, and promote curriculum teaching reform Positive practical significance.

2. Three dimensional teaching resources and their characteristics

2.1. Three dimensional teaching resources
With the continuous development of Education Science and technology, teaching resource environment is increasingly becoming an important part of curriculum teaching. A good curriculum teaching resource environment can play the role of various elements of learning environment, coordinate and integrate various elements to form an organic whole, so as to promote learners' autonomous, in-depth and meaningful learning.[1-2]

Compared with the traditional single paper teaching resources, three-dimensional teaching resources are new teaching resources. They are three in one teaching resources including paper resources, digital resources and teaching websites. The three-dimensional teaching resources based on network technology have the characteristics of openness, cooperation, sharing and communication, which can realize anyone, any place, study and want to learn He resource, therefore, is called "three any" (anyone, anywhere, anything) ", so it greatly expands the time and space of traditional learning activities. The emergence of three-dimensional teaching resources is the change of traditional teaching mode and concept. Its emergence and use make the concept of "learner centered autonomous learning, inquiry learning, collaborative learning, differentiated teaching" in modern education theory can be realized. The three-dimensional nature of the three-dimensional teaching resources is embodied in that it is an organic whole closely combined with the teaching process, teaching resources and teaching evaluation, that is, the three-dimensional teaching space combining the teaching process, teaching resources and teaching evaluation is realized.

2.2. Characteristics of three dimensional teaching resources
Compared with the traditional teaching resources, three-dimensional teaching resources have a great difference in the presentation and display of knowledge. It can realize various forms of knowledge presentation, such as text, image, video, audio, animation and so on, which is conducive to stimulate learning interest and achieve meaningful learning. Secondly, the three-dimensional teaching resources can realize a variety of interactive ways: teacher-student interaction, student-student interaction The traditional resources are difficult to realize, such as human-computer interaction, real-time interaction,
non real-time interaction, and so on. Moreover, the organization of knowledge in three-dimensional teaching resources is non-linear. The formation of this organizational structure can realize the arbitrary jump between knowledge points, which is conducive to the establishment of logical connection between discrete knowledge and the implementation of "self-paced principle" in learning activities. On the other hand, compared with the traditional teaching resources, three-dimensional teaching resources have incomparable openness and flexibility. Teaching resources can be oriented to all learners, learning activities are no longer limited to specific groups, specific space and time, and excellent teaching resources can be quickly shared by all learners.

3. Current situation of teaching resources of information technology in ethnic minority areas

Due to historical and geographic reasons, the minority areas in China are usually underdeveloped areas, where the economy, culture, education and other aspects are relatively backward. There are problems in the information technology courses in the minority areas, such as weak teachers, outdated teaching concepts and methods, simple teaching equipment, etc. In order to promote the development of education in the minority areas and realize the goal of informationization to promote the modernization of education. Since the beginning of this century, the State has invested a large amount of resources in the construction of information infrastructure in primary and secondary schools. With the help of the construction of network infrastructure, the State hopes to transfer advanced educational concepts and resources to ethnic minority areas, make use of the open, shared and interactive features of digital educational resources, alleviate the shortage of high-quality educational resources, and promote the reform and development of education in ethnic minority areas. With the sustained investment of nearly 20 State institutes in educational informationization, for example, through the construction of projects such as "three-way, two-platform", the level of information-based hardware in schools at all levels has been greatly improved, the Internet has reached all schools, the use of computers is more popular, the information technology courses of students at all levels are also carried out normally as required, and the information technology capabilities of teachers are also Gradually improve.

How to construct and use the three-dimensional teaching resources of information technology course in minority areas? I have made a survey taking Guizhou and Guizhou as an example. The research object is five schools in the urban area of Guizhou and six primary and secondary schools in the rural areas of towns and towns. There are four middle schools and seven primary schools. Through the research, there are three sources of teaching resources of information technology course in primary and secondary schools in minority areas:

A. It is a repository of teaching materials provided by the manufacturer when purchasing hardware.

B. Some of the resources downloaded or processed by the teaching teachers from the Internet are primary, discrete, loose, unsystematic, not well-targeted, and cannot meet the requirements of teachers and students for teaching resources.

C. The network course teaching resource platforms constructed by the state and local authorities, such as: the public platform of educational resources constructed by the national and local education departments; the teaching resource pool of Seevo Company; the subject network, etc. However, the amount of information technology course education resources on these platforms is small, mostly in the language, number and foreign courses, and a small amount of information technology course resources, due to elementary and junior secondary education. The material is not unified, and the versions of textbooks in different provinces are different. As a result, the teaching content does not correspond to the local textbooks and is not suitable for the actual needs of local teaching.
Table 1. Information technology course teaching resources construction and application questionnaire.

Based on the above reasons, the construction and use of information technology course teaching resources in ethnic minority areas are unsatisfactory, and the backward status of information technology course teaching in ethnic minority areas is not only related to the above reasons, but also to the inadequate construction and application of three-dimensional course teaching resources. Constructing and making good use of three-dimensional course teaching resources of information technology can not only improve citizens’ information literacy. It is also of positive practical significance to promote the reform of information technology course in ethnic minority areas and further promote the informationization of education in this area.

4. Strategies for constructing stereoscopic teaching resources of information technology course in ethnic minority areas

The teaching of information technology course in ethnic minority areas has positive practical significance for improving information literacy and training citizens to have the basic ability of information recognition, processing, processing, transmission and creation in the information society. As mentioned above, there are still many gaps in the teaching of information technology courses in ethnic minority areas compared with those in developed areas. How to promote the teaching
of information technology courses in ethnic minority areas is the author's opinion that building and using three-dimensional teaching resources, giving full play to the advantages of information technology teaching resources, reforming traditional teaching modes and having a positive effect on the teaching reform of information technology courses in ethnic minority areas.

How do primary and secondary schools in ethnic minority areas construct three-dimensional curriculum resources? The author thinks the following issues should be paid attention to:

4.1. Make full use of existing resources to build a three-dimensional and efficient teaching space to improve the efficiency of resource use in accordance With the actual teaching needs of the course. In the construction of three-dimensional information technology resources, primary and secondary schools in minority areas should make full use of the existing teaching resources and integrate them into the three-dimensional resource platform, so as to speed up the construction, and to achieve the full coverage of three-dimensional teaching resources on teaching activities, the resource system should also have: check-in, interactive discussion, project collaboration, Teaching document library, progress The functions of management, simulation exercises, teaching data statistics, evaluation and analysis reflect the advantages of the three-dimensional course platform, and create a three-dimensional and efficient teaching space for the training of students' self-study and collaborative learning ability.

4.2. Reduce the granularity of knowledge unit to reflect the principle of self-paced learning The existing network learning resources mostly organize and present knowledge in chapters. The granularity of knowledge units in chapters is still large, which is not conducive to different levels of learners'mastery of knowledge. It is suggested to further subdivide the chapters' knowledge units into knowledge points. Each knowledge point describes a problem, such as: computer network chapter, which can be split up for several knowledge points such as the concept of computer network, the classification of computer network and the function of computer network, the reduction of knowledge granularity reflects the "self-paced learning principle" in Skinner's procedural teaching method, which can reduce the difficulty of knowledge and help learners to master knowledge.

4.3. Highlight resource interactivity, hierarchy and resource building block combination mode to facilitate knowledge systematization. Interactivity largely determines the attractiveness of teaching resources to learners Traditional teaching resources are classified according to the types of resource materials. The level of interaction is low, which is not conducive to the understanding and internalization of knowledge[5], and affects the establishment of an autonomous learning environment. The three-dimensional teaching resources of information technology courses can be organized according to different levels of difficulty in the presentation of content. Like the same teaching content, they can be organized hierarchically according to the four levels of "understanding, understanding, mastery and application". This is helpful for learners to choose different levels of difficulty according to their learning purpose, and at the same time different levels of difficulty and application. Secondary ways of knowledge presentation make the interactive ways and depth of resources diversified, which is conducive to the learner's mastery and internalization of knowledge, and stimulate the enthusiasm of self-learning, and improve the efficiency of teaching resources.

4.4. Enhance the professional competence of course teachers to lay a talent foundation for the construction and application of three-dimensional resources Insufficient professional teachers is one of the short boards in the teaching of information technology courses in ethnic minority areas. Therefore, to strengthen the construction of course teachers, key teachers must carry out necessary further studies and training to undertake the planning, construction and management tasks of the three-dimensional resource platform. At the same time, teachers of other
courses should actively participate in the construction, management and use of resources, continuously feedback the existing bugs in the practical application process of stereoscopic teaching resources, so as to put forward valuable suggestions for the improvement, improvement and evolution of resource platforms. On the other hand, the course teachers actively participate in the construction, management and improvement of the three-dimensional resource platform, and also play a positive role in the promotion of their own professional ability, which is conducive to the further development of the school “teaching and learning integrated with information technology”.

4.5. The three-dimensional course learning resources should be open and participatory, so that resource users can actively participate in the renewal of resources, and promote the continuous generation and evolution of resources

Stereoscopic course resources are usually preset. Without the evolution and update of resources, their adaptability to learning activities and attractiveness to learners will gradually decrease over time. This is not good for teaching and learners. The update and evolution of stereoscopic learning resources cannot not only depend on resource builders, managers, learners and users. The active participation of course teachers is crucial to the evolution and update of resources. In the process of learning, students and course teachers are more familiar with and understand the resources. Their evaluation and improvement opinions are important references for the evolution and update of resources. Therefore, in the process of building stereoscopic resources, they should provide evaluation mechanism for system modules and functions. The evaluation can be carried out from practical, interesting, perceptive, contextual and other aspects to enable learners, Users actively participate in the evaluation, so as to select high-quality resources and find the basis for eliminating poor-quality resources[5]. On the other hand, in addition to the evaluation mechanism, the update and evolution of resources can further allow learners and users to annotate or edit resources. The annotation content contains their views on resources and suggestions for improvement. The editing function can be used on textual materials. The editing function can be achieved by referring to the online document collaborative editing function, through the comments of learners and users on resources. Annotations and collaborative editing help to update and evolve resources, so as to promote the continuous development of teaching.

5. Summary

"Educational Informationization" puts forward clear requirements for the teaching of information technology courses in middle schools. The teaching of information technology courses in middle schools is of great significance to the realization of the goal of educational informationization. However, there are many deficiencies in teaching staff, teaching ideas and concepts, software and hardware conditions in ethnic minority areas. Under this background, this paper studies the construction of three-dimensional teaching resources of information technology courses in ethnic minority areas. First, it summarizes the concept and characteristics of three-dimensional teaching resources; second, it introduces the current situation of information technology teaching resources in ethnic minority areas; and then it discusses the construction of three-dimensional teaching resources of information technology courses in ethnic minority areas. The construction and application of three-dimensional teaching resources of information technology courses in ethnic minority areas should pay attention to a number of issues. It will provide useful reference for the reform of information technology courses and the construction of resources in primary and secondary schools in ethnic minority areas and other areas.

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