Research on the Three-Dimensional Construction and Implementation Path of Curriculum from the Perspective of Smart Education

-- Take Market Research Techniques as an Example

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Abstract

The continuous emergence of network information technologies such as cloud computing, big data, excellent online open courses, and golden courses provides a strong technical foundation and support for the construction of intelligent education courses. This paper takes the market research technology course as an example to explore the construction of a systematic teaching mode with complete content, rich forms and interactive friendly courses from the perspective of smart education. This model uses new technical means and teaching methods to achieve different levels of teaching requirements, closely combines teachers and students, theory and practice, teaching and assessment, this paper proposes that the construction content of the model includes three-dimensional intelligent learning environment, teaching resources, teaching forms, etc., and puts forward the implementation path and method.

Keywords

Smart education; Three-dimensions curriculum; Path; Market research techniques.

1. Background

When information technology is deeply embedded in smart education, it not only greatly improves the level of intelligence in the teaching field, optimizes the existing teaching environment, opens up the interaction mode of resources, but also expands the space and time for students' learning, realizes the extension of classroom teaching space to digital space, extends teaching time from classroom to pre-class and after-class, and effectively integrates online and offline learning, injecting strong vitality and impetus into the construction of curriculum informatization. At present, the emergence of network information technology such as cloud computing, big data, excellent online open courses, and golden courses has provided a strong technical foundation and support for the construction of intelligent education courses. From the existing research literature, most of the research related to smart education focuses on tracing the basic concepts, mining smart teaching content, extracting the characteristics of smart education, etc., while research on how to integrate with smart education system and specific curriculum construction practice based on informatization and new technologies is extremely rare.

Based on the perspective of smart education, systematically sort out the ideas of curriculum construction and practice, deconstruct the system and technology of professional core curriculum construction, clarify the internal context of system and technology, and construct a three-dimensional teaching mode of professional core courses, which has become the main motivation for this study.

This paper takes the market research technology course as an example to discuss the establishment of a three-dimensional teaching mode of the curriculum from the perspective of

smart education. The essence of the three-dimensional curriculum teaching mode is to use new technical means and teaching methods to achieve different levels of teaching requirements for students with different needs. Teachers and students, theory and practice, teaching and assessment are closely combined to build a teaching mode with a complete content, rich form and interactive friendly curriculum system.

2. The Significance of Three-dimensional Curriculum Construction

2.1. Jointly build and share high-quality teaching resources

The construction of three-dimensional curriculum follows the basic principles of school-enterprise cooperation, school-school co-construction and sharing, and use while building, emphasize the openness of the construction and use process. Realizing resource sharing among society, industry, enterprises and schools can provide assistance to some vocational colleges or enterprises in need with weak curriculum construction foundations.

At present, almost all marketing majors in various colleges and universities have the construction of "Market Research Techniques" or similar courses. The marketing major of our college is a characteristic major and leading major in the 13th Five-Year Plan of Zhejiang Province, and the research group strives to build the course "Market Research Technology" into a core course of higher vocational marketing with distinctive characteristics, and regards it as one of the important achievements of professional construction. Any higher vocational college is welcome to participate in the course construction. Fraternal colleges can call existing three-dimensional teaching resources at any time according to the needs of teaching, which can not only avoid the repetitive construction of teaching resources, realize resource sharing, facilitate course construction, but also help the construction of this course to sprint the construction of national online open courses.

2.2. Acting as go between for "production-education integration"

In the process of curriculum construction, deep integration, mutual benefit, cooperation and sharing between schools and enterprises can be realized, and the integration of industry and education can be implemented. On the one hand, the actual investigation projects of enterprises and society can be introduced into the course teaching practice, on the other hand, the course teaching results can feed back to the actual needs of enterprises, and the survey results are used as reference for enterprise decision-making. For enterprises, industries and society, the results of three-dimensional construction of courses and various resources can help enterprise employees and social personnel to train skills (such as market research and data analysis), and strengthen continuing education.

2.3. Support a variety of teaching mode applications

Based on the concept of smart education, with the help of network development and new curriculum teaching concepts, the three-dimensional curriculum construction has developed practical, open, advanced, applied and modular three-dimensional course resources, supporting online and distance learning that breaks the limitations of time and space, which can not only support online and offline learning, but also support different levels and types of student learning form modules.

The application of curriculum construction results can break the limitations of learning time and space, free students from the solidified classroom learning mode, and students can flexibly choose fragmented learning time, and choose different learning content and corresponding teaching resources according to their own needs. It provides resource support and technical support for the lifelong education goal of "everyone can learn, can learn at any time, can learn everywhere, and learn everything". This kind of barrier-free learning at anytime and anywhere is not limited by time and space, cultivates students' habit of autonomous learning, and

enhances the effect of autonomous learning. In the process of classroom teaching, teachers can also use various forms of information teaching means and methods developed by the curriculum to guide students to participate in various classroom activities, which increases the interest, effectiveness and interaction of classroom teaching while enlivening the classroom learning atmosphere.

3. Current Status of Similar Research in China

The curriculum and teaching in the process of education informatization have shown a clear trend of three-dimensional transformation. The simultaneous development of curriculum, teaching materials, teaching and technology has greatly improved the closeness and convenience of the learning process, social interaction and real life. From the perspective of the whole process of curriculum teaching and learning, whether it is the curriculum objectives and values, the curriculum form and resource composition, the learning space and cognitive process, or the concept and method of curriculum learning evaluation, three-dimensional teaching is the inevitable result of practical exploration and development. In recent years, there has been a process of curriculum reform in some subject areas, such as: Chen Lin (2013) Research on the Construction of Three-dimensional Learning Resources in College Courses——A Perspective on Promoting the Transformation of Learning Styles、Huang Hong and Wei Chen (2016) Construction of Three-dimensional "Micro-course-MOOC-Flipped Classroom" Teaching Model——Taking "Environmental Assessment" Course for Example、Xing Guanglu and Guan Haibin（2015）Exploration and Research on the "Student-centered" Three-dimensional Assessment and Evaluation Model of Higher Vocational Curriculum, and so on, all of them reflect the current research and exploration curriculum construction of "three-dimensional" reform and development.

From the existing research and practice, the current understanding of the concept of "three-dimensional course" is not uniform. This is manifested above all in the fact that not only is practice or research relatively weak, but limited research and practice also exhibits the cognitively isolated character of the course process. Some of these studies and practices emphasize the three-dimensional structure of the textbook system and content organization, some highlight the three-dimensional connection between theory and practice in the teaching process, and some pay attention to the various characteristics of curriculum professional development. In the current research and practice, there is no systematic understanding and theoretical research on the construction and development of three-dimensional courses. Secondly, under the background of education informatization, consciously carry out the construction and practical exploration of "three-dimensional courses", mainly in the field of undergraduate education. Most of the research and practice belong to the application methods of network information technology in the teaching process, or the process of exploring the course teaching, using different types of "three-dimensional teaching materials" and the teaching plans implemented in the course teaching. In general, the current understanding and practice of the integration of technology and curriculum is still limited to the application level of technology, and there is no unified understanding and rich practice on how to build a three-dimensional curriculum and how to apply it.
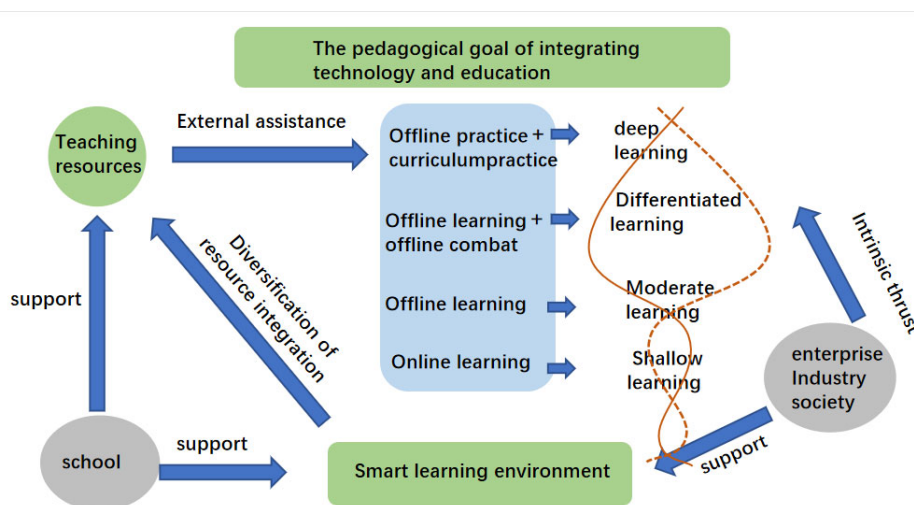
4. Three-dimensional Construction Content of Curriculum From the Perspective of Smart Education

4.1. Three-dimensional construction mode of curriculum

The era of smart education has brought innovation in educational concepts and promoted rapid changes in teaching and learning methods. Teaching and learning are inseparable.

The era of smart education has brought about the innovation of educational concepts, and promoted the transformation of teaching and learning methods in a rapid and irreversible way. The three-dimensional construction of curriculum has become an inevitable choice for the combination of teaching and learning under smart education. The picture of "smarter teaching, more autonomous learning, richer environment and more diversified resources" is the inevitable result of the three-dimensional construction of the curriculum.

Based on relevant classical learning theories such as situational learning theory, constructivist learning theory and deep learning theory, and based on the deep integration of technology and education in the intelligent environment jointly created by technology and education, the three-dimensional construction mode of the Curriculum "Market Research Technology" is shown in Figure 1.

Figure 1. Three-dimensional construction mode of the Curriculum "Market Research Technology"

In the context of smart education, teachers and students are in a smart environment jointly created by technology and education, and the curriculum teaching goal is achieved based on the deep integration of technology and education: with innovative information collection and analysis capabilities. With the external help of teaching resources and the internal impetus of market demand, students can transition and sublimate from shallow learning, medium learning, differentiated learning, and deep learning in a variety of teaching forms, so as to achieve the teaching goals of the course.

4.2. The connotation of curriculum three-dimensional construction

(1) Three-dimensional intelligent learning environment

Schools, society, industries, and enterprises jointly build a smart learning environment, and the teacher team and smart platform are the core of construction. The first solution to the three-dimensional course construction is the construction of teachers team. Teachers should not only build digital resources and build innovative knowledge based on resources, but also design inspiring teaching problems, teaching tasks and practical teaching strategies, cultivate students' higher-order thinking skills such as analysis, comparison, and generalization, also guide students to make full use of resources; Provide guidance, advice and support to students in solving complex problems to promote the achievement of students' advanced learning goals. Secondly, teachers need to continuously consolidate instrumental support in the process of course learning, promote students' in-depth application of technology, and achieve personalized learning experience. It can be said that without the support of a strong teaching team, the three-dimensional construction of the curriculum is a castle in the air.

The development of smart education has provided strong technical guarantee and power support for curriculum construction - smart learning platform. It not only solves the learning resources, online teacher-student communication, learning experience, and situation awareness that smart education should need from the technical level, but also achieves seamless synchronous connection of different spaces and the interconnection of multiple learning, so as to truly achieve multi-form learning that combines online and offline; In addition, we collect the learning data of teachers and students in the learning process in a more comprehensive and extensive way, and use data mining technology and learning analysis technology to assist decision-making, design and implement differentiated teaching, and promote the transition and improvement of learning levels from shallow to deep. At present, "Market Research Technology" relies on the learning platform, including Zhejiang Province Online Open Excellent Course Platform, Superstar Learning and so on.

(2) Three-dimensional teaching resources

The National Vocational Education Professional Teaching Resource Database Construction Manual (2007) clearly states: through the joint construction and sharing of high-quality teaching resources,...... Explore the mechanism of verification, accumulation and transformation of learning outcomes based on resource library applications; Provide resources and services for social students, enhance the social service capacity of vocational education, and provide conditions and guarantees for the formation of a flexible and open lifelong education system and the construction of a learning-oriented society. Teaching resources support and enrich the content, form and approach of student learning.

The construction of resources is not a simple pile of data. It is the guarantee that students can study smoothly. It is an intelligent learning tool for teachers to provide students with rich learning content and forms. Teachers can choose learning content according to teaching needs, help students locate their own learning level and methods, and promote personalized learning customization.

The core of teaching resources is the construction of new form teaching materials, and the new form of "market research technology" teaching material system. Following the path of "investigating job capability requirements→ analyzing typical work tasks→ determining knowledge, quality and ability→ and building a curriculum framework", and taking the workflow of the research enterprise as a reference, in accordance with the professional talent training goals, develop teaching content, and design novel forms of expression, reflect new knowledge, new technologies and new achievements in the discipline industry, support mobile learning, online and offline blended teaching, organically integrate courses and teaching materials. On the basis of the construction of teaching materials, various resources are displayed in a variety of ways through the smart learning platform. It includes courseware material library, video library of micro-lecture, teaching case library, teaching test resource library, teaching examination resource library, teaching training resource library, teaching design resource library, etc.

(3) Three-dimensional teaching form

Based on the construction of three-dimensional teaching resources, teachers can carry out a variety of teaching activities, and students can give full play to their autonomy. A variety of teaching resources support students in choosing multiple learning methods. Students are able to control their learning pace, select learning content, evaluate learning outcomes, diagnose problems in the learning process, and receive personalized guidance and assistance. It makes it possible to evaluate learning activities from all angles and supports further adaptation of the teaching process to better suit students' learning habits. Teachers can choose from flipped classrooms, blended learning and other teaching modes suitable for different levels, different majors, and different types of students, all of which aim to achieve the ultimate teaching goal.

In the model, the process of student learning is a deepening, spiraling process. Focusing on improving students' core professional skills and literacy, generative learning is the guide, and different learning supports are provided according to students' needs, guiding students to transform from primary learning to deep learning.

5. The Implementation Path and Method of Three-dimensional Curriculum from the Perspective of Intelligent Education

5.1. Build a smart teaching team

The construction of smart teaching team is the core element of the three-dimensional construction of curriculum from the perspective of smart education. The smart teaching team needs to fully rely on the smart education environment to provide students with intelligent resources, services and evaluations, and design and carry out teaching activities "smartly". The teacher team needs to reflect the systematic wisdom in the curriculum design, and also need to show the practical wisdom in the curriculum implementation.

5.2. Establish a user-based framework for course building

Define the course structure and clarify the logical starting point of the course. Aiming at information collection and analysis of job ability elements, focus on skill points, decompose and refine teaching objectives, deeply explore course structure development and element resource allocation, sort out logical relationships and contextualize processing and element collection according to the procedures and content of market research work, so as to effectively promote the innovation of curriculum development in system construction, method selection, effect evaluation and other levels. Selectively construct the curriculum structure according to students' learning level, learning objectives, learning requirements, etc.

5.3. Curriculum development

Curriculum development requires e-learning platforms. Build a powerful, content-rich and complete course online learning platform to provide convenient ways for students to personalize learning.

The course development is mainly based on the real investigation work tasks of information collection and analysis positions as the starting point, and the real investigation task process is used as the basis to formulate the objectives, content, sequence and other work of the course. As the carrier of learning, curriculum and teaching are the bridge of communication, cooperation, conversation and exchanges between teachers and students. Teachers can use information technology to design generative courses, provide appropriate teaching content according to students' choices and responses, achieve skill spiral ability improvement, and realize phased and differentiated learning goals.

5.4. Comparison method of course teaching mode effect

Higher vocational students generally have a weak learning foundation, weak learning initiative, and weak interest in learning. In the teaching process, how to use online classrooms to carry out effective classroom design and practice is very important. The teaching form in the three-dimensional curriculum construction is not single, and a variety of teaching forms can be flexibly used according to the differences in students' levels, majors, interests, etc., so as to achieve the transformation of shallow to deep learning. In this process, teachers comprehensively use cloud computing, big data and artificial intelligence technologies to intelligently analyze and discriminate, visualize management and monitoring, and record and evaluate classroom learning, pre-school and after-school learning, teaching and other behaviors, so as to provide help for more scientific and accurate guidance and promotion of intelligent teaching.

6. Summary

The construction of three-dimensional curriculum is a systematic project. While emphasizing the multimedia and diversified forms of teaching resources, it is also necessary to pay attention to the organic combination of various teaching resources and evaluation systems in the entire teaching process. Teaching resources are not only a simple presentation of teaching content, but should gradually form a three-dimensional teaching space together with the teaching process and teaching evaluation. Three-dimensional teaching resources are not only reflected in the diversity of teaching resources, but also reflect the interaction of teaching process and the optimization of learning evaluation.

In the three-dimensional construction of the curriculum, smart technology can be used to analyze the effect of the three-dimensional curriculum construction through the actual investigation of the class learning situation, and summarize the experience and shortcomings.

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