

Research Article

Research on Teaching of Food Engineering Principles Based on Network Technology

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Abstract: This study selected food engineering principles course that are the most popular course in the college as the researching target, making comparative analysis on the qualitative and quantitative of effect caused by the application of network technology in teaching. With the application of network technology in food education and training more and more widely, it has become both opportunities and challenges to food educators. Through the experimental observation, it is found that network teaching system had brought many new changes for the teaching of food science.

Keywords: Effect, food engineering principles, network technology

INTRODUCTION

Twenty-first Century is the century of rapid development of information, with the development of computer technology, network technology and modern educational technology, educational informatization development make a spurt of progress (Chen, 2010). Our university network education as the rapid development of education informatization, it has attracted more and more attention in education. At present, China's network education in universities has penetrated into many fields, food teaching should also follow the development of network education, network teaching and speeding up the food development of network teaching, teaching pattern to form multiple channels, optimize the teaching of food education. Network in College food teaching is based on the purpose of deepening development, to the development of College food teaching network system as the research object, using literature method, survey method, software development method. This study is aiming at the characteristics of the course Food Engineering Principles as well as overcoming the boundedness of traditional classroom teaching, advantage of network platform was taken to combine the traditional classroom teaching and network teaching organically during several years of teaching practice and research, and good results were achieved.

Network food education is a new form centered on the active development of learners, making distance learning and continuing education easier than ever. Compared with the traditional education, network food teaching greatly improves the quantity, quality and speed of information transmission. In the virtual world, following the teaching mode characterized by

visualization, stereoscopic sense and substance sense, it can not only activate students' thinking, stimulate their study enthusiasm and initiative greatly, but cultivate their self-exploration spirit, practical interest and ability (Hao, 2011). So its educational advantages are obvious.

MATERIALS AND METHODS

Constructivism method in network food teaching: Constructivism, also translated as structuralism, is an important branch of cognitive psychology. The theory of constructivism is rich in contents, but its core can be summarized with one sentence: To be Student centered, emphasize on students' active exploration, discovery and Constructivism (constructivism) also translated as structuralism, is an important branch of cognitive psychology. The theory of constructivism is rich in content, but its core with a word can be summarized: Student centered, emphasizing to students' active exploration, discovery and the knowledge of active construction of meaning (unlike the traditional teaching, is to transfer knowledge from teacher to student's notebook in the mind). Actively construct knowledge (not like the traditional teaching and learning, just transferring knowledge from the teacher to the student's notebook).

Constructivism learning theory advocates learners to actively participate in teaching activities. Teachers' role transforms from the traditional knowledge authority to students' learning tutor, the senior partner or cooperater (Ning, 2010). The teachers should become the students' active helper and guider of knowledge construction. They should arouse the students' learning interest, initiate and maintain

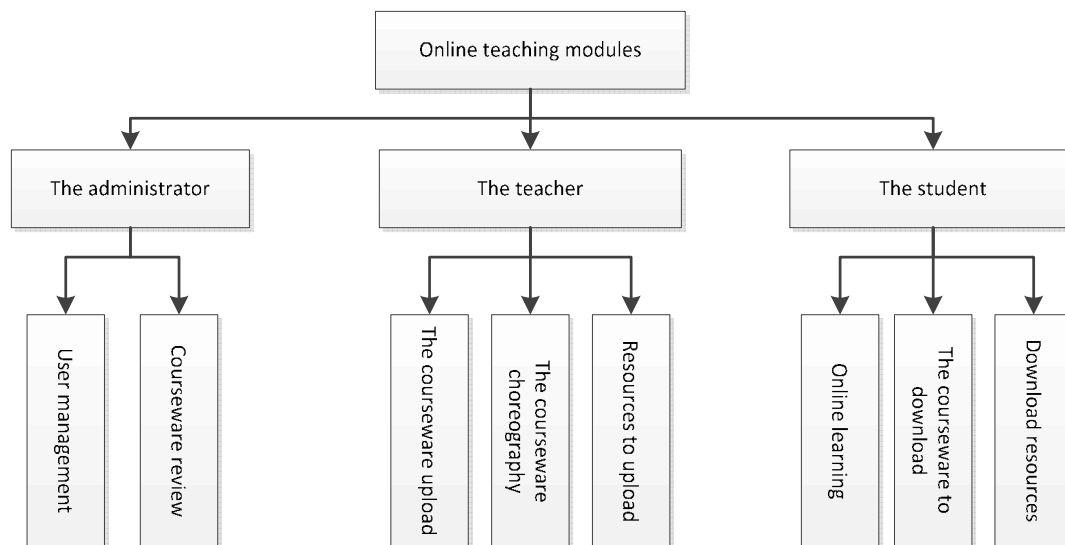


Fig. 1: Constructivist learning mode

students' learning motivation. By establishing links between the teaching context fulfilling the requirements of teaching contents and prompt clues of communication between the old and new knowledge, teachers should help the students construct the meaning of the current knowledge. Interaction is an important means to construct meaning. Constructivism emphasizes on a two-way interactive relationship between teachers and students. The most valuable activity in the classroom is that students form a group, make mutual exchanges and build joint construction. Cooperation and communication between teachers and students, students and students is the key to accelerate knowledge significance construction.

Through the Internet collaborative cooperation learning is one of the signs of the constructivism learning view and it is also the development trend of the future. The Internet is an effective tool to encourage and promote student's learning. The biggest advantage is that it provides an open and interactive and cooperative constructivism learning environment. Network breaks the communication constraints of time and space and opens up a broader social communication environment, providing spaces to display new knowledge and new ability. The multimedia network can create an active construction of knowledge and solve practical problems for the students. It can arouse the students' learning interest and initiative and thus cultivate the independent, cooperative and creative talents. Constructivist learning mode is shown in Fig. 1.

Advantages of food teaching based on network technology: This course Food engineering principle is important link and the bridge from theoretical study to the engineering application, plays an important role in training students' design thoughts, manual ability and

engineering quality. Network course construction has the following advantages.

Without being limited by time and space, network technology can effectively combine all teaching information such as text, image, sound and animation together, convey to the educates' sensory organs to achieve the efficient transmission of educational information in the food training, which can motivate the students to engage in such activities actively as observation, experiment, conjecture, creating (Modeling), verification, reasoning, communication and problem solving, change students' learning styles, implement student's subject status, change the teaching role and construct the new relationship between teachers and students (Bagwell, 2003). As a modern teaching method in network technology, network computer-aided food teaching and training is of great significance in optimizing the food teaching and training, stimulating students' motivation and interest in food training, enhancing students' understanding of the concept of action and knowledge of food theory and improve the quality of food education. With image, animation, video, voice and other reflecting dynamic changing process of the technical movement, teachers can attract students' auditory and visual senses and induce students' thinking to achieve the purpose of inspiring students' learning motivation.

The aided teaching on online education platform allowing students to watch proper standard decomposition movements so that students can have a preliminary understanding of food decomposition movements and then slow down or pause the video and the teachers point out the details of the action and points and mistakes easily made by pausing screen, which establish a clear understanding of the action in the minds of students. Through fast-slow play of multimedia video, students can understand the details of

Table 1: Comparison under the multimedia network teaching platform mode

Teaching mode	The mathematical relationship of teachers and students	The corresponding relation of teacher and student
The traditional teaching mode	Directly, face to face	One-to-many
Based on the teaching mode of the network	Indirectly	Many-to-many

food decomposition action between the overall and decomposition and then experience the action from fast to slow. In this way, it can form a clear and complete action in the minds of students and the attention to detail and effect between the actions and the play in the video can make the students to find their mistakes in a targeted manner and correct based on the mistakes to quickly and accurately grasp food decomposition process.

One of the features of multimedia network teaching is the real-time communication technology. Multimedia network teaching platform has a very powerful information resource sharing function. Timely communication between teachers and students are conducive to the smooth conduct of food education. In traditional food education in college, teachers teach students in class and communications between teachers and students have a certain degree of restraint because of the large number of students. While, multimedia network teaching platform enables students to interact with teachers online. Support of multimedia network teaching technology can allows students and teachers to achieve remote "face to face" communication so that interaction between students and teachers can be improved and the teaching standards and teaching efficiency will be improved. Table 1 shows the interaction of teachers and students based on the traditional sports teaching mode and the comparison under the multimedia network teaching platform mode.

RESULTS AND DISCUSSION

Online learning modules: Online education is an important module of remote system education. It is a new teaching model and can break through the restrictions of time and space so that more learners can share excellent teaching resources (Ming, 2009). Online teaching modules can make the teaching process networking, promote the generation of new ways to learn knowledge and establish online learning system, which can not only break the restriction of time and space for traditional class, but also can promote the formation of a new autonomous, open, collaborative learning system. The system has features of open and interaction of the knowledge and video resources and also it can interact and communicate so that knowledge can be grasped and teaching exchange efficiency is maximized. Online teaching will promote the development and application of e-learning.

Interaction modules: Forums, chat rooms, e-mail, SMS, online surveys.

Learning tool modules: Bookmarks, search engines, memos, answer for questions, Learning Assessment Module: Practice and test.

System maintenance management module: Achievement of site management, user management, privilege management, system initially built and sub-site management.

Course content rendering module: Mainly presenting course content, syllabus and teaching instructions.

Media resource management module: Folder glossary, multimedia resources. The main achievement is functions of teaching division management, student management, traditional materials management and teaching resource management.

Due to the particularity of the food engineering principle courses, the single words and images are often unable to explain complex unit operation and the process of mass and heat transfer. Network teaching platform is beneficial to presenting the teaching content of food teaching visually, during the process of traditional college food teaching, food teachers complete the teaching content of technique action mainly through the analysis and demonstration of the action, but in this process, many technical actions that are more difficult are completed in a moment, thus, teachers will be restricted to traditional teaching methods, at the same time, students cannot grasp and understand the essence of the action clearly and vividly, while the application of food network teaching technology in food teaching will be a good solution to this problem, by the application of network technology to get image frames and slow down as well as the application of FLASH technology, which can well display the technical action that is going to teach. The students will be able to understand and master it soon. In the teaching of the theory of food, it can also make use of network teaching technology to present some original text through multimedia, food network teaching can also make good use of the micro teaching method, so as to give better teaching guidance to the students. Teachers can use the network technology to make video that can decompose and slow down the image and play it during the period of students' learning, guiding students to make self-evaluation and collective evaluation, so as to achieve good teaching effect.

CONCLUSION

With the development of the modern technology that takes computer and network as the core, the human has entered the network age quietly. Network technology stimulated the students' interests in learning, improved the quality of teaching; it developed the student's self-learning ability; had the advantages of strengthening the students' consciousness of lifelong food, etc. And network technology is increasingly changing our mode of production, lifestyle, work and study. As the modernization of education grows increasingly, modern network technology has entered the school, into the classroom. The modern network technology has been applied to various disciplines more or less, in order to improve the teaching quality. Network teaching resources have greatly enriched the teaching content, teaching process become lively and interesting. We should explore the use of network education resources continuously in the practice

teaching process, so as to improve teaching quality and level.

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