Research on Collaborative Learning of Training Task Based on Cloud Computing

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Abstract. In the 21st century, the network technology develops so rapidly that new technologies, new concepts are emerging one after another. Cloud computing – a kind of burgeoning commercial calculation model becomes a hot spot of research in the current. With high capability, low threshold, low cost, convenient services, cloud computing has brought great changes to the people's work and life style, and makes a tremendous impact on educational ideas, models and methods. The using of cloud computing platform for the network to provide learning and environmental assisted instruction will produce fundamental changes in the field of education. Information era requires students to grasp learning ability, creative capability, collaborative and communicative skills. In this paper, the most current technology integrates the cloud service and teaching, meanwhile Task-based learning is carried out in the actual teaching under the collaborative learning research and practice to enhance the independent learning skills, improve the collaborative learning ability of students, and nurture the comprehensive quality to adapt to the social development.

Keywords: Cloud computing · Collaborative learning · Task-drived

1 Introduction

Since the 1990s, computer technology and network technology has developed rapidly, which has brought about tremendous changes in people's way of life and work style, but also had a fundamental impact on the education reform. Education is inseparable from information technology [1, 2]. Technological advances promote the development of education. However, the ultimate goal of education is to cultivate students to develop in an all-round manner, so that they develop the innovative, practical and learning capabilities. In this era of open diverse network, it is essential for every educator to assist teaching with the modern network resources, explore, study and build a learning model for cultivating innovative ability under the network environment. Currently cloud computing is a hot research topic, and the application of cloud

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computing-based services in teaching will create a new prospect for China's education and cultivation of students.

Based on the task-driven collaborative learning and teaching model under the cloud computing environment, the teaching practice over the undergraduate's *Fundamentals of College Computer*, and the learning characteristics of students in the collaborative learning process obtained from practice, this paper studies the roles of teacher in collaborative learning and teaching process, in order to explore how to better play a guiding role, how to design tasks and create scenarios, and how to effectively build a platform for collaborative learning. The task-based collaborative learning through the cloud service teaching platform not only enables students to grasp the teaching contents, but also enhances their self-learning abilities, collaboration spirits and collaborative learning abilities and improves students' learning motivation [3].

The teacher may build a personalized teaching platform by using the free apps and secure data storage centers from the cloud computing and combining with the actual teaching situation [4]. The combination of this online teaching assistance platform with the classroom teaching will greatly enhance the quality of teaching and has very important practical significance for cultivating students' collaborative learning abilities and developing their innovative thinking and innovative capabilities.

2 Theoretical Basis for Task-Driven Teaching Method and Collaborative Learning

2.1 Collaborative Learning

Collaborative learning is a constructivism learning model. In collaborative learning, multiple learners learn the same content, so that they can interact and cooperate with each other and achieve a deeper understanding and grasping of teaching contents through exchanges, negotiations, discussions and cooperation. At the same time, the collaborative learning model is conducive to cultivating the spirit of solidarity and cooperation.

Professor Huang Ronghuai [5] defines "collaborative learning" as follows: "Collaborative learning is related collaborative behaviors that the learners participate in it as a group, and maximize individual and others' learning outcomes under a certain incentive mechanism in order to achieve the common learning goals." Collaborative learning consists of four basic elements: learners, collaboration group, the teacher and collaborative learning environment. Learners refer to the students who are assigned to each collaboration group as per a certain strategy. Collaboration group is the basic organizational unit for collaborative learning. The grouping method can affect the effectiveness of collaborative learning, and the learners can be grouped according to their learning achievements, personality, preferences, etc. The teacher organizes and controls the learners' achievement efficiency of learning target and ensures the effectiveness of collaborative learning.

2.2 The Teaching Design of Task Driven Collaborative Learning

Task-driven method is short for task-driven teaching method. It refers to that in the learning process, students will focus on a common task activity center with the help of the teacher to carry out independent exploration and interactive collaborative learning driven by a strong problem motivation through the active application of learning resources, and the teacher will guide students to produce a practical learning activity while the established tasks are completed. Task-driven method is a teaching method based on the constructivism teaching theory. The teacher will implicitly contain the knowledge to be task, guide students with unique task design and scenario introduction and maintain the students' learning interest and subjective initiative, so that students can grasp the knowledge by completing the task.

In today's highly competitive era, the success of individuals depends not only on their ability but also their collaborative capability. Collaborative learning is an important model in modern teaching. It aims to cultivate students' ability to innovate, cooperate and practice. Collaborative learning with task-driven method can enhance the efficiency of collaborative learning.

In the cloud computing network application model, the only one copy of data is stored in the "cloud". As long as all electronic devices are connected to the Internet, people can access and use the same data simultaneously. Of course, all these are done under strict safety management. Only those people who have access to the data can use or share the data with others. As a result, cloud computing render unlimited possibilities for online learning, unlimited space for data storage and management, and extremely powerful computing ability for various applications. Cloud service is the best embodiment of collaborative learning, in which the teacher may organize and implement collaborative learning activities in the form of assistant teacher and as a supplement of classroom teaching [6].

3 Teaching Practice of Task-Based Collaborative Learning

Fundamentals of College Computer is a public basic course for non-computer major students in higher educational institutions. The course is characterized by rich content, wide range and strong operability, and it belongs to a practical course. The course aims to cultivate college students' information literacy, the basic skills of computer operation and abilities to solve practical problems. Besides, this course includes theoretical knowledge of computer systems, multimedia technology as well as the use of office apps [7].

In most schools, the traditional "class + experiment" teaching model is adopted for this course, being characterized by "teacher teaching and student listening" as well as "students doing experiments and the teacher offer assistance". This traditional teaching-oriented model shows god effect on grasping declarative knowledge, yet it is unsuitable for the acceptance of 'procedural" knowledge and cannot achieve the cultivation of self-learning ability and innovative consciousness. The use of learning-oriented model can stimulate students' enthusiasm for learning. However, considering that the freshmen are the teaching object, there should be an adaptation

process from high school to university in all aspects. Therefore, the teaching-oriented model is adopted in terms of theory, and the dual teaching system design of "teacher orientation and students as main body" is employed in the application unit. Also, the task-driven collaborative learning strategy is used, and the collaborative learning is carried out on the application cloud service platform - Baihui.

3.1 Analysis of Learning Goals and Target Ability

This learning unit is the use of Power Point. Speaking of this part, the course has been completed for more than half, and the students have mastered Word, Excel and other software, so they have certain basis for Power Point learning. A few students know the simple operation of Power Point, and most students do not understand the Power Point creating methods and advanced applications.

Knowledge Goal
Master the editing operation of the Power Point2013 presentation. Master the revision of the Power Point2013 presentation framework. Such as the slide template, the application of the format, the master version, the modification of the color scheme. Master the setting of Power Point2013 multimedia effect. Such as audio, video and other object embedding methods, the animation design of slide, the setting of switching effect.

Emotional Goal
The use of Power Point2013 demo production software produces a strong interest in learning, not just for "examination". In the future study and work, we can consciously use Power Point2013 to display the content that you want to express and solve the specific problems. Have the spirit of teamwork and innovation, and the ability to communicate with others.

Ability Goal
Have the ability to design and produce slides. The ability to use the search engine to find the required resources. Improve the ability of autonomous learning and collaborative learning in the network environment. Can objectively and impartially evaluate the tasks of themselves and other students.

3.2 Analysis of Learning Content

The content of this paper is mostly procedural knowledge, procedural knowledge refers to a set of operational steps and processes of business, mainly used to solve what to do and how to do it. Such knowledge relates to the improvement of students' practical ability and operational skills, and is very suitable for the task driven teaching mode, so that students can understand and apply knowledge through exploring problems and seeking solutions.

According to the hour distribution, the theory of teaching is 2 h, the operation is 2 h. The teaching content is shown in Fig. 1.

The acquiring of strategic knowledge (tacit knowledge) is also included in this task. For example, students design Power Point, search for materials and resources, and carry out group collaboration and evaluation according to the topics. All these imply

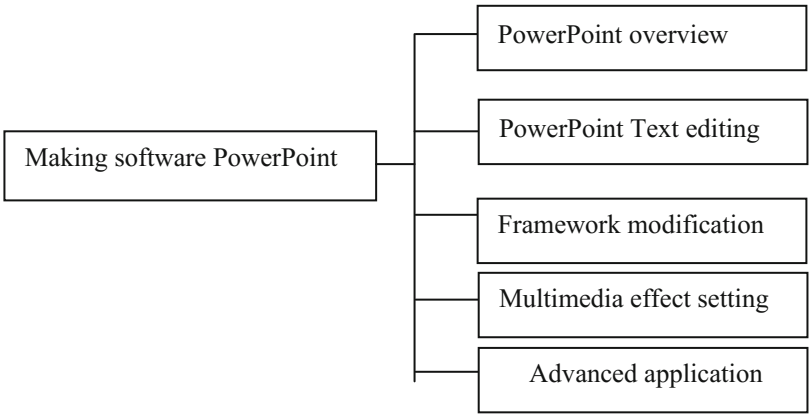

Fig. 1. Part of PowerPoint teaching content

knowledge of "how to learn and how to think". Only after acquiring this knowledge can students know how to learn and create. The process of solving the whole learning task is the application and improvement of strategic knowledge. Therefore, it is essential to focus on reflecting the strategic knowledge in the design of learning strategies, the design of learning environment and the provision of cognitive tools, so that students can acquire knowledge and exercise their abilities in accomplishing their tasks.

4 Conclusion

Based on the constructivism learning theory, this paper uses the concept of cloud service to apply the cloud service platform to the teaching practice of *Fundamentals of College Computer*. In the process of dual teaching, a task-based collaborative learning model is used to achieve a good teaching effect. It provides a good demonstration for other courses and has certain application value in improving the teaching quality. In addition, the cloud-based teaching platform provides strong supports for the implementation collaborative learning. The platform also plays a very good role in cultivating students' innovative thinking, improving their ability to solve problems and enhancing students' information literacy. What's more, the task-based collaborative learning model is very popular among the students, because they believe it will bring great fun to their learning.

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