# Research of collaborative learning method under the support of cloud services

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Keywords: cloud services; collaborative learning; learning system model

**Abstract.** Cloud service is a service model based on the Internet. In the cloud service support environment, we need to build support for cloud services of the University of learning. The design and application of higher education cloud service system is a very important technology in the field of education in the future. Based on the basic application environment and characteristics of cloud services, this paper constructs a collaborative learning platform based on cloud services for computer professional courses, the system model of collaborative learning in university is designed, and the problems and shortcomings in the design and application of collaborative learning model are discussed, the design scheme of the model is improved by the experimental study, the development of cloud services technology in the field of education has a certain reference value and practical significance.

# Introduction

The multi intelligence of modern education lies in the effect of diversified learning. It should construct a practical multi - learning system. It emphasizes students' learning experience in multiple environments, and advocates the full development of students, and strengthens the cultivation of practical ability and teamwork ability. In order to achieve the goal of a comprehensive development and team work, we must build an environment, which supports team collaboration learning. Due to the continuous development of the technology of cloud services in recent years, cloud services with its own advantages and convenient integrated service has the overwhelming advantage into all sectors of society, with the development and popularization of cloud services, information on educational institutions, educators and learners will gradually migrate to the "cloud", and in this "cloud" to complete a variety of management, service and learning, and so on, this is a good opportunity for the development of Education.

Education model based on cloud services can be more convenient and free for college management and students learning. Cloud courses, cloud video, cloud media and other representatives of the use, shown cloud services, college education, collaborative learning of the integration has been further teaching. With the continuous research on the university education and learning style based on cloud services, we have mastered the content and features of this kind of education. It can be based on the support of the cloud services, we can try to mobile learning, autonomous learning, for some disciplines can be collaborative learning based on the cloud. Learners can obtain the resources and services at any time and place, so as to realize the sharing of services and support, the team can refer to the team as the basis of resources, tasks and objectives, which is very meaningful to develop the students' ability of social.

## **Cloud services**

Cloud services are based on the increase in Internet related services, the use and delivery models, usually involving the Internet to provide dynamic and easy to expand and often is the virtualization of resources. Cloud services is a service provided by the Internet to provide a model of the original storage on PC, mobile phones and other devices on a large number of information, resources and

services to focus on the services provided by different users. Cloud services will be a variety of tasks in a distributed form assigned either to a resource pool which is composed of a large number of computers, so that all applications can access to computing power, storage space and a variety of software services. Cloud services through the network to different needs to be services, providing services is easy to expand, which is very suitable for all kinds of different enterprises, business units for the two design and development. Provide services can be IT and software, Internet related, but also other services. This means that the service can also be used as a commodity circulation through the Internet.

Cloud services in the field of education is to provide or share different types of resources through a teacher and students, the main goal is to solve the problem of learning resources and learning tasks, and other issues, the field of education cloud services belong to resource construction and expansion services. The learners are able to search for resources and select the tasks that suit their own tasks, design and accomplish tasks, and also can operate and share their resources. In the cloud services environment, learners can use the platform to obtain a complete, personalized learning service, and data, tasks and services can be shared in the cloud environment, to avoid the waste of educational resources.

### **Collaborative learning**

Cooperative learning refers to the different space-time multiple learners, observation, comparison, analysis, comprehensive interaction on the same task from multiple perspectives (collaboration) activities, these interaction (collaboration) activities are the external conditions to complete the task, to understand and to acquire advanced cognitive abilities.

In a certain extent, the traditional distance education can overcome the limitations of classroom teaching in time and space, which provides a flexible and diverse learning and teaching environment for most learners and teachers. However, the shortcomings of the traditional distance education is also obvious, that is, when the learners come from different schools or regions, because each learners choose the learning content or the completion of the task, it will produce a lot of independent individuals, they can only face the content or complete the task, the general situation of this kind of study is only 1-2 persons. This way of study leads to learners' lack of communication, lack of interaction, reduce the learning efficiency and other issues, a direct impact on the learning effect of knowledge. One way to solve this problem is to provide environment for the learners, teachers and administrators to discuss, cooperate, communicate and share information, more important is the use of artificial intelligence technology will have the same interests of the students, the organization to the same learning area, and even the same task, to help learners to facilitate collaborative learning.

#### Collaborative learning platform model based on cloud service

Collaborative learning platform based on cloud services can effectively support the cooperation of learners, educators and administrators, is a kind of teaching mode based on network, artificial intelligence, data mining, etc. Based on the cloud service technology has the advantages of not only a variety of school resources are shared, but also to strengthen the inter school, and even the cooperation and communication between the school and the society. Knowledge and ability are generally not through education directly to explain, but the learner in the specific task environment, through the help of cooperation, cooperation can be the teachers and students can also be the peer is unknown, and the use of resources and existing knowledge, to complete the entire process of learning, and ultimately the ability and knowledge.

Collaborative learning based on cloud services is the main use of cloud technology to achieve the storage, operation and services, and the learning resources or tasks in the cloud storage, improve the efficiency of resource utilization. Lower cost of public cloud, and to provide users with 3 kinds of ways to use, according to the needs and characteristics of the university collaborative learning system, we use PaaS approach, that is, the platform that service approach. The main functions of the

platform include the study of communication system, the task announcement, the task of meeting system, the virtual classroom, the database system, the teaching resource system, the collaborative learning system, the intelligent clustering system, etc.

- Learning communication system: to provide users with learning exchange area, responsible for sending, receiving learning resources and other information.
- Task announcement: periodic release of the task, the content of the task, the number of people of team, the required capacity of knowledge.
- Task meeting system: the receiving task is completed, after the formation of collaborative learning group, a series of discussions around the task, the system can be a chat room, and can also be video mode. The theme of the meeting must be around the same task of the entire life cycle.
- Virtual Classroom: responsible for the course of the show, including the contents of each course and learning methods. Mainly in the form of video display related courses, remote video education is a major way.
- Database system: the storage of learners, educators and administrators of the information, all kinds of personnel can modify and improve the relevant information.
- Collaborative learning system and intelligent clustering system: is the core function of collaborative learning platform based on cloud services. In the process of learning and completing the task, the method of artificial intelligence is used to adjust and organize the learners according to the learners' learning and selection.

According to the main function of the learning platform, the design platform model is shown in Figure 1.



Figure1. Original model of learning platform

## Summary

This paper in a collaborative learning theory as the basis, the application of computer science and knowledge in education field, the design of cloud service collaboration learning platform model, by proposing a method, the intramural or interscholastic and even society with same interest learner clustering to a task group, let them learn the knowledge of interest according to the own way, need ability and quality, the constraints of time and space in the breaking of the education. In the whole process of knowledge acquisition, at any time to share, exchange of learning experience and information. This system enables learners to share and collaborate with team work in the task of learning tasks. Through experiments, it is proved that the research of the platform model of the collaborative learning of cloud services has certain practical significance for the reform and practice of teaching method.

## Acknowledgments

This work was financially supported by the Science and Technology Research Project of the Education Department of Jilin Province (2014-B057), the Jilin Province Education Science "Twelve-Five" planning issues (ZD15173), and the Jilin Province Institute higher education research issues (JGJX2015D304).

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