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Zoho cloud computing technology-based educational technology training, examination and certification of study on the design of the integration platform

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ABSTRACT

With the update and development of internet technology combined with cloud computing technology, cloud computing assisted instructions form in education field. According to the teaching application requirements, this paper selected cloud computing aided teaching platform that support for collaborative learning, and established collaborative learning environment of cloud computing assisted instructions based on Zoho platform for application. Then it analyzed many relevant factors of collaborative learning taking Electronic Technology Course Design as example and discussed the application and limitation of cloud computing assisted instructions based on Zoho Wiki.

KEYWORDS

Zoho; Cloud computing; Cloud computing assisted instructions; Collaborative learning.



INTRODUCTION

Computer aided teaching effect achieves unprecedented height with the help of emerging cloud computing assisted instructions. It stimulates students' learning initiative and positivity and has become the leading edge topics studied and discussed in education technology field^[1,2]. Large-scale IT corporations such as Google, Zoho, Microsoft, IBM, etc all released relative cloud plan. However, in the perspective of the application of cloud computing in modern education technology field, Zoho is superior to other platforms. Baihui is the exclusive operator of Zoho in China. It aimed to make it as the online software platform, apply cloud computing service to construct teaching aided platform for collaborative learning in teaching, and realize functions such teaching, management and information exchange, etc^[1-5]. This paper briefly summarized the concept, advantages and current research status at home and abroad of cloud computing and assisted teaching, explored the effect and application of cloud computing assisted instruction in the perspective of university informatization, and studied the construction of collaborative platform based on Zoho Wiki.

CLOUD COMPUTING AND CLOUD COMPUTING ASSISTED INSTRUCTION

Wikipedia defines cloud computing as: the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a utility (like the electricity grid) over a network (typically the Internet)^[6]. Cloud computing is described in the perspective of user, that is, cloud computing can provide computing ability, storage ability and application service ability that are allocated based on demand for user. Its purpose is to provide convenience and greatly decrease the purchasing cost of software and hardware for user^[7]. Open course stemmed from England, which refers to open knowledge shared protocols. It provides high-quality courses and courseware for public and everyone can visit for learning at any time and any place. By the turn of the century, open course activity arose in America, thus learners can master the knowledge taught in courses more flexible, autonomous and to the largest extent^[8].

The combination of cloud computing technology and open course is applied into high university learning to form cloud computing assisted instruction. Schools and classrooms use education cloud service supported by cloud computing, construct informatization environment for individualized teaching, support the effective teaching of teachers and the initiative learning of students and improve teaching quality^[9,10]. Compared to the previous teaching, cloud computing assisted instruction platform has the following advantages^[2]: 1) it establishes new teaching platform; it breaks through the traditional classroom teaching pattern, extend time and space of teaching, make up the single teaching method; 2) it increases communication and exchange means: the real-time and long-distant communication between teachers and students and among students can still be continued outside classroom; 3) it expands personalized learning space; 4) it rises collaborative learning interests: supporting for more than one people is a big characteristic of cloud computing platform; online collaboration of convenient and rapid; it ensures the effectiveness of collaborative learning and improves collaborative interests; 5) it takes learner as subject; learner can autonomously calling and storage the resources and services in the learning platform under networking; the brain of learner is expanded; meanwhile, cloud computing assisted instruction platform provides jurisdiction of resource share for learner.

RESEARCH STATUS AT HOME AND ABROAD

The development of education field conforms to the development of internet technology. Until now, internet has developed to the new generation network which takes service as the main function. Computer assisted teaching gradually transits into the online learning with cloud computing as support in recent years. The research status of cloud computing at home and abroad^[9] is shown in TABLE 1:

TABLE 1 research status of cloud computing at home and abroad

Year	Development situation
2007	At home: cloud computing as the fifth generation internet development stage started to enter into the view of national people. Abroad: Google began to promote “cloud computing” plan in universities and colleges in USA with IBM.
2008	At home: Cloud Computing Expert Committee of Chinese Institute of Electronics was founded; Tsinghua University participated in the plan with clouding computing academic collaboration as subject in Chinese mainland announced by Google, and established course of mass data processing with Google; EMC, the world sixth software corporation, explored in the relevant fields such as clouding computing with colleges and universities. Abroad: IBM combined with North Carolina State University announced that they can provide services and computing for free for the students in the state. At home: 2009 Clouding Computing BBS of China undertook by Clouding Computing Expert Committee of China was held.
2009	Abroad: Yahoo established strategic relationship with three universities to strengthen the research on clouding computing technology. In addition, these three universities and other universities made use of cloud computing group of Yahoo to carry out research on large-scale system software, and analyzed the data resources in the internet by developing new application program.
2010	At home: the 2th Clouding Computing Conference of China was held in Beijing.
2013	At home: until 2013, it can be found through searching of literature in recent decade in CNKI academic Library that there were a lot of literature whose index words were cloud computing, collaborative learning and blended learning.

EFFECT OF CLOUD COMPUTING ASSISTED INSTRUCTION ON COLLEGE EDUCATIONAL INFORMATIONIZATION

Education industry gradually becomes paperless and low-carbon under the guidance of computer internet environment^[11]. College education forms new patterns in informationalized hardware environment construction, development of informationalized software resources, informationalized network teaching implementation, informationalized personal knowledge management, etc. Transformation of these patterns play positive function in purchasing of hardware and software, decrease of maintenance cost, improvement of network teaching efficiency and strengthening of sharing and exchange of information^[12].

Schools and teachers use “cloud service” to construct informationalized environment for individualized teaching and realize functions such as teaching, management, information exchange, etc. Thus, cloud computing assisted instruction pattern will be the main direction of future development in the perspective of combination developing trend of education and computer^[13].

APPLICATION OF CLOUD COMPUTING ASSISTED INSTRUCTION PLATFORM BASED ON ZOHO WIKI

Zoho wiki cloud computing platform that supports for collaborative learning

The selection of platform follows the basic principle of easy to get started. Baihui is the leading clouding service providers for middle and small-sized enterprise in the world. It is also the exclusive operator of world famous online software provider Zoho in China. Its relative products are Baihui Wiki, Baihui Mail, Baihui Writer, Baihui Sheet, Baihui Show, Baihui Discussions, Baihui Chat, Baihui Meeting, Baihui Docs, etc^[8]. Baihui is the online computer of personal user. It is characterized by cost saving and high efficiency.

Collaborative learning is the mutual transformation process of individual internal cognition and social interaction. Learners rethink and criticize together in collaboration group. They amend various ideas, debate, negotiate and construct deep understanding on some problem^[5]. Zoho Corporation provides free Wiki service to support the full performance of potential value of collaborative learning. Therefore, Zoho Wiki cloud computing platform is selected to do assisted instruction in collaborative learning.

Construction of platform of collaborative learning based on zoho wiki

College network teaching platform provides learning environment besides the classroom learning for collaborative learning. The application of online network teaching platform based on cloud computing is concise and high efficient. It can shorten the developing cycle and lower production cost^[1].

(1) Analysis of collaborative demand

The effect of collaborative learning depends on whether it can meet the demand of learners as well as the learning purpose. Therefore, system is used to analyze the demand of users, especially the learners. Course experiment in Electronic Technology Course Design is taken as an example for analysis.

Cultivation of autonomous learning ability and independent practice ability of students are the main task of that teaching platform. The operation system should meet the diversity demand of different age for knowledge acquisition structure and depth degree for it adopts task driving mode and is different from classroom teaching for students from the same grade; it sets modules such as discussion, skills and advantage complementation, employment orientation, etc. to provide guidance for the learners in different demand levels^[1, 14].

(2) Design of collaborative learning process

Collaborative learning is developed centered on class. Platform design only needs to follow the following steps: 1) log in Baihui homepage and register; 2) log in Baihui account, select Baihui Wiki and construct course website. Establish and compile new page in course website according to the course design, including webpage, dash board and file memory; 3) set access right for course website to prohibit others to arbitrarily change the content. Set subscription mode, establish Wiki link, create groups and add group member; 4) switch freely between platforms of Baihui by switching mode. The learning efficiency of Zoho is higher than the traditional design process of B/S website because it applies component architecture^[1, 15]. Teaches set course experiment website of Electronic Technology Course Design. By doing that, they can easily fulfill the task of student user and experiment arrangement, attract students to do application practice by guidance on learning, apply various application components to fulfill collaborative teaching between students and teachers and submit and assessment of experiment reports between students immediately; moreover, student page view and interest degree on column can be directly acquired through webpage traffic statistics and analysis function to perfect the evaluation of teachers on collaborative learning design. In addition, application of cloud computing technology in searching, storage and management of course teaching resource can effectively make use of space and teaching content.

(3) Implementation of collaboration platform

Log in collaboration platform and carry out the activity content of course experiment of Electronic Technology Course Design. Inset various applications of Baihui including Baihui Writer, Baihui Sheet and Baihui Show for compilation of document, spreadsheet and presentation files in cloud computing assisted instruction platform based on Zoho Wiki according to collaborative demand. Fulfill work task through collaborative learning and use Baihui Chat for online discussion between teachers and students. In addition, the experiment result of students can be submitted, presented, shared and assessed though Baihui Discussions. Schedule between teachers and students can be clearly seen in Baihui Calendar, thus the time and place of question answering and guidance of teachers can be efficiently arranged^[1, 2].

The visit of cloud computing assisted instruction is unconstrained. Teachers and students can visit the platform on any computer. The above cloud computing assisted instruction platform based on Zoho Wiki can perform successfully and orderly in resource storage, management arrangement and collaborative communication of course experiment of Electronic Technology Course Design.

(4) Limitation and activity evaluation of collaborative platform

Cloud computing assisted instruction should be conducted under the condition of network connection. Teachers and students need high network speed for compilation of documents on the cloud computing assisted platform. However, the current connection of campus network cannot meet the requirement of that platform. It is one of the limitations of that platform. Second, scientific design of

study activity and task by teachers are the main factor for promoting the success of collaborative learning. Assisted teaching platform is still the assisted instruction.

Learning of cloud computing assisted platform in the environment of cloud service is evaluated in the perspective of electronic portfolio and process assessment^[2]: establish student electronic portfolio on Zoho collaborative platform and collect the information of students in learning process. After learning, teachers make assessment according to students learning situation such as students' works, personal reflection, evaluation of self, student and teacher, feedback information, etc in electronic portfolio. In addition, student online history record is taken as process evaluation foundation for evaluation of learning result. Thus, evaluation between students and teachers, students and students, groups and groups can be conveniently and rapidly implemented. Even anonymous evaluation can be adopted for ensuring the equality of evaluation.

CONCLUSION

Cloud computing assisted instruction is still being developed. Application of Zoho assisted classroom teaching is still being explored. This paper makes an attempt combined with course experiment of Electronic Technology Course Design. Cloud computing assisted instruction platform based on Zoho expands teaching form from class to out of class and provides more opportunities for the collaborative learning for students. It is suitable to apply in relative loose relationship between students and teachers in college. In addition, the collaborative learning environment created under that kind of teaching plays positive function in the performance of learning subjective initiative and cultivates team work spirit and commitment between students. In future teaching practice, the current research focus of cloud computing assisted instruction is how to further study class teaching that supports by cloud service and avoid the shortcomings.

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