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Building e-learning environment under university E-education

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ABSTRACT

The rapid development of information technology, breaking the boundaries of time and space, make education resources digitization. Building E-learning Environment under University E-Education, the deep meaning is to build higher new teaching model adapt to the requirements of the information society. This paper introduces the features of University E-Education, the influence of E - learning environment for traditional education, proposed to build the new E - learning environment, and expounds the construction of the content of the teaching activities and the cultivation of teachers' information literacy.

KEYWORDS

Learning environment; E-Education; E-learning; Learning independence; Education resources digitization.

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INTRODUCTION

The rapid development of information technology, breaking the boundaries of time and space, make education resources digitization. Global data storage capacity showed a trend of rapid growth. It is predicted that in 2015 the global data quantity will rise to eight ZB, is as high as 35.2 ZB by the year 2020, and it is the amount of data in 2015 of 44 times. Among them, 90% is for video, images, audio and other unstructured data[1]. In recent years, E-learning environment have taken place great changes in universities, which is not only an important approach to improve the quality of higher education, but also the focuses of the education theories in recent years. In the new learning environment, information technology is no longer an auxiliary means of education, and become an integral part. Therefore, in today's emphasis on quality education and autonomous learning, construction of E-learning environment is of great significance.

In Wikipedia, the E-learning is called online education, virtual learningvirtual education, virtual learning environments (VLE) (which are also called learning platforms) and digital education[2], that is a tool to study or train via the Internet. E-learning system initially focused on using internet technology to replace the existing face-to-face learning way. New E-learning environment put more emphasis on social learning and use of social software, such as blogs, wikis, podcasts, 3 d virtual world, etc.

CHARACTERISTICS OF UNIVERSITY E-EDUCATION

Information education in colleges and universities, that is, under the guidance of modern education thought and theory, mainly using the modern information technology, the development of education resources, optimize the process of education, to cultivate and improve students' information literacy as the important goal of a new way of education.

From the view of software engineering, the main supporting techniques of information education include: object-oriented design technology, data storage and management technology (multimedia database, distributed database, data warehouse), multimedia technology (visualization, data storage and compression, virtual reality technology), artificial intelligence (fuzzy logic, neural network and intelligent agents) and so on[3]. At the same time, the application of cloud computing, internet of things, mobile internet and hypermedia technology in information education has the following advantages:

1.Environment Virtualization and Convenient Cloud Services

The digital information resource requested by students comes from "the cloud" and is no longer the inherent physical entities. Users as long as can get cloud services, access to the Internet and share data information without being restricted by time and space.

2. Times Character and Open Quality

E-learning is open mode and anyone can learn the course through the Internet. In the information age, the channel obtained knowledge is no longer a single, being diversified. According to the report, 43.5% of Chinese college students think that the main channel of obtaining information is microblog, 30.4% of students choose website, and other accounts for only 14.2% like newspapers and magazines. Teachers also feel that the classroom has been made into battlefield of attracting students' attention between themselves with smart phones and iPad[4]. The E-learning mode of network just adapts to such changes.

3. Self-independence Learning and Task Cooperative

E-learning emphasizes learner centered on design through the vivid and friendly interactive interface to guide students' independent learning, to form good atmosphere of cooperation in the network environment between teachers and students, students and students with hypermedia technology, to achieve stimulating students' interest in learning and encouraging them to discuss and study. Such as the "electronic sand table" courses and "virtual operation" series are popular in universities in recent years[5], etc.

4. Education Resources Globalization

MOOCs (Massive open online courses) are mainly offered courses by famous universities at home and abroad in E-learning environment, in recent years, the number of online learning was at a record high. Wikipedia defines that "A MOOC is an online course aimed at unlimited participation and open access via the web ". Early MOOCs often emphasized open access features, such as connectivism and open licensing of content, structure and learning goals, to promote the reuse and remixing of resources[6]. Some later MOOCs use closed licenses for their course materials while maintaining free access for students. With the development of distance education, more and more people can free access to all parts of the world's best open education resources[7].

INFLUENCE of UNIVERSITY E-EDUCATION to THE TRADITIONAL LEARNING ENVIRONMENT

Learning environment is derived from the basic idea of constructivism learning theory. In the learning environment, learning is not only focus on the present and transfer of knowledge, but to reflect the learners' understanding of information and actively constructing process[8]. Being provided a more active and free environment, learner can explore and study freely, use various tools and information resources (text materials, books, audio and video data, multimedia CD-Rom and Internet resources), complete meaning construction by coordinating with companions, or under the support and help of teachers and

parents. E-education will make a great influence to traditional learning environment. It manifests education concept, study way of change, the relationship between teachers and students, and the change of teaching evaluation system.

Education Concept

Information-based learning environment will promote the transformation of education idea form the "teacher-centered" teaching model to "student-centered" self learning. Representative by constructivism learning theory, many educators have called for transfer education concept repeatedly for many years, in order to establish the students "learning" as the main education main body status. Although widely agree this kind of education concept, but in practice there is no substantial progress, the main reason is to stick to the traditional education environment. The teacher is still the main body, master all the teaching resources while students are the object accepted limited knowledge passively form teachers.

Modern information technology, especially network communication, cloud computing and big data brings digital learning environment. In this environment, the space explored by student increases, there has more flexible teaching strategies. Teachers are weakened as the role of information sources and regarded as a learning activity organizer and guide. Learning collaboration between teacher and student, student and student, they can exchange a variety of online resources through the cloud services anytime and anywhere. In addition, the big data super computing and data mining ability, fully embodies the man-machine complementary advantages. Teachers freedom from the data analysis and management of multifarious work, have more time and energy into curriculum design and teaching work to understand the students' interest and learning characteristics, targeted adjustment of learning content, truly "student-centered" teaching and guidance.

Learning Independence and Networking

Digital resources rich learning environment in which more students do network learning and informal learning, the autonomous learning is the trend of the digital age and also is the inevitable outcome. Constructivism believes that that knowledge is not passively received by learner but built up by the cognizing subject. Knowledge is constructed in interaction activities between the subject and the object. Individual learning motivation comes from interest and the needs of the personalized development in learning. The cognitive drive, self-enhancement drive and affiliated drive stimulate students' initiative and enthusiasm, helping student independent access to information and update knowledge through the way of information retrieval, connected to the rich network resources[8][11].

Modern information retrieval technology based on knowledge and knowledge organization, through the neural network, fuzzy logic and other artificial intelligence technology, realizes fuzzy matching between the search keywords and knowledge, and help to achieve the result of the user needs accurately. What's more, the big data supporting for multiple types of data processing, it can analyze based on cloud computing, judge what's the learners needs and predict their behave, guide the learners to explore according to oneself circumstance and the understanding of the world to solve practical problems. In the network environment, especially the popularization of mobile internet access, learning becomes a widely available and convenient. Life will be full of learning environment, learning resources and learning challenges.

The Change of Relationship

The development of information technology has caused the change of teachers' roles and tasks. The learners can easily gain a lot of knowledge from net resources easily while teachers and students can access the same teaching resources at the same time through the different devices. The teachers' professional authority is a new challenge. The initiative learning from teachers to learners, learners become the main body of information processing and active meaning construction. The teacher is not only a "knowledge transmitter", but also being a "mentor"[9]. Classroom teaching is not only the theory infusion, but to provide learners related knowledge resources and guide students to eventually achieve the goal of autonomous learning and independent thinking. The concept of teachers can be described as the organizer, instructor, helper and promoter, learning resource managers, mentors, etc. The affiliation between teachers and students has broken completely. Students can gain information and deal with knowledge, according to their own needs, interact with new knowledge with their most significant ways and have equal dialogue and sharing with classmates and teachers. Teachers and students may be studying senior partner or professional knowledge research cooperators. Teachers should need more technology skills, communication and teamwork skills, planning and organization skills and research ability, etc.

Reformation of Teaching Evaluation System

Teaching evaluation is based on teaching objectives and teaching principles, using all feasible evaluation method and technology to evaluation all activities of teaching process. Throughout the Chinese current school education, while quality education is focused gradually by people, but in terms of practical education status, there is based on knowledge and intelligence education as the core. Means a single, simple way of traditional teaching evaluation, is still the mainstream of current education evaluation, which is severely restricted the students' all-round development. The overemphasis on the score of evaluation system, there is no fundamentally get rid of the exam-oriented education mode, teaching evaluation is often only look at the results of the education and ignore the process of education, often only see one-sided quantification and ignore the qualitative evaluation of comprehensive, overlook the instructive and development function of the educational teaching evaluation[10].

A competitive evaluation system should be to improve the teaching effect as the ultimate goal. It is an efficient tool to collect information, guide effective decision-making and encourage learners to continue learning. While promoted students

autonomous learning, we should focus on students and the long-term development requirements, strengthen the guiding role of teaching evaluation, establish a more complete, more scientific teaching evaluation system, and give every student a complete, comprehensive and developmental evaluation in order to let every student succeed, gain confidence in learning and gain more learning motivation. Comprehensive evaluation is multi-angle evaluation which improves the evaluation implement the process, namely the process of classroom assessment and evaluation stage. Expand the evaluation subject; reflect self-evaluation, mutual evaluation between students and the teachers.

BUILDING E-LEARNIN ENIVIRONMENT UNDER UNIVERSITY E-EDUCATION

E-learning environment (digital learning environment) is refer to use of multimedia and network technology, the main information resources will be digital in colleges, and the realization information management and communication mode digital, forming a highly information talent training environment[12]. The goal of it is to establish a multi-level, innovative, open institution to improve teaching quality and efficiency. E-environment focused on improving the quality of teaching resources, the sharing and communication intellectual resources, promote a high level of interaction between teachers and students at the same time, and promote active, collaborative, research-based learning, thus forming open and efficient teaching mode to better develop the students' information literacy and problem solving ability and innovation ability.

E-learning Environment

The composition of E-learning environment can be expressed in figure 1. Computer network is the basis of E-learning environment facilities; network basic service is the basis of the flow of information. On this basis, there are all kinds of data warehouse based on network including curriculum resource, digital library resources, etc. Application support system includes office automation system, management information system, network teaching system and digital library management system, etc. Go outside of the information service system is the main use of the campus user interface, to provide various services for the teachers and students, such as information exchange, information query, etc. Four areas, respectively E-learning environment functional areas: teaching, academic research, and public service (refer to provide support services for school teaching scientific research, such as network services, library services, etc.) and the school community service (college students entrepreneurship center, student photography association), etc., is closely related between the various functional areas and promote each other.
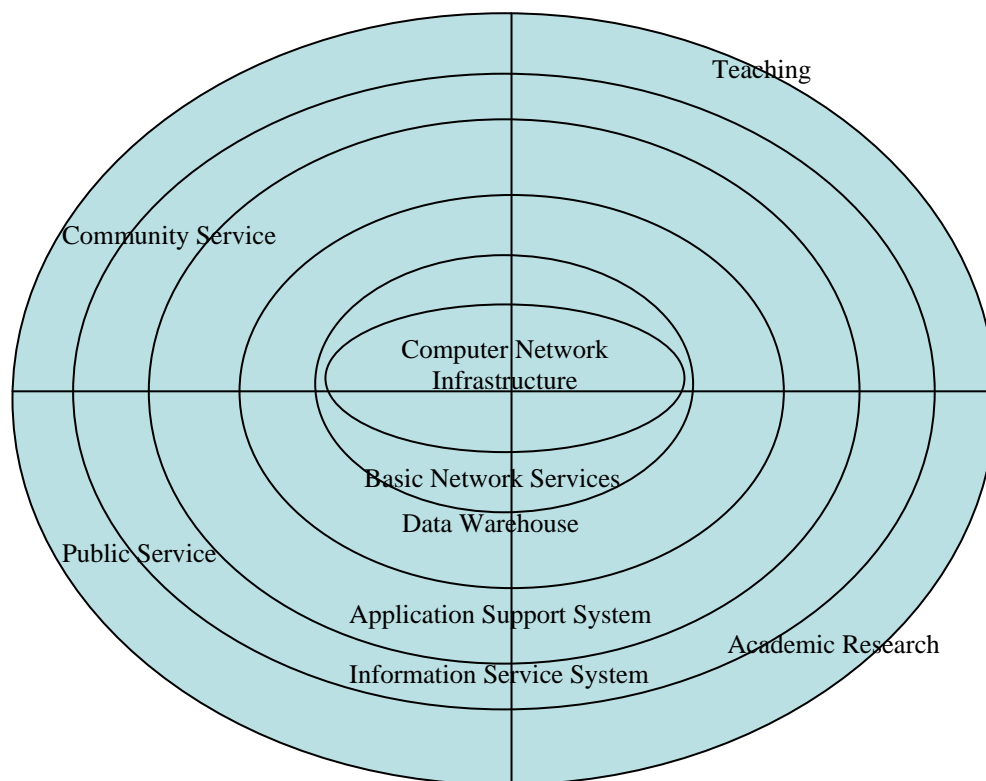

Figure 1: The composition of E-learning environment

The Construction of Teaching Content

The integrated application of information technology in teaching will lead to deep changes in the teaching mode and teaching management. E-learning environment is based on network technology, and the main object is the school students and students in a remote terminal.

1 Establish teaching information library（TIL）Curriculum resource and teaching information data warehouse is the most important basic work in the construction of the learning environment. In the E-campus, under the unified planning, the key work is closely construct data warehouse related to the teaching activities of all kinds of teaching information, such as teacher database, student database, laboratory database, teaching feedback and evaluation library, digital library, and so on. The data warehouse can not only offer complex inquires, but also have multi-dimensional analysis and statistics functions such as data mining, provide the basis for decision-making.

2 Building multimedia network education system (MNES) MNES is not only the digital textbook knowledge, but a scientific restructuring and reform of the curriculum system. It is an effective complement to classroom education and extension through the knowledge innovation project to research and development of a new type of teaching system.

3 Set up the base of interactive network education resource (BINER) This base focuses on research and development the main subject or a group of knowledge base. Through the development and the introduction, the base builds all kinds of courses and network teaching material library construction, and virtual or simulation teaching software, design series according to characteristics of courses.

4 Establish the research-oriented teaching support network education platform and web sites, meeting the needs of the students and teachers interact, adapting to the students' autonomous, interactive, collaborative learning.

5 Provides the teaching platform based on the campus network, including various curriculum course guide, teacher introduction, information release, curriculum resources and related resources, virtual laboratory, interactive discussion (including q&a, job submission and release, project discussion, paper and posted comments, etc.), intercollegiate remote collaborative projects and online test, etc.

6 Distance education includes both the learners' distance learning outside the campus, including campus between distance education and international experts for campus students of distance education, etc.

7 Professional website refers to the various disciplines of professional to be established on the basis of the deep web site, including the latest progress report, professional and abstract, special BBS, etc., which not only can promote the academic research, but also to play an important role in promoting the teaching. Promotes the development of students understand professional disciplines, attract students to participate in scientific research, especially senior undergraduate and graduate students, to participate in the teachers' scientific research work, cultivate the innovative ability.

The Cultivation of Teachers' Information Literacy

In order to adapt to the change of the network era brings to the teaching, teachers have to role transformation, improve information literacy. Therefore, to establish a quality fine, noble ethics, have the capacity to control the modern education methods and education information teachers is imperative[13]. Cultivate the teachers' information literacy should include the following three aspects.

1 University teachers' information consciousness

In the new period, university teachers should realize the importance of information technology, and establish and renew ideas is a fundamental decisive shift. Cultivating information literacy contains:

A. Rapid access to information, that is clear about what is what you need to get information, how to collect information

B. Process information, effectively integrate information to creatively solve various problems in work, work often have innovation.

C. Use of information tools to solve actual problem ability, good at learning in the teaching and the use of a variety of information tools to solve problems; To actively guide students to correctly use the information tools, pay attention to the cultivation of student's information literacy.

D. Information ethics. Teachers should have to distinguish useful information with useless information, has the responsibility and obligation to teach students set up correct and reasonable use of information.

2 University Teachers' IT Application

University teachers should master the knowledge of information technology, using a variety tool to obtain information. For example, some teacher can browse the internet web sites and download online graphic information. They able to download and install applications correctly, to use of multimedia technology in teaching design, can edit and process information by themselves according to their own thinking, and express in multimedia way. Another teacher also can design the personal teaching website to display, publish, teach communicate and discuss, etc.

3 University teachers' information literacy self cultivation

College teachers is a learner, also can take advantage of the E-learning environment in the network classroom, electronic reading room. Or through the network access to the school to establish digital repository, they can learn software applications online, retrieval professional cutting-edge knowledge, at the same time, explore research learning strategies and patterns under the network environment, do some information technology and curriculum integration of experimental research to promote the improvement of teachers' information literacy. This requires teachers have the consciousness and the ability of learning and using information. Teachers have the experience of "first", then understand and grasp the students' learning behavior characteristics and trends, provide effective communication and guidance.

REFERENCES

[1]   Information on http://articles.e-works.net.cn/bi/article118356.htm.

[2] Educational technology entry at Wikidata; http://www.wikidata.org/wiki/Q1068473.

[3] Zhu Singling, Xu Xiao I, pan; China's Education Informatization, **23, (2012).**

[4] Information on http:// www.docin.com/p-529234, **(2012-11-17).**

[5] Information on http://www.tiaozhanbei.net/, **(2014-07-17)**.

[6] Information on http://zh.wiki pedia.org/wiki/MOOC, **(2014-11-18).**

[7] Cheverie, Joan; "MOOCs an Intellectual Property: Ownership and Use Rights", Retrieved **(18 April 2013)** with-doc/ 2006596.article.

[8] Piaget: Structuralism, the Commercial Press Publications; Beijing **(1984)**

[9] Zhang Y, Bai QING H; Teaching Design Zhuang Jun Gong Constructivism Learning Environment, China Science and Technology Information, **8**, **(2008).**

[10] Shen Jing; constructivism learning theory and teaching innovation; Journal of Hubei Institute of Education, **2**, (**2005**).

[11] Chen Qian; Report of Comprehensive English Teaching Based on Constructivism, Journal of Gansu Union University (social science edition), **3, (2009).**

[12] A.Agostini, De Michelis, G.A.Light; Workflow Management System Using Simple Process Models. Computer Supported Cooperative Work: The Journal of Collaborative computing, Kluwer Academic Publishers, **9(3-4)**, 335-363 **(August 2000).**

[13] Information literacy competency standards for higher education, Chicago: Association of College & Research Libraries **(2000).**