

Investigating Chinese Versus U.S. Attitudes Towards E-Learning

George Schell
schellg@uncw.edu

Ling He
hel@uncw.edu
Cameron School of Business
University of North Carolina Wilmington
601 S College Road
Wilmington, NC 28405

Hong Ling
hling@fudan.edu.cn

Cheng Zhang
zhangche@fudan.edu.cn
School of Management
Fudan University
220 Han Dan Road
Shanghai 200433, P.R.C.

ABSTRACT

Chinese faculty and students in universities are just as capable of using e-learning as their U.S. counterparts but are more reluctant to do so. The attitude of faculty and students seems to be the determining factor - Chinese are more comfortable with the traditional objectivist model where an instructor professes and students are taught. In the U.S. more instructors and students are comfortable with an interactive learning style that places more of the responsibility for learning upon the active participation of students. China's Ministry of Education is seeking to increase foreign students in China from around 140,000 in 2005 to 3000,000 in 2020. The strain on the infrastructure is one issue but another significant issue will be that many of students who are foreign to China will have substantially different learning style from Chinese students. E-learning is one possibility to address both the infrastructure issues as well as differences in student learning styles.

Keywords: E-learning, China and U.S., learning model

1. INTRODUCTION

Attitudes towards e-learning in universities differ between China and the United States. While both countries have ample information technology as well as faculty and students very capable of developing and consuming

e-learning materials, Chinese are more reluctant to use e-learning.

The difference is in the attitude of students and faculty themselves. Differing learning styles lead Chinese students and U.S. students in different directions. Chinese and U.S. faculty tend to use instruction techniques that best relate to their respective

students. The result is a directed flow of information from teacher to student in China while U.S. faculty use techniques that allow more student participation in the learning of course materials. For each group, the method used seems the most comfortable for faculty and students.

This research is in progress to determine the extent of the differences in attitudes toward e-learning in China and the U.S. We will also try to determine if e-learning is practical in China at this time and whether there will be an increase in e-learning in the near future. China's goal of increasing foreign students to 10 percent of the domestic student body by 2020 is a factor that may spur adoption of e-learning methodologies.

2. THE DEFINITION OF E-LEARNING

E-learning uses audio, video, text, and multimedia to facilitate efficient interactive teaching (Liang, 2001). Students benefit most from e-learning when they consume course materials at their personal best learning pace and have the opportunity to revisit course materials, such as presentations, more than one time. E-learning is a form of teaching activity that can serve the learner at any time in any place (Zou, 2003). Interactive teaching is the basis for individual learning and individual learning is the goal of interactive teaching (Shen, 2003). E-learning has both an instructor viewpoint and a student viewpoint.

Broadly defined, the instructor viewpoint of e-learning is teaching activity accomplished with web and Internet technologies. A more precise definition is that e-learning is an activity which integrates web and Internet technology as a organic factor constructing a student-centered, explorative learning method (Zhang, 2003). The student viewpoint is the use of web and Internet technologies to consume course materials at the pace that fits his/her capabilities.

3. THE MODEL OF E-LEARNING

The general mode of E-learning can be described as providing course materials for students, assuring that students access and interact with the materials, and coordinating student-to-student as well as student-to-instructor communication. In such a model,

students actively accumulate and apply knowledge. The teacher acts as a facilitator and organizer for the student. E-learning facilitates constructivist learning, the object being that the student constructs knowledge himself based upon the materials presented and the guidance from the instructor. This active learning process insures the student takes a larger responsibility/role in the learning experience than traditional face-to-face instruction.

During e-learning, the communication between student and teacher is accomplished via the web. Information sent by teacher or student - instructions, questions, answers, and other information - reaches the other via information technology. The computer-based interface is the common interface for student and instructor in e-learning (Liang, 2003). Using a computer-based interface, especially a web-based interface, is a skill very familiar to faculty and students.

In terms of e-learning's technology, the two common, broad categories are "same time but different place" called "synchronous" and "different time and different place" which is called "asynchronous." The former is frequently accomplished using videoconferencing. The latter would typically use world wide web technologies (Gao, 2004).

"Same Time But Different Place" Model

Such model has 2 (or more) locations - one location providing a live broadcast by the instructor and one or more students learning locations. (Students can also be at the site of the broadcast.) Instructors can monitor students' learning progress and ask them questions as instruction occurs. This model is fairly easy for the instructor to control and monitor but it does not support students' independent learning. In a global environment, the largest obstacle to synchronous e-learning practical application is the time differential spanning the globe. A secondary obstacle can be the costs of operating the broadcast studio and the technical people involved in its operation.

"Different Time And Different Place" Model

This model of e-learning requires technologies associated with the world wide web - computers, browser software, network resources, and other technologies. But the

major benefit is that students can access course materials from any place at any time. This model is useful for students' independent learning and consolidating the knowledge once learned. Student self-motivation and self-discipline are important characteristics for this model to succeed. It is suitable for professional learning as well as college education but course control must be maintained by the instructor. The greatest obstacle to asynchronous learning is the effort required to make the computer-based materials easily acceptable to all participants at their varying levels of technology understanding. Students can also revisit and re-study any portions of the lesson that were not understood during the lesson presentation.

4. E-LEARNING MODELS

The objectivist model of learning is based upon stimulus-response (S-R) learning theory. Some may know the objectivist model by the name of connectionism (Thorndike, 1913). In this model the instructor presents materials to teach concepts and students learn by receiving rewards and punishments for correct and incorrect answers. A lecture, question and answer period, and examination are the hallmarks of this model.

Large number of students can be efficiently serviced synchronously or asynchronously over a network using this learning model. It is attractive to administrators in that it is an efficient use of an expensive resource, i.e. the faculty. However, the flow of communication is largely one way - from instructor to student. Limiting two-way instructor-student interaction limits this model's effectiveness.

The objectivist model requires that students have a computer and access to a network and course materials in a digital format if the course is to be provided electronically. Traditionally an objectivist instructor would be in front of the class giving a lecture and no electronic facilitation would be needed - but with electronic facilitation students can access the materials without being physically present at the instructor's location.

For the constructivist learning model the instructor assumes the role of leading the learning experience (Windschitl, 1998). Hypothesis generation and testing, posing

questions, inventing, and investigating are hallmarks of constructivist learning (O'Loughlin, 1992). Students are the recognizing center, and together the instructor and student cooperate to improve the teaching outcome. Learning takes place at the student level, i.e. students construct their own knowledge based upon the leadership of the teacher and do not simply accept what the instructor says as the total knowledge realized from the learning experience.

To stimulate students is central to the constructivist model. Students must take some of the responsibility to positively join the interaction that leads to constructing knowledge. The instructor facilitates learning, he does not simply create knowledge and pass it along to the students. Applying the constructivist model in an e-learning environment requires computer access but also software that facilitates student-to-student interactions as well as student-to-instructor interactions. Threaded discussions, chat rooms, semi-private and private discussion rooms, and a variety of other features are found in products such as Blackboard and WebCT. (The two companies merged in February of 2007.) They are common platforms with a variety of tools that support constructivist methods.

Based in the belief that learning is a result of synergic activity - emphasizing communication and interaction among the students themselves - cooperative learning focuses the instructor's role to that of aiding communication among students. This can foster highly creative learning experiences in that students are not constrained to necessarily learn the subject matter directed by the instructor. Student interactions may lead to learning in areas not envisioned by the instructor. The instructor's goal is to nurture learning, not to dictate, control, or direct learning.

In US, the three models are applied extensively. However in China, influenced by traditional exam-oriented education, the objectivist model is the dominant model while the rest play lesser roles.

The traits of e-learning (Ke, 2001; Liang, 2001; Liu 2003; Xing 2003; Zhang 2002; Zou 2003) have importance to China. First, e-learning has the promise to enable a very large audience to learn any course in any

place and any time. Thus it is a vehicle for bringing course work to a wide audience of learners, some of whom may have been disenfranchised from other learning delivery systems.

Second, e-learning supports a fuller use of educational resources. Technology resources (such as the internet and world wide web) are widely available, uniting educational resources from various education centers to share worldwide through internet can give access to more knowledge to those living in countries lacking educational resources. Higher education has traditionally been focused in small geographic areas (i.e. students "go away to college") and e-learning allows students distant from the geographic education centers to access course work.

Third, consolidation of pertinence for learning. E-learning is based on students' need, and is knowledge surrounding demand instead of traditionally demand surrounding knowledge. It facilitates the consumption of a single course, it lessens the need for a full set of courses that lead to one certain degree. The role played by the school can change from education administrator to servant for students' learning.

Fourth, increasing of a student's active role in the learning process. The possibility that anyone can learn any courses without being constrained to a time and place requires that the student provide the technology, study space, and other resources that have traditionally been provided on a campus.

Fifth, encouraging collaborative learning. E-learning's significance is not only sharing and effective transmission of information and resources, but more importantly is implementation of mutual interaction in all directions between users and resources, and between users themselves - i.e. positive and controlled communication. This mutual teaching strengthens communication between instructors and students, and discourse between students. The societal norms for collaborative learning are strong in China.

Sixth, centering students' learning activities. E-learning places greater emphasis on how students learn rather than on how teachers teach. In fact, in e-learning, students can

depend on their own demand to conduct study, and the communication between students is free. Teachers during the whole process are instructors, organizers, assistants, and participants.

5. IMPORTANCE OR E-LEARNING IN CHINA, FOCUS ON FOREIGN STUDENTS

Why is this e-learning important to China? China will increase the enrollment of foreign students in its universities from 140,000 in 2005 to 300,000 in 2020 (Du 2006). That is a staggering increase for a 15 year period. E-learning has the potential to ease this influx in two areas - increased course learning and expanded audiences.

Chinese remains a language that is difficult for westerners to master. Teaching the influx of foreign students in English or some other language presents additional burdens on a Chinese instructor. E-learning helps in that a foreign student can revisit a given lecture as many times as necessary to insure he or she understands the lesson content. E-learning also provides non-Chinese to live in their home countries while still being enrolled in a Chinese university. This greatly reduces the expense of student learning and allows Chinese universities to service a much broader market.

This increase in education of foreign students is so important that Fudan University in Shanghai is itself offering additional scholarships totaling \$125,000 USD to foreign students attending Fudan (Yang 2006). Approximately 2,800 of Fudan's 40,000 students (over 14%) are foreigners from over 80 countries. This figure means about 7% of Fudan University students are foreigners. The Ministry of Education in China has set a goal that 10% of all students in Chinese universities will be foreign students by 2020. E-learning can facilitate the increased numbers of foreign students in Chinese universities. But there are implications to current Chinese teaching methods, constructivist and cooperative learning models can make the best use of e-learning opportunities. Yet currently the main teaching model in Chinese universities is the objectivist model.

6. COMPARING E-LEARNING TO FACE-TO-FACE METHODS

Any comparison will find advantages and disadvantages for each method (Li 2005; Liang 2003; Zhang 2002). Since the authors support e-learning, our view will first show the advantages of e-learning followed by disadvantages. We realize that instructors who reject e-learning may classify our advantages as disadvantages and vice versa.

A first advantage of e-learning, in terms of the educational idea (Zhang 2003), in terms of teaching model, is that the development of website technologies spreads the learning materials for students, and not only lets students listen to the lectures in classroom, but also lets them conduct educational activities on their own PC, in library, a PC laboratory, or even the student's dorm room. The traditional face-to-face teaching requires the students' presence in a room with the instructor at a specified time. Face-to-face lectures do not provide as many opportunities for "creative learning" such as a student's ability to access old exams from the course via the instructor's web site while the lecture is being presented.

A second advantage is the students' greater access to the instructor that is accomplished with e-learning resources. Students can take full advantage of profuse resources on network. It is not sufficient for an instructor to use teaching methods that he or she has always used in the past, instructors should adopt the technologies in their teaching methods that support their students' learning. Just as instructors must continue to increase their research skills, their teaching skills also need to be continuously improved.

A possible disadvantage for e-learning can be its student-centered focus (Liang 2003). Student learning ability and style is important but it still remains the responsibility of the instructor to determine what knowledge and skills should be mastered by a student in a particular course. E-learning should not become the goal, the student's learning of course content is the goal. To the extent that student-centered e-learning distracts from the instructor's course objectives, e-learning methods can be seen as disruptive. Some would suggest that the increase in computer-based interaction lessens the face-

to-face interaction and can weaken the learning experience.

Second, in societies that value strong social/community cooperation, the use of e-learning methods can be seen as counter-productive. E-learning is commonly associated with individualized learning at a student's own pace and in the student's own time. The university may have competing goals of increasing student knowledge (via personalized learning experience enhance by e-learning) and fostering the socialization aspect of student unity in a class or campus. Certainly students that consume courses via e-learning that live in a distant country do not experience the day-to-day learning environment. For example, a student in Wilmington, North Carolina will not have the same university experience at Fudan University as a student in Shanghai when taking the same course if the student's only exposure to the Chinese university system is an e-learning course delivered over the web.

There has been much development of e-learning but it is not without problems (Liang 2001; Liu 2003; Mao 2000; Sun 2001; Wang 2005). Six doctor students from Harbin Institution of Technology were the first to obtain certificates of the U.S. University through internet. The first Chinese Campus via network was born in Hunan University in May, 1998. China's "sample project of educational and scientific research website" was the first e-learning endeavor.

The Chinese Ministry of Education in 1998 authorized Tsinghua University, Beijing University of Post and Telecommunication, Zhejiang University, Hunan University, Renmin University of China, and Peking University to be trials sites for e-learning. In 2000 there were 31 universities taking part in e-learning. Students must take entry exams to such 31 universities before being admitted. The relevant exams are designed by those universities independently. Among them, Communication University of China, Beijing University of Chinese Medicine, Beijing Language and Culture University, Huazhong Normal University, and Zhuangzu University only recruit adult students passing the entry exam for college. The rest of the universities can recruit both traditionally aged students and adult students who pass the entry exam

for college, and students passing the exams designed by themselves as well.

To promote the development of e-learning, the Ministry strongly promoted e-learning on the utmost position of its working list. It planned to invest roughly \$80 million USD on e-learning books for colleges and e-learning' teaching quality, and establish around 200 e-courses including features such as study online, student-teacher interaction, tutoring and answering questions, online assignments, online quizzes, and other features.

7. E-LEARNING PROBLEMS IN CHINA

E-learning in China developed slowly in recent years. The Ministry of Education initiative has not continued and results from the initiative have not been announced. Some of the infrastructure for e-learning is away from those who need to access the infrastructure. The system of e-learning became a decoration for colleges. Teachers and students were not generally aware of e-learning activities.

One problem was the lack of design of collaborative learning mechanisms and also suggestions to instructors for organizing and implementing e-learning courses. Only a small portion of e-learning courses provide relatively specific learning guide and other course support materials. Most of designers creating e-learning courses did not clearly understand the mutual function (constructivist learning model) in e-learning.

There was also an incomplete infrastructure in e-learning. Penetration of personal computers is low and many areas most needing e-learning experience slow networking speeds.

China lacks access to e-learning courseware (such as WebCT or Blackboard) at a price it is comfortable paying. The lecture form outweighs the design of the learning environment and activities. Majority of presentation and lecture of e-learning is text reading, and some just copy from text books. It lacks part of research learning.

8. CONCLUSION

China's stated goals for increasing foreign student enrollments in universities as well as its goals for bringing university education to a larger percentage of Chinese citizens will make great demands on the infrastructure of universities in China. A strong candidate for addressing the increased education needs is via e-learning. However, China has not had great success with e-learning experiences. There are good e-learning programs, but not of the quantity needed to meet the needs of the stated goals.

Another impediment may be the attitudes of Chinese faculty and students towards e-learning. One of the authors (a U.S. faculty member) discussed e-learning attitudes with some of the Chinese students whom he taught in China. While they have all the capabilities for taking advantage of e-learning with as much success as U.S. students, they related that they still favored a face-to-face approach (i.e. the objectivist model). They were very successful in school under that model - that is how they were able to enter their university. The model was comfortable and there was no real incentive or reason to change.

The ingredient lacking for e-learning to be successful in China is the attitude among faculty and students who would offer and take e-learning courses. Student skills, information technology, materials, and other necessary resources are available. This is exciting, since the will to change is all that is needed. A closer collaboration between Chinese faculty and U.S. faculty that have experience in e-learning course development can quickly increase the offerings and participation of Chinese students in e-learning courses.

REFERENCES

- Du, J. (2006). Editor. "Foreign Student Intake to Double by 2020." http://english.gov.cn/2006-08/08/content_357441.htm, visited May 28, 2007.
- Gao, J. W. and F. C. Li (2004) "Brief Discussion on the New Model of Education - Web-based Education." *Education and Career*, Issue 20.

- Ke, S. Y. (2001) "Discussion on the Complementarily between Web-based Education and Traditional Education." *Modern Long-distance Education*, Issue 3.
- Li, Z. G. (2005) "Research on Web-based Education using a School Network" *Wan-Fang Database*.
- Liang, J. Y. (2003) "Analysis of Traditional Education and Web-based Education." *Long-distance Education in China*, issue 208.
- Liang, X. D. (2001) "Research on the Development of Web-based Education in China." *Wang-Fang Database*.
- Liu, Y. W. (2003) "Discussion on the Impediments of Web-based Education." *Chinese Education Journal*.
- Mao, Y. M. (2000) "Research on Web-based Education Models and Implementation" *WangFang Database*.
- O'Loughlin, M. (1992) "Rethinking Science Education: Beyond Piagetian Constructivism Toward a Sociocultural Model of Teaching and Learning" *Journal of Research and Science Teaching*, 29, 8.
- Shen, J. (2003) "Research on Strategies for Web-based Education." *Computer Research and Development*, Vol. 40, No. 4.
- Sun, C. X. (2001) "Problems and Strategies for Web-based Education in China, Chinese Higher Education." Issue 1.
- Thorndike, E. (1913) *Educational Psychology: The Psychology of Learning*. New York, Teachers College Press.
- Wang, Y. (2005) "Analysis on Current Web-based Education in Universities." *Modern Long distance Education*, Issue 3.
- Windschitl, M. and Andre, T. (1998) "Using Computer Simulations to Enhance Conceptual Change: The Roles of Constructivist Instruction and Student Epistemological Beliefs" *Journal of Research in Science Teaching*, 35, 2.
- Xing, F. F. (2003) *Brief Discussion on Web-based Education*. *Modern Manufacturing Engineer*.
- Yan, Y. (2006). Editor. "Scholarships Awarded to International Students in Shanghai," *Shanghai Daily*, October 10. http://english.gov.cn/2006-10/10/content_408746.htm, visited May 28, 2007.
- Zhang, C. and Lv, N. (2003) "Web-based Education Model Focusing on 'Learning'." *Higher Engineering Education Research*, Issue 5.
- Zhang, H. J. (2002) "Discussion on the Characteristics and Models of Web-based Education" *Chinese Adult Education*, Issue 5.
- Zou, L. P. (2003) "Ideas about Developing Web-based Education." *Hei Long Jiang Higher Education Research*, Issue 4.