CASE FOR E-TOOL AND E-LEARNING

URANCHIMEG Tudevdagva (PhD), TSEVELSUREN Byambatsogt, TUVSHINBAYAR Amarsaikhan

Mongolian University of Science and Technology
Ulaanbaatar, Mongolia

Abstract – Distance and e-learning is one of main direction of modern education system. In this frame we are seeking new tools for teaching procedure using Information and Communication Technology (ICT). Usage of e-tools will give possibility increase quality of teaching procedure. Our main task is to create and use virtual laboratory in every kind of learning procedure.

Index Terms – modern education, virtual laboratory, learner, instructor.

READINESS FOR E-LEARNING

E-learning readiness components are 7 issues: business environment, technology, content, training procedure, culture, human resources and financial considerations as Borotis, S. & Poulymenakou, A. discussed in their paper.

Some facts:

- 2005 - Law about ICT
- 2007 - Policy for develop outsourcing in Mongolia until 2015
- National program for full e-registration (2008-2012)
- Broadband backbone - SDH: STM-1, STM-4, PDH 34Mbps, PDH 34 Mbps, VSAT C-Band Intelsat-906
- Internet exist connection speed - 1.2 Gbps (34 providers)
- Internet users : 25900
- Family which has computer – 40855
- Computers – 314080
- About 28 computer per 1000 persons

The Mongolian government began develop “E-Mongolia” project from 2005 year. In the frame of this project many different subprojects implemented in Mongolia: “Computer in every family”, “One laptop per child”, “Eschool”, “E-hospital”, “E-University” so on.

Main result of all these projects is:

- Created law base for e-business,
- Development of fundamental knowledge about computer technique in the population,
- Increase computer users
- Reduce price of computer technique

Other aspects of the develop e-learning in Mongolia is property of population. By 2009 year statistic Mongolia has 3041142 populations [1]. Mongolian population is very young. With this advantage we have enough number students always. People wanted to study. They need good and quality education. For it education system and method for teaching must renewed. Some kind of renew method is usage of new tools, usage of information technology in the teaching procedure.

Now everybody heard about “Lifelong learning”. Best tools for such us study is electronic version of learning materials. Learner can study without instructor in any place and in any time when he want it.

E-LEARNING IN PROGRESS

Mongolian University Science and Technology is one of biggest university of Mongolia. Our university has about 24000 students. In 2007 MUST create Special Program for E-learning [2]. Main target of this new program was: The MUST will be first Open University in Mongolia. This program include below goals:

- Create administration and monitoring environment for E-learning
- Select optimal method and technique for implementation of E-learning
- Create fundament of E-services for students
- Develop human resource’s skill for E-learning

The program had 3 steps:

1. First step 2007-2008 years
2. Second step 2008-2009 years
3. Third step 2009-2010 years

In main plan our program running in the time. Now the MUST is single university in Mongolia which has distance learning for master degree study [3]. Now 11 master students using this program. 2 students from Japan, 1 is from USA other students from provincial area. One student from China already graduated Master diploma used distance learning of MUST.

E-TOOLS FOR TEACHING

Quality of education depended from technique and method of teaching procedure. Laboratory always was and will be main point of engineering education. But some time we have problems with create new laboratory.

For example: finance, time, space, resources etc. Create new laboratory often requested not small amount.

If we will create laboratory in virtual version we can safe not only money we can use this virtual laboratory like tool for teaching procedure. Virtual laboratory like e-tools can be used not only in the distance and e-learning. It can be used in the normal teaching procedure.

For test we made Virtual Laboratory for one new topic. The topic “Service and repair of personal computer” need new laboratory. But we had not time and finance. Our group
decided create virtual version of this laboratory and use this like e-tools for teaching.

![Virtual Laboratory Diagram]

Fig. 1. The Structure of Virtual Laboratory

Virtual Laboratory called: VL4EC308 (Virtual Laboratory for EC308). Main structure of this showed in fig. 1. VL4EC308 considered 8 laboratories works. Every laboratory has parts:
- Title
- Goal
- Theory
- Practice
- Quiz
- Links
- Audio
- Video

The theory part sounded, learners not only can read theory they can heard it. Using videos students can feel like in real laboratory and will owned experience with laboratory practice.

TECHNIQUE OF VL4EC308

Technique and software for creation of virtual laboratory is very wide. It depended from target of laboratory, learners who will use it, implementation organization etc. Some people said: Virtual laboratory must be 3 dimensional. VL4EC308 is not 3 dimensional, it is only 2 dimensional. We have reason for it. First, The VL4EC308 is not single and last version of e-tools. Second, student will use VL4EC308 like main tool of study, but he will have real laboratory after. Third, create virtual version of real laboratory is finance problem. The 2D virtual laboratory has low price than 3D laboratory. Last, learners must study using virtual laboratory. Virtual laboratory is not animation or 3D cinema. 2D version is enough for study.

We use for VL4EC308 below software:
- Articulate Studio
- Sound recorder
- Emicsoft Video converter

CONCLUSIONS

Education is important part of any country in our time. Every person need best education. They wanted it. For lifelong learning and who has job distance and e learning is best solution for increase their education. Virtual laboratory can become main part of any kind of teaching. It can be used in distance, e-learning or in normal teaching. It is economical solution of finance problem. Virtual laboratory not must be in 3D. Virtual laboratory can created in 2D version. Target of any virtual laboratory is clear. It must help to learner study in best way, it must be good tool for lecturer. From this we can summarize main part of virtual laboratory must be “content” of it. One of advantage of virtual laboratory is easy make change to content. With develop technology we can change our laboratory content. If it was real laboratory for change that laboratory will be not so easy. It will be request again time and again finance.

In end of we have several ideas about distance and e-learning, e-tools of teaching:
- Universities of different country can be cooperate to this direction
- Universities can create common virtual laboratory and use it for teaching in any home university
- Exchange ideas and experience with virtual laboratory
- Create virtual open laboratory center between universities

REFERENCES