

Lessons Learned through Joint Research Projects on e-Learning in Asian Areas

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Abstract:

Information Communication Technologies (ICTs) are driven forces for evolutionary changes in higher education at universities and vocational education in industries. This paper describes challenges in e-Learning at Waseda University, especially collaborative works on e-Learning with people in Asian countries and reports some of lessons learned through these activities.

Keywords: ICT, Distance Education, e-Learning, Web-based Learning

1. Introduction

With a rapid development of Information Communication Technologies (ICTs), our daily lives have dramatically changed in politics, economics and social activities, and so on. These ICTs are driven forces for evolutionary changes in higher education at universities and ongoing professional trainings in industries, for example.

Lately, educational environment has been greatly changed with the introduction of the Internet, and Distance Learning or e-Learning systems have become increasingly popular. Distance Learning (e-Learning) is here defined as an education where instructors and students are geographically dispersed and ICTs are effectively and efficiently used to facilitate the education.

In other words, Distance Learning (e-Learning) is provided over the Internet and learners could access to and use courseware with Web browsers and is expected to be a supplement or partial replacement of ordinary face-to-face classrooms. Of course, traditional face-to-face education still plays an important role in many cases.

We introduce some of challenges in e-Learning at Waseda University, especially collaborative works on e-Learning with people in Asian countries and report some of lessons learned through these activities.

2. Joint Research Projects on e-Learning with Asian Countries

2.1 On-line Lecture Experiment over ISDN Network (Vietnam)

With the support of three Japan's funds, TAF, ICF and HBK, Waseda University and PTIT have jointly carried out e-Learning Experiments over the international ISDN, with PC-based AV teleconference systems since 1997. (Fig. 1)

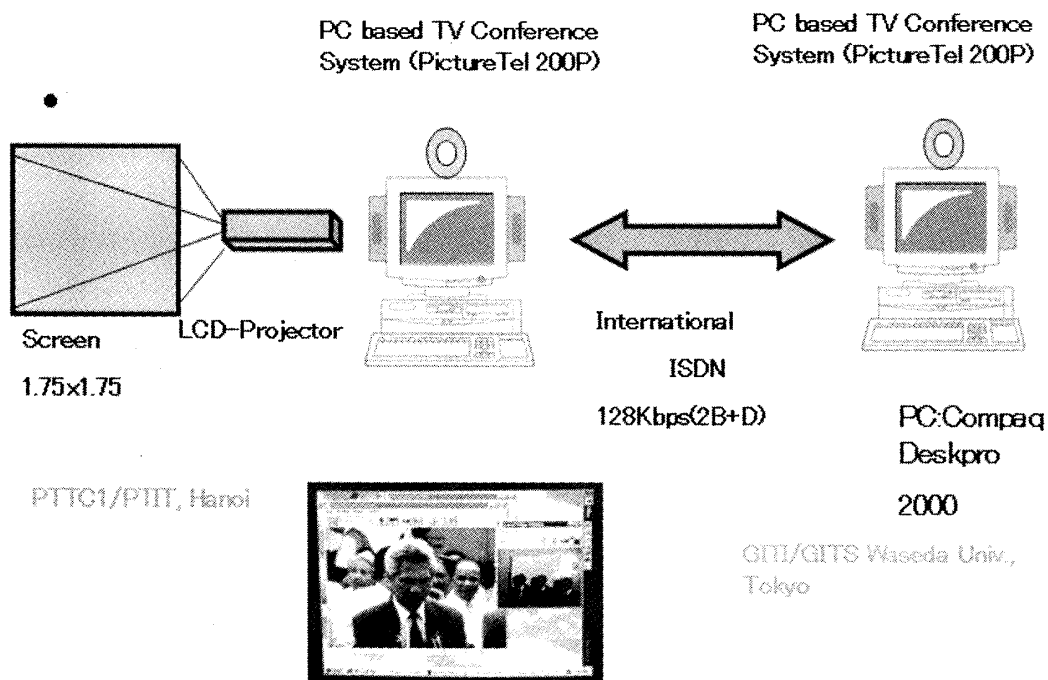


Fig. 1 Configuration of e-Learning System via ISDN

The contents of these courses are as follows;

- Telecommunication Technology (General)
- Broadband ISDN, Mobile communications and Network management
- Policy, Regulation and Business in Telecommunications

This Distance Education project greatly promotes educational collaboration between Vietnam and Japan. It is pointed out that further consideration should be given to stimulate interactive communications between teachers and students in the classes.

Web-based Learning over the Internet would be an alternative to solve the following problems for next steps;

- Cost-effectiveness of education / learning systems
- Learner-centered approach (for deliberating in depth and overcoming language-barrier)

2.2 On-line Trainings over JICA-Net (Thailand)

With the collaboration of ICT, PTD, NECTEC, TOT, CAT, AIT, Kasetsart University and ITU, GITS and JICA have started on-line trainings over the JICA-Net, with AV teleconference systems. Contents include Strategic Plan and Infrastructure of e-Government, Security Policy and Technology, Government Information Dissemination and Information Literacy.

Since we found language problems in lectures given in English, we tried to invite an assistant (a Thai student) to encourage communications between trainers and trainees. The materials in English and Thai are now being developed to solve the language problem. The Data Model of multi-language materials should be urgently studied to promote the sharing of these materials in Asian countries.

2.3 Web-based Materials Development (AIC members)

Web-based Courseware on Broadband ISDN, INTERNET, Wireless Communications and Mobile Communications have been developed by AIC (Asian Info-communications Council), 9 member countries in Asia. It is of great importance how to efficiently develop these learning contents with high quality for Distance Learning (e-Learning). (Fig. 2)

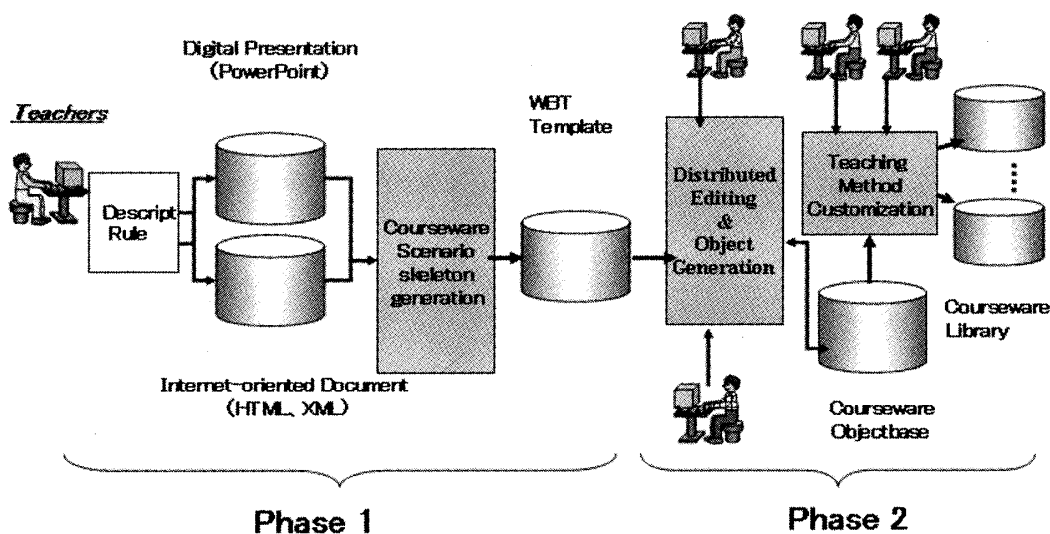


Fig. 2 Procedures for Courseware Development

In traditional ways of education / learning, Intellectual Property Rights (IPRs) of learning contents are not critical, because the use of these contents is limited in a classroom. However, in the case of network-based learning, classes would be open to the public, which means that consideration of IPRs is essential.

Linux approach, which implies the ways that lots of volunteers would globally join the development and share these products as common wealth, is attractive and promising for development of

learning contents.

2.4 Asia e-Learning Network (AEN) projects (Malaysia)

This project sponsored by Ministry of Economy, Trade and Industry has been jointly carried out in cooperation of MMU, Kyoto University, Waseda University and NTT-X. The main objective is to achieve a mutual experience in design, creation and operation of e-Learning platforms and contents based on e-Learning technology standard such as SCORM (Sharable Content Object Reference Model) (Fig. 3)

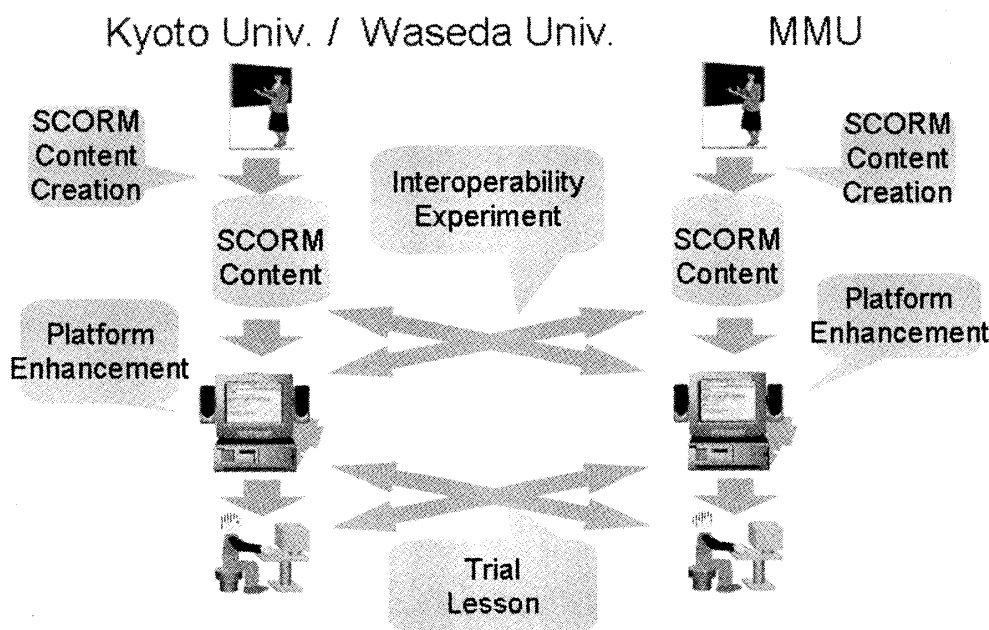


Fig. 3 Asia e-Learning Network

Multimedia University enhanced their e-Learning platform (multimedia learning System) so that it could deal with SCORM-compliant e-Learning contents. Japanese teams tried to provide SCORM-compliant WBT with the functional enhancement such as hand-written report input and simulation material execution.

The interoperability experiment was conducted to test if the contents developed can run on both MMU's and Japan's platform. Through trial lessons, usability of the system and effectiveness of the contents have been evaluated.

2.5 Information Infrastructure for e-Learning in Rural Areas (Malaysia)

The main objective of the APT / HRD Program is to promote the development of researchers / engineers in the Asia-Pacific region by exchange of such personnel through international collaborative research projects on advanced ICT. This project has been carried out collaboratively by Waseda Uni-

versity, UNIMAS (Universiti Malaysia Sarawak) and KDDI, in order to prove the interoperability of Wireless LAN systems in “Rural Areas” . (Fig. 4, Fig. 5)

Sceneries in Bario

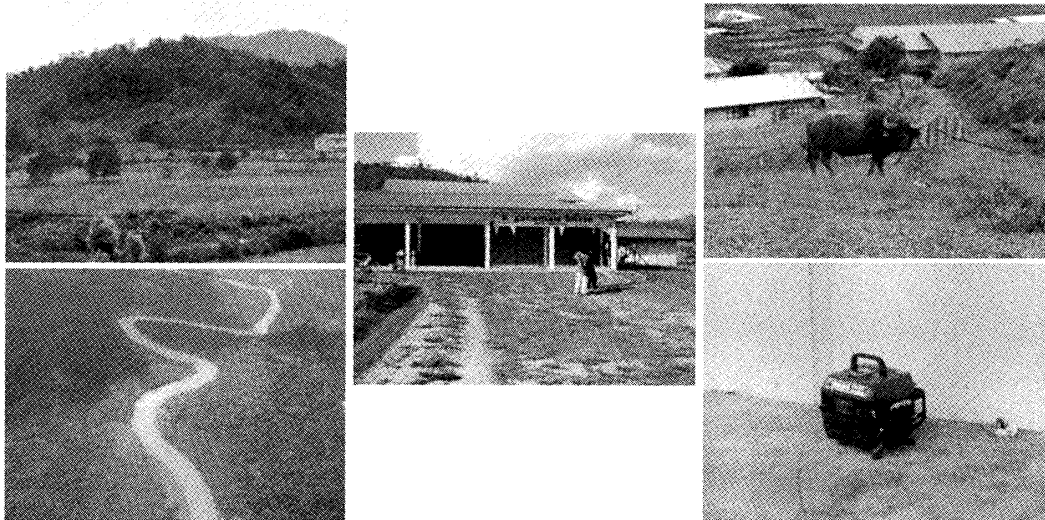


Fig. 4 Experiment in Bario, Malaysia

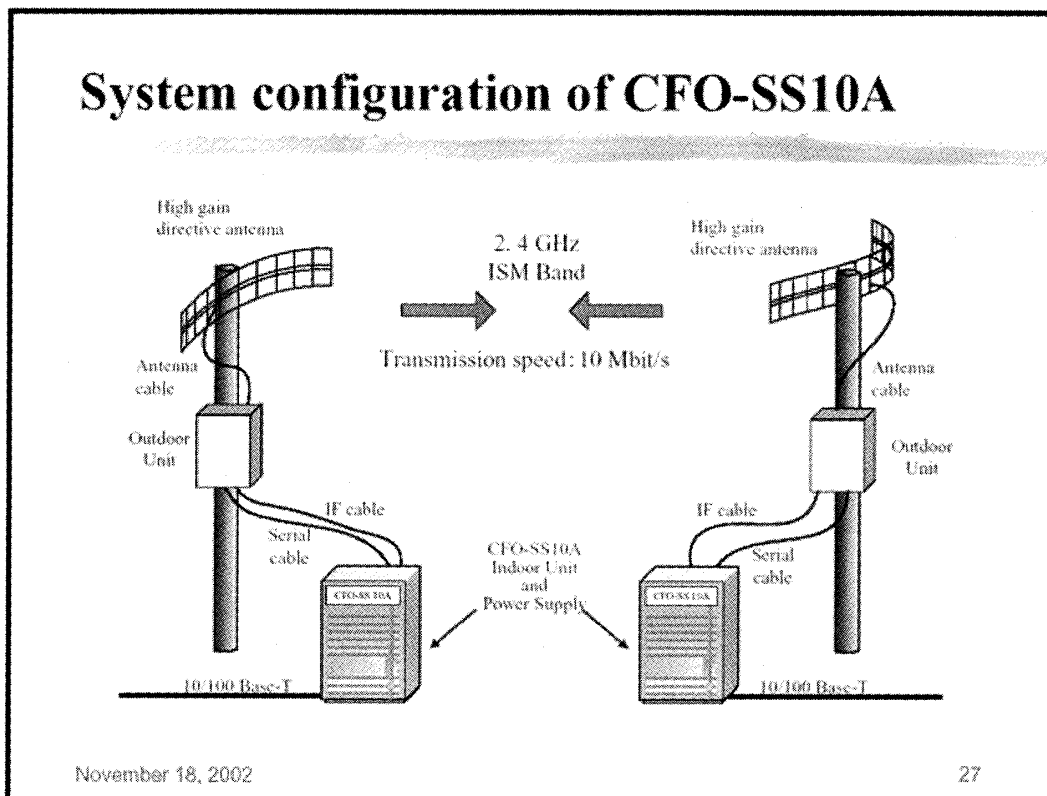


Fig. 5 Information Infrastructure with CFO-SS System developed by KDDI

The case studies of the latest Wireless LAN systems are informative and useful for Malaysian researchers and engineers. On the other hand, the study visits to the rural areas and the experiments

are beneficial for Japanese students and researchers / engineers to understand conditions in the rural areas. This experience will be helpful in making more practical proposals for the Digital Divide in the future. For further challenges, we have proposed an “en-RAN (Rural Area Network)” project where e stands for not only electronic but also electricity, economy, ecology and so on.

3. Lessons learned

Through these joint research projects on e-Learning with Asian countries, we have learned the following lessons.

- (1) The style of e-Learning would be different with each country.

For e-Learning in Asia, further development of Information Infrastructure with reasonable cost is indispensable.

In some rural areas, in Bario, Malaysia, for example, e stands for not only electronic, but also electricity and so on. In Tokyo, Japan and Seoul, Korea, a new educational paradigm, m-Learning is now studied, where learners can learn in mobile communication environments, anytime and anywhere when they want to learn. Finally ubiquitous Learning (u-Learning) would emerge.

- (2) Further consideration should be given to encourage interactive communications between teachers and students in the classes. In on-line lectures, an assistants who encourages students to ask their lectures questions could play an important role. Introduction of mentors (and / or Virtual Assistant) would be a solution to promote effectively promote Web-based learning / training. (Fig. 6, Fig. 7)

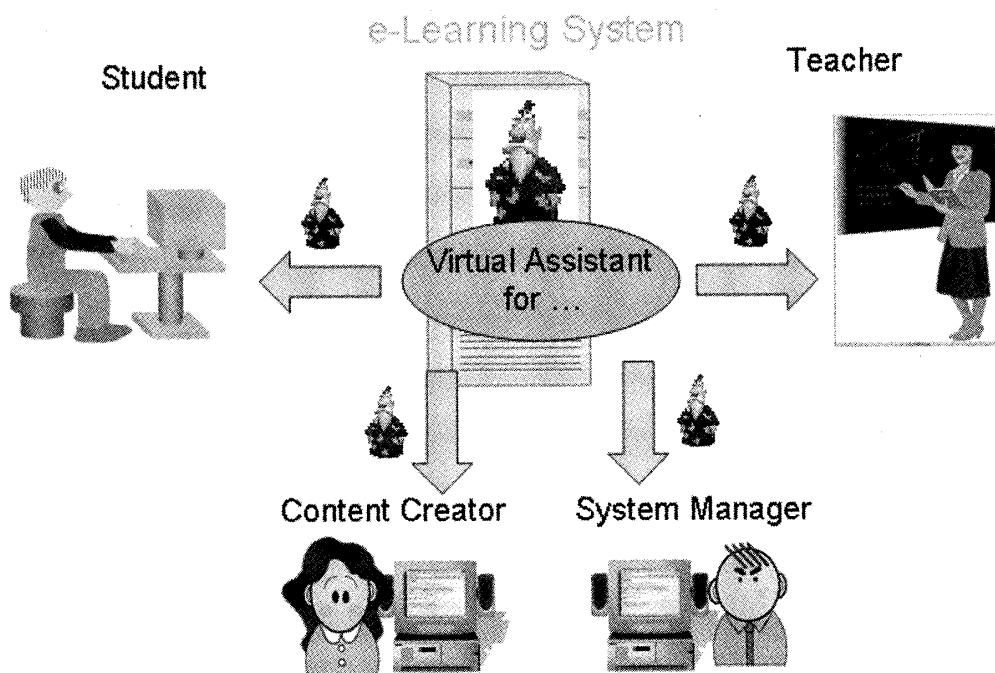


Fig. 6 Virtual Assistant System for e-Learning

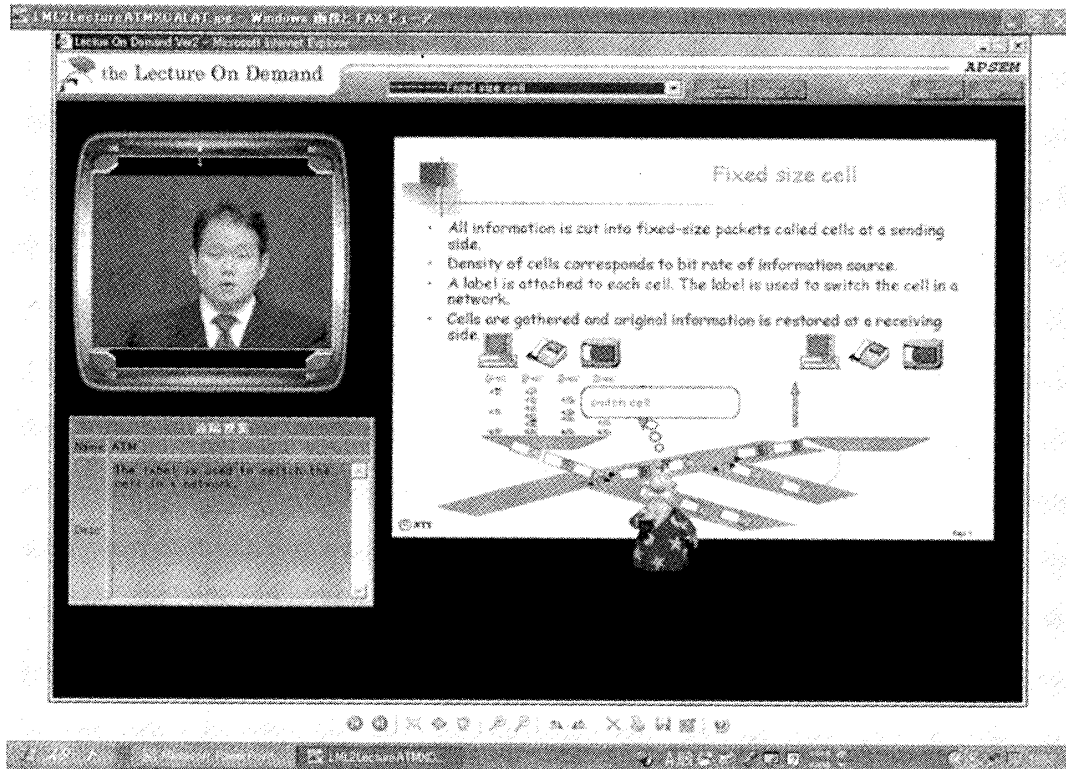


Fig. 7 Example of Virtual Assistant

- (3) There exist urgent needs of sharing experience, knowledge and wisdom on e-Learning including:
 - How to develop advanced Information Infrastructure
 - How to develop teaching / learning methods
 - How to develop high-quality teaching / learning materials
 - How to develop e-Learning professionals including Instruction Designers
 - How to train teachers and mentors etc.
- (4) Language difficulty should be taken into consideration when we carry out on-line lectures across borders. In our joint projects with people in Asian countries, lectures are given in English and we found urgent needs of material in Multi-languages.
- (5) For further sustainable development of e-Learning projects across borders, financial supports and win-win partnership among members with different backgrounds in politics, economy, culture etc. are essential.

4. Conclusion

Through these joint projects carried out with people in Asian countries, we may conclude that “Collaborative Works” greatly promotes sharing of experience and knowledge urgently needed for further development of Distance Learning (e-Learning) programs across borders.

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