필리핀 학습관리시스템 설계 및 구현

김벼리, 김보라, 정석용*

동양미래대학교 전산정보학부

Implementation of Learning Management System for Philippines

Byeo-Ri Kim, Bo-Ram Yoo, Suk-Yong Jung*

School of Computing and Information, Dongyang Mirae University

요 약 한국 기업들의 필리핀 진출이 활발해지면서 필리핀 현지의 한국 업체들은 한국어 능력을 보유한 현지 인력의 채용을 확대하고 있다. 이 논문에서는 한국의 e-learning 경험을 바탕으로 필리핀 현지 한국인 산업체 인력의 한국어 능력 향상을 위한 e-laering 시스템과 학습관리시스템을 설계하고 구현하였다. 이 시스템은 JAVA, ASP 와 HTML로 구현되었으며, 강의 자료 및 학생 자료는 MS SQL-Server로 관리되도록 구현하였다.

• 주제어 : 학습관리시스템, 설계, 구현, 필리핀, 자바

Abstract   South Korea is one of major trading partner of Philippines. Many Korean manufacturers and tour companies have branches in the Philippines. Korean companies need to enhance Korean language capabilities for Filipino employee. South Korea has many successive experiences for e-learning. In this paper, we developed Learning Management System (LMS) for Philippines. LMS was implemented in JAVA, ASP and HTML. All lectures are stored in database managed by MS SQL-server.

• Key Words : Learning Managemant System, Design, Implementation, Philippines, Java

1. Introduction

The past decade has seen enormous growth in the use of learning management system (LMS) in higher education and continuous education institute. Much of the success of e-learning can be attributed to the availability of LMS. Hall[1] defines an LMS as :"software that automates the administration of training events. All Learning Management Systems manage the log-in of registered users, manage course catalogs, record data from learners, and provide reports to management."

The Philippines is a beautiful country that has more than 7,000 islands. And South Korea is one of major trading partner. So, many Korean manufacturers and tour companies have branches in the Philippines already. Those companies get hired Filipino and want to hire more. However it has some problems for Korean company to get hired more Filipinos because of language barrier. And also there are many Filipinos who want to get a job in Korean company in Philippines. In order to get those jobs, they need for education of Korean language. But Learning Korean is not easy. There are no many Korean language

education institute in Philippines, and even they have get a chance to learn Korean in education institute it is very difficult to reach an education center because of many islands. In these environments of Philippines, e-learning through the LMS is very effective.

This paper described experience of LMS implementation in Philippines based on the successive experience in Korea. We implemented LMS for Korean language study and introduce LMS to Palawan city in Philippines.

2. Experience of Learning Management System in Korea

LMS is a software application for the administration, documentation, tracking, and reporting of training programs, classroom and online events, e-learning programs, and training content [3, 4, 5]. LMS is very important application software at e-learning system.

If using LMS, the student who want to learn Korean need not to get together in one place. Instead of getting together, they just turn on their computer and study Korean using LMS. Even more Korea has much experience of LMS implementation and many organizations such as schools, businesses and government offices are offering educational content using LMS. And also most of universities in South Korea provide e-learning system to their students. And market has been enhanced lateral support of the government for based on the e-learning market of LMS.

Korean government also has supported to make good infrastructure for e-learning system. The information service system in education is comprised of three main groups: EDUNET (for teaching and learning), EMIS and NEIS (for administration), and CHLS (for home learning)[2]. EDUNET was developed to operate and provide multimedia materials, instructional lesson plans and evaluation items according to school level. EMIS focuses mostly on collecting annual statistical data from educational institutions while NEIS manages and integrates personnel, financial, and school affairs within or between institutions, regional offices and the Ministry of Education. CHLS provides individual learning materials and online tutorial support in order to bridge the education divide for after school private tutoring. These services are aimed to provide an effective environment, improve productivity and efficiency, and harness ICT in education nation-wide for teaching and learning and administrative purposes.

And also we can get successive experiences on LMS around the world. Open CourseWare(OCW) of consortium of several universities and I-tunes university by Apple are great examples. In OCW, lectures are opened by the consortium of several universities. And many universities and colleges in the United State America also provide their lectures through Apple I-tunes.

If somebody can connect the internet infrastructure, they can access lectures provided by OCW and Apple I-tunes University anytime, anywhere. The Philippines which have many islands can get more advantages if they have e-learning infrastructure and LMS. The successive experiences of LMS and e-learning in South Korea give other chances to Korean company in the Philippines.
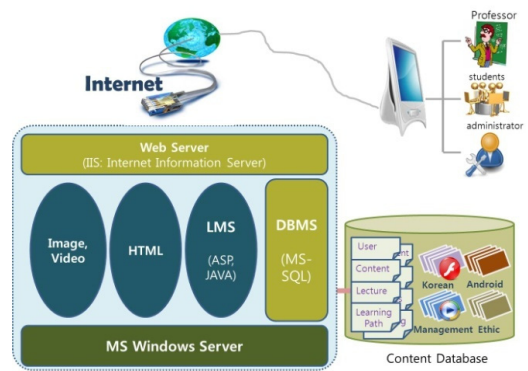
3. Implementation

LMS is a software application for the administration, documentation, tracking, and reporting of training programs, classroom and online events, e-learning programs, and training content.

In order to support the learners in cyber space, we implemented some functions of enrollment and preparing for participation in the learning process. After the preparation process, the actual learning takes place in the learner's learning process. And also learning to track and managing the history of personalized learning for individual learners will be

provided. And we implemented key features of the LMS such as cooperative learning capability, attendance management functions including the board. In our system, the student's individual learning can be configured as an effective learning environment.
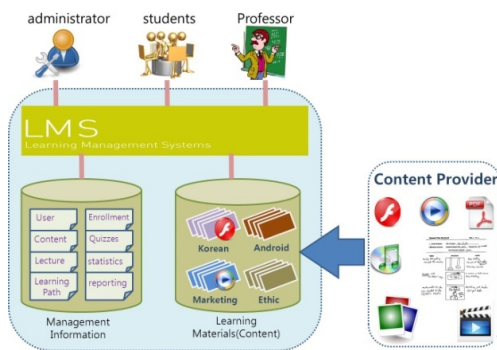
The LMS was implemented in ASP, JAVA and HTML. And lectures, images and video files are stored in MS SQL-Server database. Clients can accept with contents by connect to server through Internet.

Fig.1 shows configuration of our LMS. There are three users such as administrator, student and professor. Students can get lectures. Professor can manage students and test and homework. Another user, administrator, can access all of information in LMS and also can configure LMS functions. The learning materials stored in database are provided by content provider. They have several formats such as flash, PDF, AVI, MPEG-4 and text.


[Fig. 1] Functions of LMS

The functions of LMS are implemented in ASP, JAVA and HTML. LMS can access learning materials through MS SQL-server. Fig.2 shows internals of LMS.


[Fig. 2] Configuration of LMS

We implemented three accessing views such as students, professor, and manager. Each user can access LMS through their own view. Of course LMS checks authorization. LMS provides students view like Fig.3. After authorization, students can enroll to the specific class. And they can get a lecture in their class room. After lecture, they get test provided by professor.

[Fig. 3] Student View of LMS.This shows four major components of student view – main visual, main navigation, login and notice.

Fig.4 shows manager's view and professor's view. Managers can make new class rooms. They can register new lectures and lecture plans. Professors can monitor lecture progress of students. And they can assign homework to students. Professors also make quiz and test for some lectures.
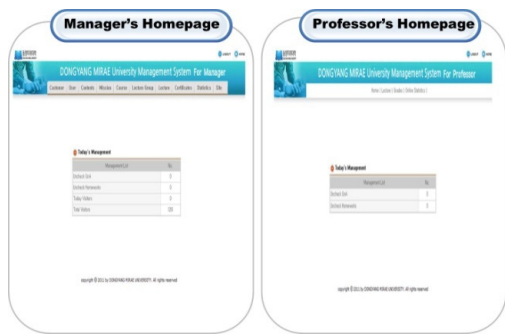
[Fig. 4] Manager's View and Professor's View of LMS

We prepared LMS demonstration system for Philippines. We configured local area network to demonstrate LMS like Fig.5. LMS server and three client computers are connected through router. Smart devices such as I-pad of Apple and Galaxy Tab of Samsung connect to LMS server through WIFI. Lectures of Korean are stored in database for demonstration. Some other lectures of IT education are also serviced. Of course all lectures are managed by MS SQL-server DBMS. In order to demonstrate our LMS efficiently, smart devices are used as LMS clients. Users are can access LMS server by smart devices.
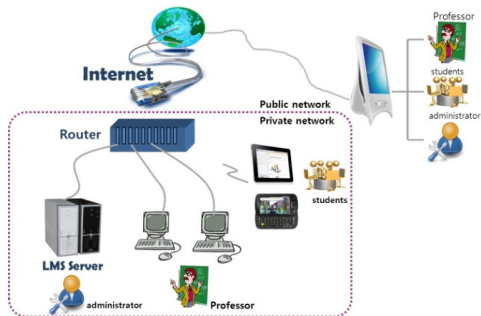

[Fig. 5] LMS Demonstration Environment for Philippines.

In demonstration system, DB server and Media server are installed in one system. As the users increase, DB server and Media server will be separated. Systems then will grow. Fig.6 shows the system configuration for actual services.
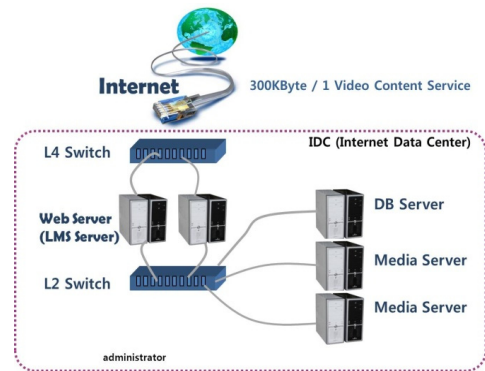
[Fig. 6] System configuration for service. L4 switch for load balancing and L2 switch for separation network are located in network. In order to support heavy load from outside, DB server and Media server are separated.

Palawan is one city of Philippines. It has the potential to be a good tourist attraction. So the government is developing many beautiful sites around city. It is very good reference to introduce LMS. We demonstrated our LMS in Palawan city. And Palawan technological college joined the demonstration. Our LMS will be operated by Palawan technological college.
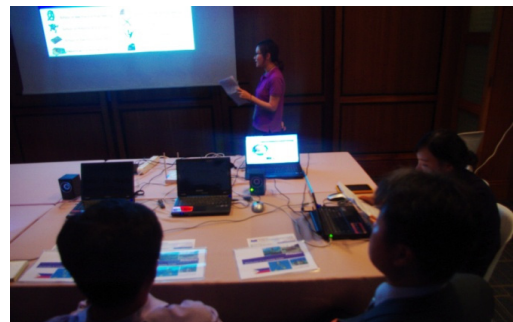
[Fig. 7] Demonstration on LMS in Palawan Philippines

4. Conclusion

Korean companies in Philippines need to enhance Korean language capabilities for Filipino employee. However there are no education institute and teachers. Even more Philippines have more than 7,000 islands. It makes Filipino difficult to access educational centres.

Korean companies want to find out solution from e-learning. LMS is key software in e-learning. And South Korea already has many successive experiments of e-learning and LMS. There are some reasons to introduce LMS in Philippines. LMS can insert various kinds of lectures very easily and there is no limit to learn in the distance. Anyone can study everywhere if they can access network environment.

In this paper, we described how to implement LMS and what kind of functions in our LMS. We can access lectures from client PCs connected through Internet. And we can also access to LMS server using smart devices.

However, it has to develop more functions for smart devices. In this system, smart devices only display multimedia lectures now. We cannot control LMS functions with smart devices. Now we are developing LMS functions for accessing smart devices.

REFERENCES

[1] Hall, B., "New Technology Definitions", http://www.brandon hall.com/public/grossary/ index.htm.

[2] UNESCO, "Institute for Information Technologies in Education,E-Learning in the Republic of Korea", 2010.

[3] Koolen R. "A Knowledge Mechanics White Paper. Learning Content Management Systems – The Second Wave of eLearning. Knowledge Mechanics", Grand Rapids, Michigan, USA, 2001.

[4] Vovides Y, Sanchez-Alonso S, Mitropoulou V, Nickmans G., "The use of e-learning course management systems to support learning strategies and to improve self-regulated learning". Eduvational Research Review, pp. 64-74, 2007.

[5] Wiley D. Learning Objects, "Content Management, and E-Learning", Content Management for E-Learning, pp. 43-54, 2011.

저자소개

김 벼 리(Byeo-Ri Kim)   [준회원]

·2012년 : 동양미래대학교 전산정보학부 인터넷정보과 재학중

<관심분야> : 정보통신

유 보 람(Bo-Ram Yoo)   [준회원]

·2012년 : 동양미래대학교 전산정보학부 인터넷정보과 재학중

<관심분야> : 정보통신

정 석 용(Suk-Yong Jung)   [종신회원]

·2012년 : 동양미래대학교 전산정보학부 교수

<관심분야> : 정보통신, 실시간시스템