Effective Teaching with E-learning
—The Practice of a LMS in Guizhou Normal University†

Yin LAN*  
Guizhou Normal University  
Du WEI**  
Akita University

Abstract
E-learning is facilitated easier and better through the use of information and communications technology (ICT). It plays an important role in renovating the conception of teaching and learning, especially in school education of China. Nowadays a practical way to promote E-learning and improve teaching quality is to utilize a good Learning Management System (LMS) effectively. This paper discusses about the LMS used in Guizhou Normal University of China. During the application, we gain valuable experience and also give our advices for its improvement. Web technologies are shaping education day by day and they will be a great impact on E-learning. The paper drafts a terminal learner model to assist students in the LMS. "Masters or Slaves to the Technology?" as Dr. Gilly Salmon said, this paper also discusses the E-moderator role and collaboration in E-learning environment. Through the teaching practice with LMS and under the influence from Web 2.0, we begin to do some research on E-learning 2.0. The goal is to use not only techniques but also information awareness to make E-learning more pervasive and effective.

Key Words: E-learning 2.0, Learning Manager System, Terminal Learner Model, E-moderator

1. Instruction
1.1 What’s the LMS?
New techniques facilitate the teaching and training. E-learning has been the most promising issue in today’s education. What we called E-learning usually refers to web based training (WBT): learners open the browser and visit the online teaching website. Nowadays, we take good use of all kinds of software and tools we have to assist our E-learning activities. Many teachers improve their training by dealing with the excessive E-mails from their students, and even use personal WWW sites and FTP sites to share the ideas and resources. In short, we mix technical plans and defined a personal solution for computer based education. But it’s real an extra workload and not a practical idea for teachers of all subjects. We need an effective strategy to change the situation. A feasible way to promote E-learning and improve teaching quality is to effectively utilize a good Learning Management System (LMS). A LMS is a strategic solution for planning, delivering, and
managing all learning events within one organization. The primary solution is replacing isolated and fragmented learning programs with a systematic means of assessing and raising competency and performance levels throughout the organization. It simplifies the administration of training and learning.

This paper discusses about the LMS used in Guizhou Normal University of China, from which we gain valuable experience and sum up some lessons along our way of E-learning. And we also give some corresponding advices for the improvement of the LMS. Therewith techniques like Blogs, RSS, Podcast etc. become so hot in today's Internet, we will see how web technologies are shaping education. A new term of Learning 2.0 will be a good direction for further research and from the lessons I draft a terminal learner model in the LMS in the paper. Meanwhile as E-learning brings so much extra hard work to teachers, we are puzzled about the role that we teachers play in the virtual teaching environment.

New technology makes us into servers and works continually. E-moderators and collaboration in E-learning environment must be a solution. This paper also discusses something about them. And our goal is just to make E-learning more prevalent and effective.

1.2 Application of the LMS

In 2003, we began to use EyouCT (the WebCT in China), the LMS that some of staffs and students of Guizhou Normal University use for teaching and learning activities. (Blackboard and WebCT merged in 2005.) It is a web-based, online courseware platform that provides five types of user in the LMS: Administrator, Help Desk, Designer, Teaching Assistant and Student. Generally, the administrator distributes IDs and original passwords for teachers and students. Teachers, as the designer, build the learning environment freely. Then students log into the LMS with the given IDs and passwords for courses from any Internet connection. Help Desk can add students to courses or remove them from it, but only the Administrator can create initial courses. And teaching Assistant could assist designer with grading assignments and quizzes.

The LMS provides a set of administrative tools to help instructors manage and continuously improve courses. The tools include:

a. Content building utilities

Building content in the LMS is always considered first and foremost. Instructors use tools or Wizard to gather all kinds of digital information (webs, links, text, pdf files, Microsoft office documents etc.) on the learning environment. Most teachers use tools such as content modules, syllabus, glossary and calendar to enrich the platform. And evaluation tools such as quizzes, surveys, assignments are also available. The LMS also provide common communication tools such as E-mail, Discussions, Chat and Whiteboard etc.

b. Design utilities for constructing a course

The LMS also provide curriculum design tools, which include setting of elements in the webpage, setting web color schemes, layouts, etc. We use them to define pages and edit their property, for example, you can use the icon you like for guidance, arrange web elements for friendly learning, and even set some browse strategies. In short, to assist teachers define the ideal interface for students.

c. Administrative utilities for course

Administration for all kinds of training business is necessary in a LMS. It simplifies the E-learning activities. In the LMS management includes files, course and students. We can upload, download files and organize them, tracing the students' activities in the virtual learning environment.

In fact, we want to build a good demonstration on the LMS, so we choose a subject named...
Computer Basis for a good start, and took great work including web pages of textbook, courseware, videos, quizzes and tools together to design and build a virtual learning environment with the LMS. Figure 1 below shows a sample of the main page design interface in the LMS. During our teaching, students visit the website for compensatory study out of the classroom. They also communicate with each other and take quizzes online. Meanwhile teachers also use the

Figure 1  A homepage design sample of the Computer Basis in the LMS

Figure 2  An original design sample linked to the LMS
LMS for all kinds of subject, but most of them finally give up for extra workload and lack of teamwork.

Frankly speaking, it's a hard work to prepare lectures and all kinds of teaching strategies on the original LMS. It seems that the typical and predominant use of the LMS is to upload digital files. When basic design template cannot meet our special need, we try to design some courses in an original way then link to the LMS. Figure 2 shows an original design sample to satisfy the individual need. Though we realized our expectation on LMS for subject of the Computer Basis, it's still hard for an extensive use. That's why there are still many teachers resisting to use the LMS. Anyway, the obstruction comes from not only techniques but also culture and awareness. From our experience we sum up some lessons and discussion.

1.3 Benefits and Problems

Online learning for students means learning without the limitation of time and location. We also call it asynchronous learning and self-pacing learning, and it also implies the global potential for learning, efficiency gains through shared endeavour and assistant with specific needs.

But in reality some problems are obvious:

- Good network condition are needed
- Basic computer skills
- Extra workload
- Digital files are needed
- Problem of selecting appropriate content and arrange them
- Credibility of the instructor in the LMS
- Insufficient exploitation of the LMS

Computer skill will be a basic quality for teachers, so we don't have to worry about it. Getting the digital lectures and arranging them effectively have become a common problem for teaching on LMS. The digital subject building is crucial in the LMS. It has to be sure that all the digital information are needed and well arranged in the LMS. Teachers who know the cognition principle of a subject are the best designers. So the concept of team work for subject building on the LMS is important, especial the cooperation between teachers from all subjects and courseware design professors. Good team work for subject building will greatly improve it. At the same time, roles such as administrators in the LMS are also essential.

It seems that insufficient exploitation of the LMS becomes an obstacle for E-learning. With no doubt, it's a complex problem and technologies will lead the way to a bright future. However, our teachers always try to make a friendly interface for learners. We also need a friendly interface for design purpose. Maybe just a little
bit change of the interface will accelerate a lot.

"In the rush to put courses online, the key role of the online teacher or trainer is sometimes forgotten." Gilly Salmon suggested a worthwhile issue about E-learning. And we use the term "E-moderators" to describe nowadays online teachers. E-moderators and a belief system in the LMS become a hot topic. A reliable learning environment is essential to learners for online study.

2. Solution and advice

E-learning is a cross discipline that spans philosophy, psychology, pedagogy, anthropology, AIED (Artificial Intelligence in Education) etc. Just like a traditional teaching method, never a LMS could be called prefect. According to the common problems we currently face, we suggest three typical problems and will talk about some solutions from the following aspects.

2.1 Asynchronous learning and a solution of the terminal learner

In the LMS, our colleagues prepared a lot about the subject before a new semester. And we are satisfied with our work. While we wish it could work for semesters, nothing is unchangeable. Investing time and effort in creating online materials and promoting their existence is a continuous work. The LMS needs to work closely with the class changes, to make sure that even an announcement or a timely review is effective. So the online platform seems to be restricted.

The traditional classroom teaching are still leading the way, we published a corresponding book named Basic Application of Computer to accomplish the whole teaching plan. At the same time we built the online teaching materials like courseware, video etc. Then share them in the LMS with different teacher IDs, and adjust the details individually. A clear training goal is essential in school study, in the whole learning processing, which means the E-learning must be intentional. So we set the timely online quizzes in every learning level in the LMS, after that we get the scores and evaluation easily in the LMS, the online exams maybe the most charming thing for Chinese teachers set free from burdensome work of grading.

Online teaching materials are rich but easy to lose its activity. Let's have a look at the statistic from the LMS used in one of our classes. Figure 3 shows the counts of the students' web visits and thus means the activity of LMS. The statistical data indicate the counts of web-page accesses (hits) made by the 86 students during the duration from Oct. 31, 2005 to Jan. 23, 2006. We get data from logs of the LMS.

At the top of the figure it shows that learner 20 is the most active one in the LMS. The counts vary from 7 to 201 and indicate a big counts difference in the figure. In the class, we teachers

![Figure 3](image.png)
can’t spend too much time on the LMS after finishing the subject design. And what we do is putting quizzes on LMS according to our teaching plan, most of which will expire soon on certain dates. The mandatory tasks made the system work more effectively to some extent. But the counts result is still not as good as we expected and the LMS seems to work not that actively. So I think there are must some other strategies making learners really join in the class.

Asynchronous learning changes learning opportunities into a personal timetable. But most of time, instructors feel helpless about the inactivity of the LMS. And the students' online surfing is always out of control. The lack of interaction might be the reason. In fact, it’s bad for all the information pours into the LMS then without any refresh. It's hard to arouse the curiosity for a long time, and students begin logging into the LMS casually. So we draft a terminal learner model, and which should be considerate in the LMS for personalization and challenge. It must be a client helper and manage study activity for learners. The modules and function of the terminal learner model are followed:

a. A P2P based study source organizer

Distributed computer architectures labeled “peer-to-peer” (P2P) are designed for the sharing of computer resources by direct exchange P2P software as an example of web 2.0 tools is a disaster for copyright, but the idea of sharing is a good reference for E-learning, especially for collective certain goals in subjects with good network condition (almost all students will live in the campus and be supported with campus network in China). A peer-to-peer content distribution system should be considerate in an effective architecture. Sources for exchange and organization should useful in the terminal learner model. However the exchange should be supervised in the LMS. A study source organizer is conceived as a users’ assistant for learning sources management based an effective infrastructure as figure 4.

![Figure 4 Infrastructure of the sharable network](image)

b. Study Syndication

Web 2.0 tools changed the Internet a lot, such as Blogs, RSS, XML, Podcast etc. We will see how Web technologies are shaping education, and it will be a revolution of E-learning. There are many teachers and students that use tools such as Blogs and RSS reader for learning and communicate. And I wish the functions of them can be reflected in LMS. RSS feeds can be created in XML, students can read relative learning material timely on their PC with RSS reader. They also collected their learning feeds from the Internet, which means every student will build his learning sources and share in the LMS, of course, sharing with groups, classes or everyone is determined by the owner. We conceive the Study Syndication will more like a terminal study content manager. For a student must learn many subjects in the LMS and all the learning content could be organized as a personal study syndication. Like a good RSS reader, we read and organize information what we need effectively. XML based content organizer should help us for some further research on it. And with the development of a promotional Podcast, we even
enrich our *Study Syndication* in listening and watching. With these kinds of application are realized in the LMS, E-learning 2.0 will not be just an abstract term.

c. Personal upgrade utilities

We spread all digital information in LMS like a flood. The students have to spend more time, most of which are for filtering irrelevant or uninterested information. Just like playing attractive games in levels, students need a real self-pacing. Learning content in the LMS in levels lead to a certain goal and we can use a terminal log for some record of the study plan. Our tasks on the LMS must be challengeable and be authorized step by step. Summarizing is a good strategy in each update. According to the learning activities record of the students, all the available study events will be changed into the personal experience. Such as activities in the BBS, scores from the quizzes, amount of contributing learning materials etc. Which update day by day in personal record and represent as a symbol in the terminal model, for example, the step by step learning process for students is more like growing a big tree from seed. Enjoyment of upgrade may lead an effective learning.

d. Learning activity manager

Further more, we depend on online study gradually, though we have a work calendar in the LMS, but these kinds of tools are more effective on the side of terminals. A good study business manager in the model for subject learning is needed. Such as an information alarm, schedule, a timely warning, a notepad and so on will be effective for daily learning business. Learning activity manager could assist students dealing with life and study effectively.

In short, the terminal learner model will be a personal strategy to make E-learning more effective. And our conceivability is not unpractical with today's technology support. To focus more on what's our requirement and the compatibility should be considerate in today's school education of China.

2.2 Activity of the LMS

During the teaching, the application of syllabus, timetable, announcements, Chat room, Email etc. in the LMS are not utilized comprehensively. Internet potential learning extends the LMS, and a LMS should not be a closed system. In our platform, hyperlinks become a form of extension; we put some introduction and links in the LMS, which are more like a public "Favorites Folder" of the subject. Students like them very much and they are good recommendations for further study. Organizing of hyperlinks seems to be an effective way for the activity.

When we pay too much attention on our content, most of the tools of the LMS seem to be surplus or dispensable. So the overall function of the LMS is not effective. If we have a good E-mail system, we don’t need to change to the system of LMS. So the LMS wouldn’t always consider comprehensive functions. And compatibility with the current school environment is important.

Meanwhile there are so many reference books and digital information in our library and websites. A LMS won’t be a separate world. It’s not practical that the instructors do every search jobs and filter information. The ideal LMS should include an active portal for information searching and organization. And combination with other existent utilities will enrich activities in the LMS.

In the short to medium term, standardization is the most important direction E-learning will move in. Sharable Content Object Reference Model (SCORM) as one E-learning Standard is a collection of standards and specifications for web-based E-learning. I found it discusses a lot out of the mainland of China, and the application is still ambiguous. So it has significant meaning for current school education of China to connect with the worldwide E-learning standardization.

WebDAV is supported in the LMS, and it
stands for "Web-based Distributed Authoring and Versioning". It is a set of extensions to the HTTP protocol which allows users to collaboratively edit and manage files on remote web servers. But the interface in the LMS is not so friendly and the application is still limited. Effective way of file transfer will be more attractive.

2.3 E-moderators and collaborative environment

In a LMS, the teachers play as the roles of E-moderators naturally, but usually turn out to be unqualified. The main reason must be a heavy extra workload and lack of online teaching experience. From the perspective of Chinese culture, e-learners may feel that they are subservient to a teacher and this could cause potential problems. That's one reason why a good "discussions" forum is provided, but seems to be dispensable. And the virtual learning environment always loses activities for a period of application. E-moderators are needed in nowadays E-learning, and online competencies are real considerable. Professional E-moderators should be trained and operate online. They ensure basic query service for students. And the E-learning environment also challenges E-moderators in a new work space. In our opinion, the e-moderators should not always be teachers. Senior students should be qualified at current situation. Deep communication as the best way for exchanging ideas is realized online. In E-learning environment, building a good belief system is essential for deep communication in teaching and learning. Pedagogical and psychological learning theories are effective in the LMS as in the classroom. And usually E-moderators also need some tricks to lead an active virtual environment. If a moderator wants to help participants with knowledge building from their discussions, a more useful intervention would be to summarize by portraying a "landscape," which may includes multiple perspectives on the issues discussed.

From the other side, a collaborative environment for the improvement of LMS is the key to make teachers masters not slaves. The solution is that students learn by group cooperation. For example, we have many forums for students to ask questions and solve problems in the Internet. In the LMS, an active collaborative forum for learning is available. The example of WIKI is a good reference model for E-learning collaboration. Furthermore, Students need to learn to solve problems together, and the LMS should give the credits to the person who suggests valuable questions and who solves problems. Only collaboration in E-learning environment can liberate teachers from immethodical online business. And collaborative environment is also a good training for the personality of students. The quality for collaboration is an important part of education.

3. Summary and conclusions

Our E-learning practice is a blended teaching experience including both successes and shortages. How to teach and learn in a more effective way is still on further research. The definition of E-learning from the JISC (Joint Information Systems Committee) is "Learning facilitated and supported through the use of information and communications technology (ICT)". The development of digital age makes E-learning a promising future. At present tools like Edu_RSS are exploiting, we try to utilize the current LMS and campus network to assist E-learners. But the compatibility and application are discussible. Our practices are going on and we teachers have the responsibility to accelerate E-learning, and strengthen the consciousness for teachers. The paper sums up lessons that we learned from our E-learning experience and poses a new research plan for nowadays E-learning. We conceive a terminal learner model for personalization and the research begin with a good start, and tools will be exploited. E-learning
2.0 will not be an abstract term any more. Meanwhile, E-learners are collaborated in groups, and some of them will be promoted as teaching assistants in the LMS, most of the time, they play the roles as e-moderators, then teachers will work as masters and benefit from technique and management. As the experience of using LMS and other effective technologies of education increases, teachers will have more confidence and their resistances will decreases. Technologies lead an inspirational LMS, and we believe a pervasive multidisciplinary E-learning will be finally realized.

4. References