

Instructional Design For eLearning Courseware: The It-Plus System

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Today the new teaching and learning environments is changing through the active and engaging use of new technologies. Technology based distance learning or eLearning can benefit students and institutions in terms of access, learning environments, infrastructure, affordability, quality and convenience [1]. eLearning is defined in “Training and Instructional Design” as a type of learning that provides support through the use of technology. eLearning could be either supplementary for students in blended mode classroom or another step forward into the total on-line mode. However, no matter how much technology becomes an essential element in learning, an instructional designer has to consider the most appropriate methods to support effective learning [2].

The primary goal of the instructional design is to guarantee the quality of online or technology-based instruction. In other words, the instructional design should be able to promote, facilitate, and inspire deep learning and innovative students services through the active and engaging use of educational technologies. Instructional designers are those who evaluate learning needs, objectives, and develop an effective delivery system [2].

IT-Plus, is a newly created online system for students in School of Information and Communication Technology, College of Internet Distance Education (CIDE), Assumption University of Thailand. IT-Plus has been developed using Moodle, an open source course management system. In order

to design the new IT-Plus system eLearning and to meet our students’ needs, the following principles were taken into consideration.

Principles in designing eLearning Courseware

1. *Suitability of Content*

The courseware content has been divided into smaller components, such as units, models, or topics depending on the type and nature of the course. The division is done so that students can master each unit before going to the next unit.

2. *Easy Access to the Courseware*

The courseware is designed for easy access. Students can access each unit separately, but still in the order that they have to study. Moreover, instruction designer also has to consider the type of Internet connection available to the students. No matter how fast the connection is, students would always be able to access the content of the course irrespective of the connection speed.

3. *Logical Presentation of Content*

The content of each unit is presented in quantities that is neither too much nor too little for the students to study. The content is arranged from basic to advance, from easy to difficult, from simple to complex, from general to particular. The courseware lets students see the whole picture of the course before they start learning so that they can expect what the course would look like.

4. Full Multi-Media Supports

Courseware should include multimedia, such as pictures, audio, and video. The media could be in the form of off-line video or online streaming video. Thus the media could be effectively used to assist the students to have more understanding of the content.

5. Availability of Knowledge Base or Knowledge Center

All the knowledge-based information for both instructors and students is collected in the database system for easy access. This knowledge-based information is in the form of off-line video, online video, text-base material, audio, lecture notes, PowerPoint, or PDF files.

6. Communication Channels

In online learning, the communication between students and instructors is important. Therefore, the design of communication channels should be taken into consideration. These channels are used to share opinions and exchange information among students and instructors. The communication could be either synchronous or asynchronous. Chat room, Web board, Email, and voicemail could be used as the tools for communication in the online environment.

7. Provision of Activities or Assignment with feedback

Varieties of activities and assignments should be applied after each unit. A good design of activities and assignments allows the instructors to be able to evaluate students' understanding. Students should receive a prompt feedback from instructors after they submit their assignment, so that they could review some units after the feedback from the instructors.

8. Provision of Continuous Evaluation

Each unit should be designed in the way that instructors could evaluate student's knowledge and performance. The evaluation could be in the form of pretest and post-test, quizzes, and exam.

Components of IT-Plus system

1. LMS system

IT-Plus system uses Moodle, an open source Learning Management System (LMS). Our technology team has used this software to develop and customize the system to best serve our students' needs and fit the learning environment at Assumption University. After full development, IT-Plus system has been affectively providing the following functionalities.

1.1.Login

Each student receives a username and password from CIDE, which the students can login to access IT-Plus system through websites: <http://www.eLearning.au.edu>, <http://www.cide.au.edu>, or <http://www.sit.au.edu>



Figure 1: Login page

1.2. Forum

Instructors and students can create, read, and reply threads on the forum to exchange ideas and share information among themselves. Each time, a thread is created or replied, an email will be sent to everyone who has signed up for the course. This is done to remind participants to login to read

or reply any threads that they might be interested in.



Figure 2: Forum page

1.3. Chat room

IT-Plus system allows instructors and students to have a real time communication via the chat room system.

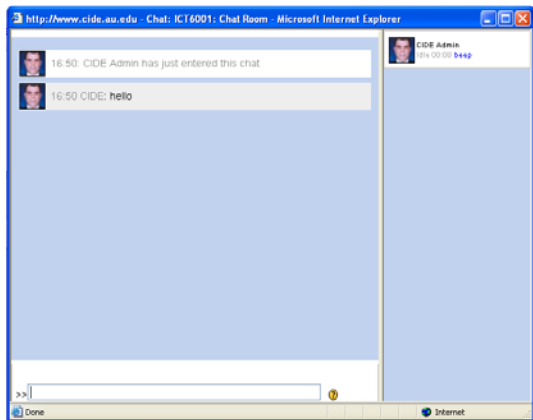


Figure 3: Chat room page

1.4. eRegister

Students can choose any courses to register using eRegister system. After selecting the courses, they can also pay tuition fee through the ePayment system.

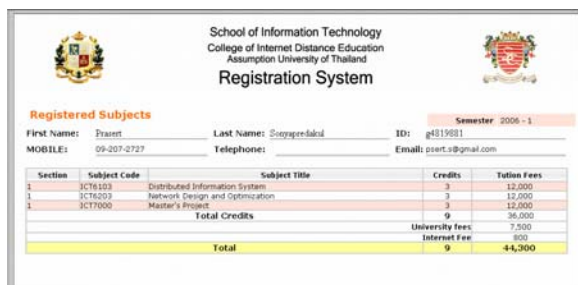


Figure 4: eRegister page

1.5. Unofficial Transcript

With IT-Plus system, students can check their grades for all the course courses they have taken each semester.

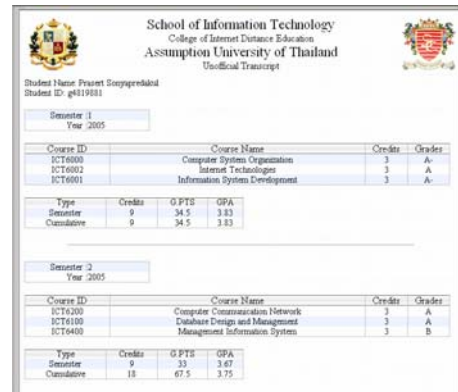


Figure 5: Unofficial transcript page

1.6. Web hosting

Instructors and students can create their own web pages. Each student is allowed to have web page storage of 15 MB.



Figure 6: Web Hosting page

1.7. eShop

IT-Plus system includes eShop. eShop lets students order learning media, such as CD Software Programs, lecture VCDs, lecture DVDs, and recommended books. These resources would further assist students with their online learning.

For 1.4 – 1.7, shows the parts of the system tools that were developed to benefit students in online learning environment. Many additional service tools, such as a tool that can check students' access to the course

and a tool that reminds students of upcoming events or updates, were developed to create an efficient interactive experience for online learning.

2. CMS system

Content Management System (CMS) was designed to suit the content of each course. The content was divided into smaller units. Most of the course consists of these components:

2.1. Subject Name

Subject name lets students know which course they are working on.

2.2. Course Outline

Course outline shows the outline of the course, including course description, learning format, evaluation criteria, and additional readings for the course.

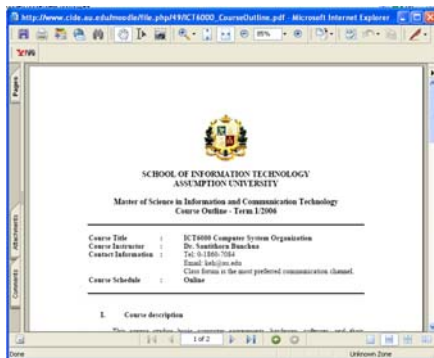


Figure 7: Course Outline

2.3. Welcome Message

This is a video clip of the instructor giving a welcome message to students in the course.



Figure 8: Welcome message

2.4. Unit Name

Unit name lets students know which unit they are studying.

2.5. Unit Objective

This component shows the objective of each unit. Unit objective tells what students should learn after studying a unit.

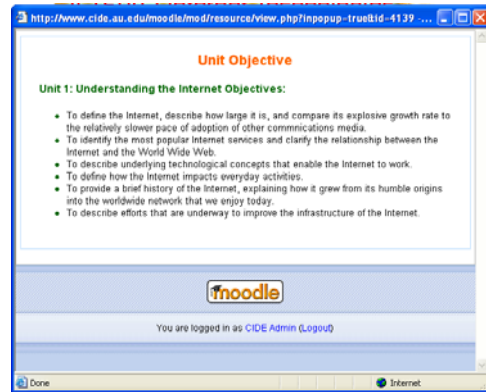


Figure 9: Unit Objective

2.6. Pre-Test

Pretest is used to evaluate student's knowledge about the content of the unit before studying.



Figure 10: Pretest

2.7. Study Online

This part has been designed for students using both dial-up modem and ADSL connections. Study Online is a video lecture synchronizes with PowerPoint presentation slides. This tool consists of 1) Unit name and instructors name 2) Video lecture and 3) Subtopics in the unit.

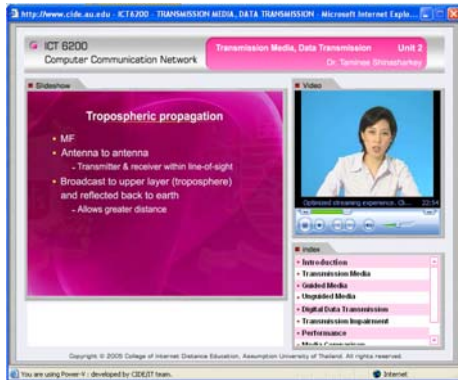


Figure 11: Course Online



Figure 13: Glossary

2.8. Lecture Notes

To improve efficiency of online learning, lecture notes, such as print outs or download lecture notes are provided. IT-Plus system provides three formats of lecture notes: PowerPoint (.ppt), PDF (color), and PDF (Black & White).



Figure 12: Lecture Notes

2.9. Glossary

Glossary is the collection of vocabularies and technical terms that students should know. These vocabularies are arranged in alphabetical order.

2.10. Post -Test

Posttest is used to evaluate student's knowledge after completing the unit. The feedback would be given to student in case he/she gives the incorrect answer. Students can look at the feedback and go back to review the content again.



Figure 14: Posttest

2.11. Download

Students can study not only through Internet, but they can also download the audio lecture in the form of mp3 files to study by themselves at their own time.

2.12. Additional-Supplement Resources

Additional/Supplement Resources are provided as extra materials so that students can have more information of the content in the unit beside the lecture notes. The additional/supplement resources are in the

form of websites, files, videos and simulations.

2.13. Activities/Quizzes

IT-Plus system allows activities and quizzes to be done online. Students can do the online quizzes and promptly receive the feedback. The quizzes and exams can be in the form of multiple choices, true/false, and fill in the blank, or short answer questions. In addition, pictures and graphics could also be added to the quizzes and exams.

2.14. Assignment

Homework or assignments could be assigned to students. Students can do research and submit each assignment by uploading files to IT-Plus system. Students can also check feedback and grade of each assignment in IT-Plus system. Students might need to do presentations for some assignment. Our technical team has developed presentation archive to collect all students' presentations. Students can access the presentation archive to watch any presentations at anytime.

The design of IT-Plus is intended to find the most appropriate way to develop our system to serve students enrolled in the ICT program and meet their needs. The development of this dynamic system is an ongoing process to promote effective eLearning in the present and make it more versatile and richer in the future.

References

- [1] Deal, W. F. III (2002). Distance *Technology Teacher*, 61(8), 21-27.
- [2] Training and Instructional Design, Applied Research Laboratory, Penn State University
<http://www.umich.edu/~ed626/define.html>
- [3] Brahmawong, Chiyong. (2005) AU-CIDE Plan: Assumption University's Internet-based Distance Education System.

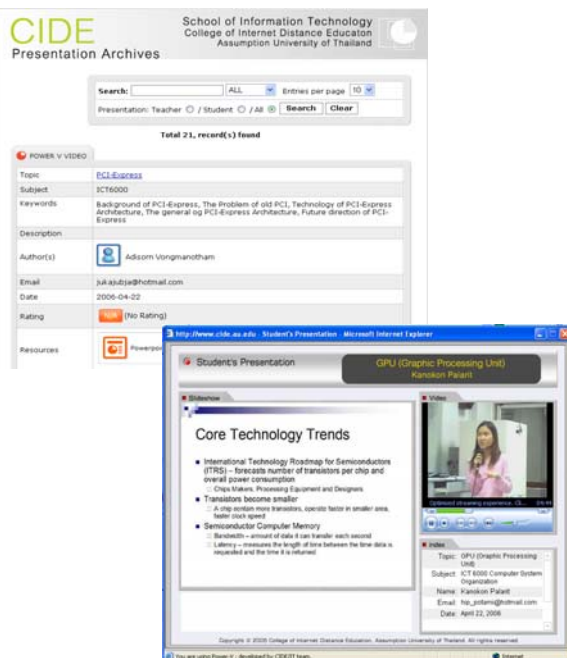


Figure 15: Student's Presentation