A Study on the Establishment of a M-learning System Framework

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ABSTRACT: *The Internet learning and e-learning has been a crucial trend of information technology in the 21st century. Mobile learning (M-learning) is one kind of Mobile Learning Information System (MLIS), which is established in classroom surrounding within the wireless information network to provide the learner with on-demand or online presentation of teaching programs. It has been a trend to accomplish with internet-aided teaching in the traditional classroom for pursuing better teaching effectiveness.*

Based on the learning recognition theory and interactive learning, this study is to apply wireless information technology to establish the MLIS framework and model of M-learning in the classroom by means of Expert Meeting and System Analysis. Then, the Interview method is used as a quantitative research exploring the use of Pocket PC (PPC) in the traditional classroom and its impact on students' learning.

1 RESEARCH MOTIVE AND LITERATURE REVIEW

The Internet learning and e-learning are one of the 21st century information technology important tendencies. It makes the student can transfer among various teaching types simultaneously, and achieves learning 'on-demand'. Now the Internet learning gradually becomes the main trend and has the significant impact to the traditional education. (Tsai, 2001)

System Analysis is a software science, an application of different expertise, a knowledge that uses scientific ways to find out solutions. In an uncertain environment, a possible solution is figured out after a series of systematic researches. Then we use cost-benefit analysis, assisted by intuitions, to evaluate all the possible solutions and make comparisons for decision makers to select out the most appropriate decision. System analysis is also used to help decision makers handle the distribution, application and management of resources. We wish to maximize the contribution of limited resources. (Lin, 1889)

The definition of 'M-Learning' in this research is the information learning system that he established at the wireless regional network. Based on the learning recognition theory and interactive learning, in this research the wireless information technology to is applied burned up M-Learning model, and the interview method is used as a research exploring the has of Pocket PC (PPC) in the traditional classroom and it impact on students learning.

2 RESEARCH GOALS

The goal of this study is set up a wireless AP Gateway station (see Figure 1) for wireless network framework in a traditional classroom, and offers student connecting the Internet by PPC and wireless CF network adaptor (see Figure2 and Figure 3). For the especial interface of PPC, we design the leaning web

page 320*240 to match the screen of PPC and the MLIS model. Using the wireless adaptor connecting to the AP Gateway station. Then evaluate the impact of M-learning to traditional learning.

Figure 1 Wireless AP Gateway station

Figure 2 Packet PC

Figure 3 CF wireless network adapter

3 RESEARCH METHOD

This study using ”System Analysis Method” (Lin, 1889)to constructing MLIS system (see Figure 4).

The stage of analyzing and aligning adopts the methods of Top-down and DACUM-like (Huang,. etc,2002), while the stage of desgining, conducting and assessing adopts the method of Bottom-up as follows:

1. The adoption of Top-down system analysis and design: the context design and alignment is based on the curriculum goal to meet the learner’s needs and provide the feasible flowchat and structure.
2. The adoption of Bottom-up system analysis and design: to analyze current teaching dilema and motivation barriers for determinating the most efficient teaching method.
3. The adoption of DACUM-like method: to congregate the experience and techniques of teachers of computer science to discuss and modify the alignment and costruction of the system.

Then, this study adopts interview student method to realize the learning impact of the student who using PPC at the traditional classroom.

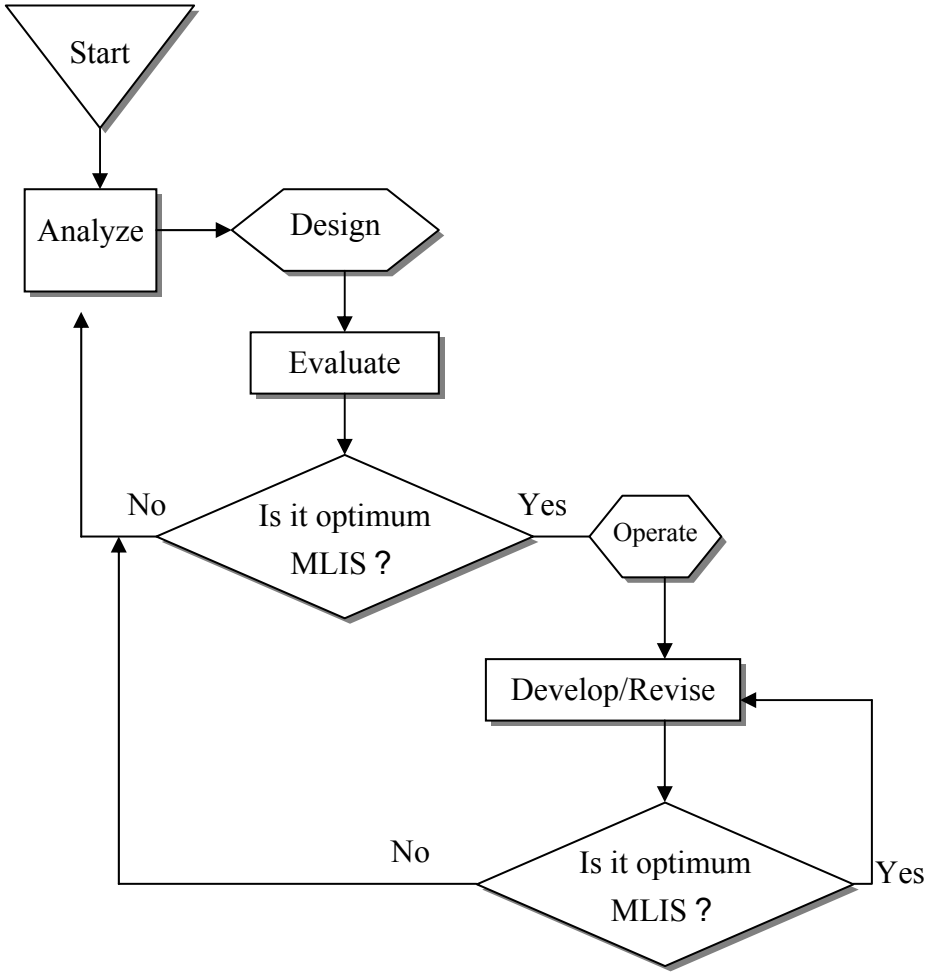

Figure 4 Using 「System Analysis Method」 to constructing MLIS system

4 RESEARCH PROCEDURE

The study research procedure (see Figure 5) is as the steps as followings:

1. Literature data collection.
2. Student login interface planning.
3. Set up of student data base.
4. Screen planning.
5. Screen revise.
6. Program design.
7. System test.
8. Program revise system.
9. System practice of students.
10. Student interview.
11. Report writing.

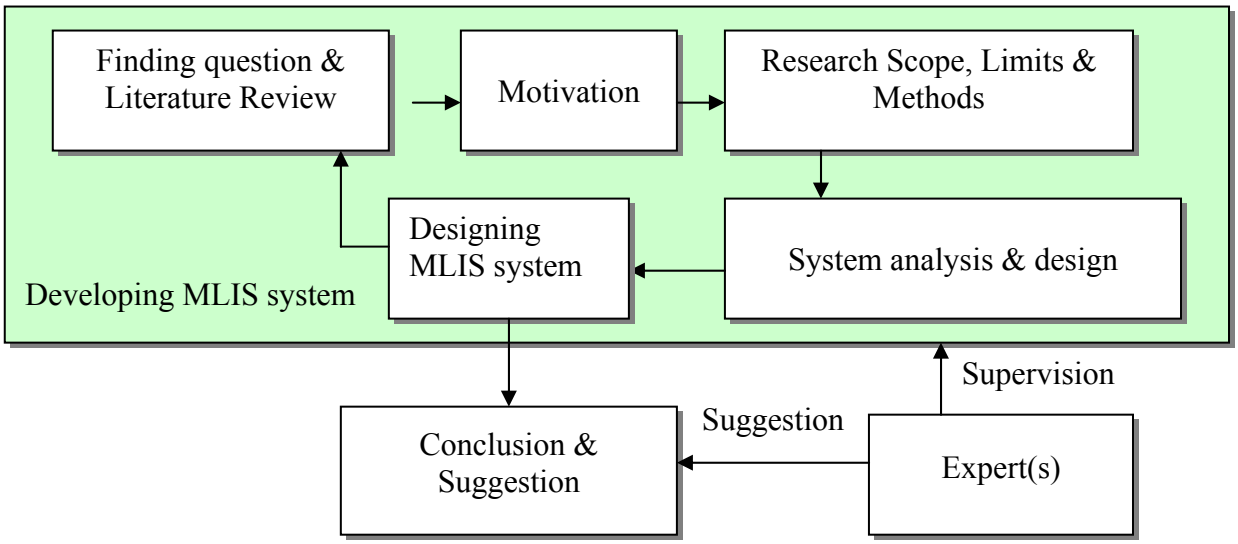

Figure 5 Research procedure of developing the MLIS system

5 RESEARCH FLOW CHART

The study flow chart is as the steps as followings:

1. Problems and literature review.
2. Establishing background and research motive.
3. Setting up research goals.
4. System analysis and design.
5. Designing MLIS system.
6. Delphi investigation.
7. Repeat 1-5 steps and so on the flow, the more time obtains the more optimum MLIS system.

6 EXPERIMENTAL PLATFORM ESTABLISHMENT AND APPLICATION

1. Login accreditation interface: at is set up mainly for the identity of the teachers and the students. (see Figure 6)

Figure 6 Web-based login accreditation interface

2. Web-based teaching materials editing interface (see Figure 7).

Figure 7 Web-based teaching materials editing interface

3. Teaching material edition system interface: After the teacher inputs teacher's account number, the password will record, the system presents teaching material content, the teacher may increase/revise/delete the teaching homepage content depending on the teaching situation. After the teacher has finished the course content in the teaching material edition area, press down the 'storage' button, the course content is stored up into the MLIS system database. (see Figure 8)

- PPC student study system flat form:
- Login accreditation interface:
- The student login the system according to individual account number and password, the system will record the study course.
- Student study interface: after the student finish the study, press the 'Finish' button the 'Study course database' will record the study time, register, register address and homepage name.

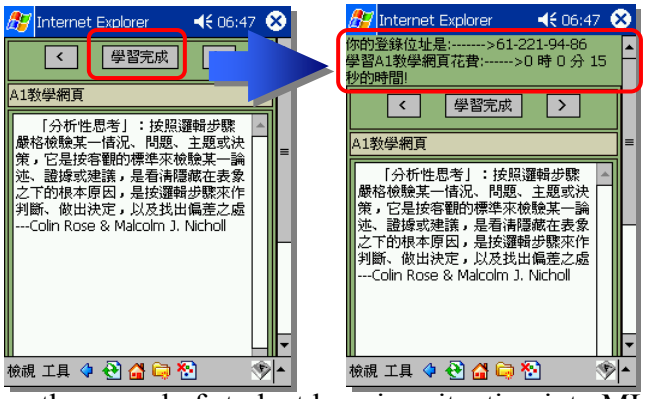

Figure 8 Taking down the record of student learning situation into MLIS system database

7 CONCLUSION AND SUGGESTION

After interviewing the students who participated in the research, and use the PDA studying interface, we proposed the factors of likely diffecting the study result or motive as follows:

1. If using the research system, the student can access the internet by using PDA ever when they are in non-computer subjects such as Chinese, English, Math etc. The student grades can progress, the possibly factors are convenient to collect data.

- Broader the study field.
- Download the topic to make a examination immediately after class.
- Pictures and frame charts offered is more advantageous to study.

2. If using the research system, i e the student can access the Internet by using PDA, even when they are in non-computer subjects. The students grades maybe regress. The factors are:

- Easy to divert attention, the student maybe makes the irrelevant matters.

- Such as plays games, reads the entertainments news, etc.
- Possible damage to the eye while watching the careen too much time, will be unable to promote the study quality.

3. The possible factors of promoting the study motives are:

- The non-traditional study method makes the student feel novel.
- The pictures and frame charts make the study more clearly ay early.
- The student can search the information data at the internet.
- Studying at each convenient time.

4. The possible factors of dropping the study motives are:

- Students are not interested in computer
- Students are not used to small computer screen.

In order to increase and control interactive for the system, put into effect the individualized consultation of learning, increase their abilities of data collection, analysis and decision through the Internet. Suggestions presented for further study are that adding AI Agent function into the MLIS system to make the system automatically control the learning situation of individual learner.

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