

A Development of Online Lessons to Strengthen the Learning Process of Master's Degree Students Majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University

Chaiwat Waree

Abstract—The purposes of the research were to develop online lessons to strengthen the learning process of Master's degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University; to achieve the efficiency criteria of 80/80; and to study the satisfaction of students who use online lessons to strengthen the learning process of Master's degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University. The sample consisted of 40 university students studying in semester 1, academic year 2012. The sample was determined by Purposive Sampling. Selected students were from the class which the researcher was the homeroom tutor. The tutor was responsible for the teaching of learning process. Tools used in the study were online lessons, 60-point performance test, and evaluation test of satisfaction of students on online lessons. Data analysis yielded the following results; 83.66/88.29 efficiency of online lessons measured against the criteria; the comparison of performance before and after taking online lessons using t-test yielded 29.67. The statistical significance was at 0.05; the average satisfaction level of forty students on online lessons was 4.46 with standard deviation of 0.68.

Keywords—Online Lessons, Curriculum and Instruction.

I. INTRODUCTION

THE National Education Act 1999, Chapter 4 Method of Education Management, Article 23 states that formal, non-formal and informal education are to emphasize the academics, ethics, learning methods and integration of subjects appropriate to particular level of education. Article 30 of the Act states the education institution is to develop teaching method that is efficient and encourages the teacher/instructor to research and study in order to develop the learning method that is appropriate to students in each level of education [5].

The National Education Act 1999, article 65 states that there has to be an improvement of personnel both education producers and users of technology in order to equip them with skills in the production and the use of appropriate technology which are of good quality and efficient. Article 24 provides for the management of learning process in education institutions. Relevant agencies are to manage contents and activities that correspond to the interests and expertise of learners taking into

account differences among individuals, encouraging teachers/instructors to be able to arrange the atmosphere, environment, learning media and facilitating students to learn and obtain wisdom as well as to use the research as part of learning. Both teachers/instructors and students may learn together from educational media and various sources of technology. At present, the creation of technology-related media which is to be used in subject teachings according to the basic education curriculum is varied.

According to the study by Kanokwalai Soisak et al., learning achievement of students taught with the assistance of computers is higher than those taught by ordinary teaching methods. Students are enthusiastic and are not bored by subject contents that they are about to learn. This is because teaching with the assistance of computers allows students to associate/touch and interact with computer-based lessons all the time. Computer-based media is the media that has been developed in the form of multimedia. The computer is used to control various types of media for collaborated use, for instance the combination of moving pictures and sound. This provides computer with several advantages over other types of media namely the quick presentation of contents and presentation in the form of moving pictures with sound. These make the media more interesting. Computer-based media is also able to store many times more data and contents than books. Students are able to interact with lessons. Lessons and students can communicate with each other. Computer-Assisted Instruction (CAI) is also able to record academic results, assess performance and evaluate students [3].

WBI works on the internet network. It is able to communicate in the form of multi-user without any boundary. Students are able to receive and send electronic education data without the limit of time and place. Students and teachers/instructors are able to communicate. Teachers/instructors are able to monitor learning behavior as well as learning performance of students. What makes CAI different from WBI is the communication.

WBI is able to communicate through the system of multiuser with no boundary limit. Students are able to communicate among themselves, with teachers/instructors, experts and databases. They are also able to receive and send electronic education data with no limit of time and place. There is no boundary in the internet network system. It can be

C. Waree is with the Faculty of Education, Suan Sunandha Rajabhat University, Bangkok, 10300, Thailand (phone: +6686-077-5746; e-mail: chaiwat.wa@ssru.ac.th.).

called virtual classroom. This means whatever the activity you do in the school and the classroom, can be done on WBI that is located on the internet network system until graduation/the end of the course.

In the current education system, it has been found that the use of computer-based media to help teaching students is still being practiced in a limited circle. This is due to various reasons such as a lack of computer-wise personnel and availability of computer-based lessons which do not correspond to the objectives of the curriculum. Moreover, each educational areas have different learning and teaching issues. Thus it is not possible to apply ordinary assistant computers to each area. Teachers seem to be the ones who can create computer lessons that most correspond to learning objectives.

From the empirical evidence of educational management in the subject of learning process of Master's Degree students majoring in Curriculum and Instruction, Suan Sunandha Rajabhat University, it has been found that students still have learning achievement at a very low level below 75 percent. From such a problem, the researcher has found that most students lack interests. Also, teaching methods of tutors/instructors are lecture-based. Lecture-based method does not stimulate interests in learning. One is to correct, improve and develop in a speedy manner in order to have an up-to-date teaching which increases learning motivation. Thus new methods of learning have to be found in order to stimulate interests in lessons.

From the above-mentioned reasons, the researcher is thus interested in using the innovation and electronic media namely online lessons to strengthen the learning process of Master's degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University. This not only stimulates enthusiasm among students in learning new things, but it also challenges abilities of students who need to interact with lessons themselves. Assisting computers are able to present colorful words and pictures as well as moving pictures that are attractive and exciting. Moreover, this will allow students who learn slowly or who were absent to be able to repeat lessons again as many as they want. The results from this research are to be used as methods for further development and improvement of learning and teaching.

II. RESEARCH OBJECTIVES

- To develop online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University to reach the efficiency rate of 80/80 according to the criteria.
- To compare the learning achievement of students who take up online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University before and after the course.
- To study student satisfaction on online lessons to strengthen learning process of Master's Degree students

majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University.

III. SCOPE OF THE STUDY

- The population in this research consisted of 120 Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University.
- The target group used in this research consisted of 40 Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University who were chosen through Purposive Sampling by the researcher who was the instructor/tutor in the subject of learning process.

IV. CONCEPTUAL FRAMEWORK

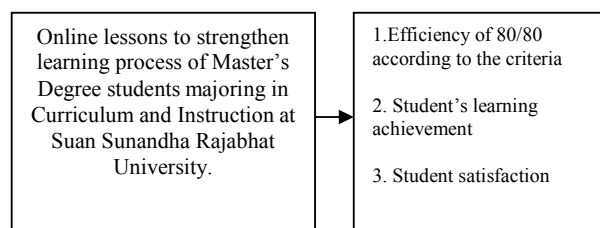


Fig. 1 Conceptual framework

V. RESEARCH PROCESS/METHODOLOGY

For this research, the researcher has used research tools to collect data from the target group. Details are as follows;

- The researcher asked 40 students in the target group to do pretest. The pretest consisted 60 items of multiple choice learning achievement test totaling 60 points.
- The instructor/tutor conducted teaching according to learning process plan online totaling 16 hours.
- Once the teaching had finished, the researcher asked 40 students in the target group to do posttest. The posttest was the same set of test used in the pretest.
- The researcher checked the results of the test and analyzed the scores using statistical methods in order to compare learning achievement before and after taking lessons.
- The researcher measured the satisfaction of 40 students who took up online lessons.

VI. SUMMARY OF THE RESEARCH

The research results can be summarized as follows;

- From the development and trials of online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University, it has been found that the lessons are appropriate and are of the efficiency determined by the criteria of 83.66/88.29. When used with 40 students in the sample, it has been found that the learning achievement of students was higher after taking up lessons with statistical significance of 0.05. This shows that online lessons that have been developed are appropriate and efficient. The learning achievement of students could be improved to a

higher level corresponding to the hypothesis initially stated.

- From the trials of online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University, it has been found that the efficiency of the process (E_1) indicated in the exercise is 83.66 percent and the efficiency of outcomes (E_2) is 88.29 percent. Online lessons aiming at strengthening learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University have higher efficiency than that suggested by the criteria of 80/80. Therefore, online lessons in this subject have high efficiency according to the criteria and can be used in classes efficiently.
- According to the results from the use of online lessons with 40 students in the target group in the subject of learning process it has been found that scores of 40 students who took up online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction have been higher in terms of their learning achievement. Scores before and after the course differed with statistical value (t-test) of 29.67 which is statistically significant at the level 0.05. This shows that learning achievement of students who took up online lessons has increased. From the comparison of learning achievement progress before and after the course using percentage, the average overall score before the lessons was 40 points while that after the lessons was 52. The average score has increased by 12.00 or 20.00 percent which is higher than the criteria that requires at least 15.00 percent increase of total score. Individually, every student achieved higher score with progress score from 18.33 percent to 33.33 percent. This shows that students who have taken online lessons have higher learning achievement as required by the criteria. From the learning achievement of students taking online lessons which has been categorized into quality groups, it has been found that all students (100 percent) have had the learning achievement in the levels of 'good' and 'very good'. None of the students has had the learning achievement in the levels of 'satisfactory' and 'improvement needed'.
- According to the study of student satisfaction on online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University, it has been found that overall satisfaction of students on online lessons was at the highest level. Students were satisfied with online lessons with the overall satisfaction in a high level with an average score of 4.46. Students have expressed highest satisfaction for point 10 which states that students wish to have online lessons available for other subjects. This point received the average score of 4.84. Most of other points of assessment have received high satisfaction scores.

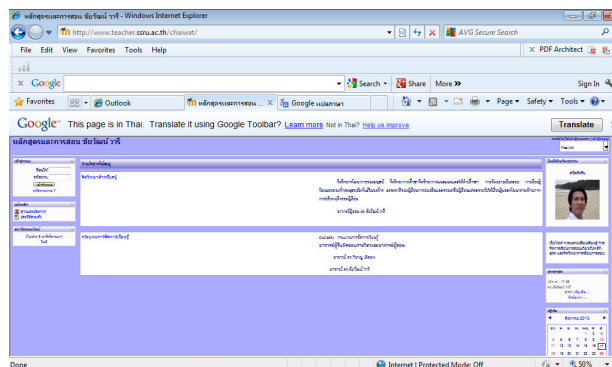


Fig. 2 Online lessons to strengthen learning process

VII. DISCUSSION

Discussion of results of development and the use of online lessons ; From the development and the use of online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University, the results may be discussed as follows;

- The development and the use of online lessons have been successful and have the efficiency as required by the criteria due to an extensive study of the researcher on production processes of online lessons taking into account various concepts and theories from relevant documents. The researcher has also analyzed the subject contents from the curriculum; the determination of behavioral objectives and the process of planning of creation and development. The researcher has had help from contents experts. Opinions of experts with regards to the corresponding index between questions and objectives and learning standards of the curriculum; process of searching for accuracy of tools; and process of calculating confidence score contributed to the tools used to create and develop online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University thus leading to the success of online lessons. Such lessons have been used and distributed to other instructors/tutors in other educational institutions. These correspond to the research by Sunanta Suntornprasert [4], which states that online lessons are able to stimulate self-confidence among students allowing them to learn with their own potentials which in turn leads to higher learning achievement. Moreover, online lessons help students develop both their cognitive and affective domains with efficiency. This is because online lessons help students learn and understand contents of lessons by repetitive reading. It has been found that documents or handouts for lessons are able to adjust behaviour of students to become keener on learning, realise and acknowledge the value of learning. Online lessons are able to stimulate thinking skills for students if such lessons have been developed by experts in the fields of contents and online lessons correctly and systematically.

- The efficiency of these online lessons was high at 83.66/88.29 and in compliance with the criteria because of an extensive research of the researcher for the creation and development of online lessons. The researcher conducted researches on basic data, work analysis, content analysis, analysis of students in the target group as well as analysis of behavioral objectives before planning the creation and development of online lessons based on behavioral objectives. Throughout these processes, the researcher was given recommendations and suggestions by experts in contents on testing for the accuracy of contents, language correctness, appropriateness of design, learning method and the format of presentation. The researcher then took these into account in order to improve and develop further. Then these online lessons were experimented on a small group of students in search for any deficiency prior to another round of improvement and development. Having done these, online lessons were used in the field experiment with 40 students. After step-by-step and systematic planning, online lessons were used on 40 chosen students who were the sample group. According to the results of the experiment, it has been found that the efficiency of online lessons was 83.66/88.29. These figures are satisfactory and are according to the hypothesis initially determined. The learning achievement after the course was higher than that before taking lessons with statistical significance of 0.05.
- The reason why the learning achievement of students was higher after taking lessons is because of the current policy which encourages teachers/instructors/tutors to use educational media in teachings to stimulate enthusiasm among students. Moreover, teaching and learning with an aid of online lessons also correspond to the needs of students very well. They are not too complicated and are easy to use. Students have much less worries and fear in particular the fear of learning. This is due to the idea that online lessons are able to facilitate students to learn efficiently which corresponds to the research of Paitoon Noppakad [2], on the computer-based supplementary lessons. The lessons were used to supplement students in grade 9 (Matthayom 3) who has Mathematics Learning Achievement in the topic of "Polynomial Factorisation" lower than the mean of 50 percent. The research also considers the comparison of learning achievement between those who learned from computers and those who learned from ordinary teaching methods. The research has found that computer-based lessons could bring the achievement to pass the standard criteria of 60/60 with the actual figures of 75/70. The learning achievement of those who learned from computers differed from those who learned from ordinary teaching methods with statistical significance of 0.05. Those who learned from computers had higher learning achievement than those who learned from ordinary teaching methods.
- The satisfaction of students on online lessons which strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat

University has found to be in high level in all items because the creation and development of online lessons have taken into account the psychology of learning of students before planning the production. These processes led to complete online lessons which correspond to the research by Supasomboon Ingratanakorn [1], on the development of computer software to supplement teachings in Mathematics on the topic of using matrices to solve linear equation problems. The research was experimented on fourth-year students in the Faculty of Agricultural Technology. It has been found that students had higher learning achievement after the course. They had positive attitude towards learning Mathematics through computer softwares.

- Discussions of strengths of online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University; Strengths of online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University are as follows;
- The strength of online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University lies in the process of creating lessons. Content analysis had been conducted before exercises and tests were made. Lessons are thus complete with regards to academic principles. Moreover, the researcher had researched various concepts and theories from reliable resources before creating and developing online lessons. Such reliable resources include research papers and data available on websites. Thus various information and data are up-to-date and are based on academic principles. When reporting on the use and development, the researcher/reporter has taken into account grammatical rules and has arranged topics following contents determined by the curriculum. The same system has been used for arranging content topics or referenced materials in the bibliography.
- The reporter has produced the report on development and the use of online lessons. The report has been developed, improved and amended following recommendations and suggestions of experts. It is presented in the form of a research paper consisting 5 chapters namely; introduction; background and significance; documents, concepts, theories and related research papers; methodology; and results of the development and usage.
- With regards to the use of ideas in the creation of lessons, the reporter had researched various ideas and theories, asked for opinions and views from experts especially those in the field of educational technology and attended trainings to gain more experience. These had contributed to new body of knowledge which applies computer technology to learning process of students. Then this innovation emerged. This is highly valuable for the

learning process. The product, when used and distributed, is well liked and accepted among those who have used it.

- Printing, formatting and the accuracy of academic qualities of the report and developed educational media are one of the strengths that the reporter has taken into account. Accurate, tidy, good-looking and academic printing is one indicator that reflects quality and efficiency of the reporter. The whole process has also fostered a good habit of tidiness which could be passed on to students under the care of the reporter.
- This set of online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Rajabhat University is the product that the reporter has supervised in every step from the initiation of ideas, content analysis, creation of exercises and tests and a search for efficiency of exercises and tests. The process of writing topic framework needed to take into account theories and learning psychology before an actual trial. Once the experiment was finished, lessons were distributed among teachers/tutors in various institutions. Teachers/tutors have responded positively. They view online lessons as beneficial for academic progress and can be used as an example, a reference or a model that can be further applied into an electronic innovation.
- Results from the use of online lessons to strengthen learning process of 40 Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University have shown that students' performance was higher. This reflects the efficiency and benefits of this set of online lessons on students. Online lessons are able to improve students to have higher learning achievement.

VIII. RECOMMENDATIONS

From this research, the reporter provides the following recommendations;

General recommendations

- Before using online lessons to strengthen learning process of Master's Degree students majoring in Curriculum and Instruction at Suan Sunandha Rajabhat University, the teacher/tutor is to study recommendations stated in online lessons thoroughly. The teacher/tutor is to reiterate students to be honest and not to look at answers before answering questions in lessons. Students are to do each exercise step-by-step and not to skip any. This is in order for students to have a thorough understanding of lessons. They can then use knowledge they gain to discuss in groups to practice various summarising skills involving students in a variety of thinking processes.
- When students are engaged in group activities to practice working as a team, the teacher/tutor is to be an adviser who gives suggestions and help when students run into problems. This is to allow students to participate in lesson-based activities smoothly and engagingly.

Recommendations for further research

- Online lessons should be created for other subject areas.

REFERENCES

- [1] I. Supasomboon, Development of computer assisted instructional program for solving linear equation by matrices. Kasetsart University: Teaching mathematics, 1988.
- [2] N. Paitoon, The development of computer-assisted instruction program on the Factoring Polynomials in mathematics remedial teaching of mathayomsuksa 3, Kasetsart University: Thesis of Educational Technology, 1992.
- [3] S. Kanokwalai et al, Development of Computer Lessons for Hearing Impaired Students in Grade 6 in the subject of Basic Computer Usage on How to use Microsoft Word, Self-researched, GorSor.Mor. Naresuan University, 2003.
- [4] S. Sunanta, Producing innovative teaching practice to create a Volume 2, Bangkok: Development law knowledge club, 2001.
- [5] The Royal Thai Government Gazette, *Public Organizations Act* 116(9), 1999.



Chaiwat Waree was born in Nongchang, Thailand. He received the B.Ed. degree in Thai from the Srinakharinwirot University, TH, in 1999, the M.Ed. degree in Guidance and Counseling Psychology from the Srinakharinwirot University, TH, in 2002, and the D.Ed. degree in Curriculum and Instruction from the Burapha University, TH in 2010.

His research interests cover the Pedagogy and Psychology and Education Technology.

Dr. Chaiwat is a Lecturer at Faculty of Education, Suan Sunandha Rajabhat University and External assessor for Office of National Education Standards and Quality Assessment, TH.