A STUDY OF ACHIEVEMENT BY USING CAI IN THE TOPIC OF REPRODUCTIVE SYSTEM FOR PRATHOM 6 STUDENTS, DEMONSTRATION SCHOOL, SUAN SUNANDHA RAJABHAT UNIVERSITY.

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ABSTRACT

The objective of this research was to create on the lesson on reproductive system by using Computer Assisted Instruction (CAI), to study pre-learning achievement and post-learning achievement of CAI lesson and to study satisfaction towards lesson on reproductive system by using Computer Assisted Instruction (CAI) of Prathom 6 students at Demonstration School, Suan Sunandha Rajabhat University. The sample group was 87 Prathom 6 students of Demonstration School Suan Sunandha Rajabhat University, semester 1, academic year 2019. The data was analyzed by using mean ($\bar{X}$), and standard deviation (S.D).

The study found that the quality of the lesson on reproductive system by using Computer Assisted Instruction (CAI) was in good level according to experts' assessment. The post-learning achievement was higher than pre-learning achievement at .05 of significance. The students' satisfaction towards lesson on reproductive system by using Computer Assisted Instruction (CAI) was in the highest level.

Keyword: CAI lesson, reproductive system, Demonstration School, Suan Sunandha Rajabhat University

INTRODUCTION

Today's world society is changing rapidly, especially in information technology, which plays an important role in every human being's life, therefore developing the quality and keeping up with the global society is important, Especially the development of education, in order to enable the country's people to have knowledge and ability in using information technology, in accordance with the conditions and needs the society, according to the National Education Act 2008, with the aim of developing all learners, the national strength to be a balanced human being both the body, knowledge and virtue, conscience in Thai citizenship and world citizenship, adhering to the democratic regime of government with the King as Head of State, with basic knowledge and skills, including attitudes necessary for Education, towards careers and lifelong education, with a focus on learners, based on the belief that everyone can learn and develop themselves to their full potential. Therefore, one needs to have to learn or to seek more knowledge constantly, to adapt to changes and the prosperity of the world society (Sumalee Winwan 2005: according to Supawan Siriphanakul. 1999: 1). To develop the country to progress rapidly, it requires quality resources and education as important in human resource development, therefore, teaching and learning processes have been modified to be in line with national changes, so computer technology has been adopted in the system. The internet has become more active in the teaching and

learning process. Therefore, the media is produced for use in teaching and learning to students are of various forms. In addition, various media are helping to stimulate learners to become more curious.

Learning management at all levels of education mostly uses discussions or demonstrations as a means for students to read, write, and memorize without practice, as learning management that focuses on only content, students cannot synthesize and can integrate various knowledge (Thitiporn Duangchit. 2005). According to the study of teachers' problems, it is found that, in general, the learning management process of teachers, there is no time to spring Technology media, do not understand the method, do not see the importance, especially the technology media, therefore lacking interesting learning resources, which some schools have sufficient computer technology resources, but many teachers who still do not have the opportunity to use it worthily and meet the needs of the learners. Teaching in the Computer Assisted Instruction style suitable in the current teaching and learning environment that focuses to the student-centered, considering the differences between people, because the Computer Assisted Instruction, learners are involved in the activities with the computer, learn along with computers as according to the ability of the learner itself, according to the speed of learning without waiting or rushing, therefore is a learning style that focuses on the difference between the real (HaKim Pongyila. 1997).

In teaching and learning management in health education subjects that are different from other subjects, especially in the reproductive system, which must mention the importance of the reproductive system and methods of maintaining the reproductive system. The academic achievement of the students of Suan Sunandha Rajabhat University Demonstration School is lower than the specified criteria due to the elusive content, lack of interest, teaching media does not respond to learning as expected, and some students are unable to learn the lesson content in equal time.

In the teaching and learning management, the need for the readiness of the learners, the organization of media selection activities, and the measurement that is suitable for individual differences, especially the use of teaching materials, can stimulate the Expression of learners (Ruchira Chamniwikaiwet 1993: 3-4).

For the aforementioned reasons, the researcher is interested to develop student achievement of Suan Sunandha Rajabhat University Demonstration School, with the Computer Assisted Instruction by focusing on students to learn by themselves, to attract the interest of the learners to do teaching and learning activities, achieving objectives, and to satisfy the students, to the class is fun while learning, and as part of promoting the achievement of health education in a better way.

OBJECTIVES

1. To create the Computer Assisted Instruction lesson on reproductive system for Prathom Suksa 6 students, Suan Sunandha Rajabhat University Demonstration School.
2. To study the learning achievement before and after learning of Prathom Suksa 6 students.
3. To study the satisfaction of Prathom Suksa 6 students towards the Computer Assisted Instruction on reproductive system.

Hypothesis of research

1. The Academic achievement of Prathom Suksa 6 students after learning is higher than before learning.
2. Prathom Suksa 6 students are satisfied with the computer assisted instruction in the reproductive system at a high level.

RESEARCH METHODS

Scope of Research

Population used in research

The population use in this research is Prathom 1-6 students, Semester 1, the Academic Year 2019, Suan Sunandha Rajabhat University Demonstration School, consisting of 473 students, which are divided into 16 classrooms.

Sample group used in the research

The sample group uses in this study is Prathom Suksa 6 students in the first semester, the academic year 2019, Suan Dusit Rajabhat University Demonstration School, 3 classrooms, from 16 rooms, 87 students, which are purposive Sampling.

Scope of Variables

The independent variable is Learning by using the Computer Assisted Instruction on Reproductive system.

The dependent variables are

1. Learning achievement of students learning by using the Computer Assisted Instruction on Reproductive system.
2. Satisfaction of Prathom Suksa 6 students towards the Computer Assisted Instruction on Reproductive system.

The creation of the Computer Assisted Instruction on the reproductive system has the following sequence of steps.

1. Determine the purposes of creating the Computer Assisted Instruction on the reproductive system.
2. Study documents and research related to the Computer Assisted Instruction.
3. Create the Whiteboard Animation Computer Assisted Instruction about Reproductive System by using Video Scribe.
4. Take the program created as a lesson for experts to consider and bring it back for improvement.
5. After that, assess the quality of the Computer Assisted Instruction by 3 experts, with the quality assessment of computer assisted instruction that the researcher created.
6. To analyze and improve according to the recommendations of experts for further use.

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The process of creating the achievement test, the Achievement tests on reproductive systems, the researcher created the following.

1. Study documents about the measurement, evaluation, and Principles of exam building.

2. Study the learning objectives and the content of the reproductive system, divided into 4 areas, namely knowledge, understanding, analysis, and application.

3. Creating multiple-choice of 4 items of 20 items by choosing only the one correct answer. If students answer correctly, they will get 1 point, if they answer incorrectly; they will get 0 point which the exam will cover the content and all learning objectives.

How to find the quality of the achievement test.

1. Take the test to 3 experts, consisting of 1 expert in education and the Computer Assisted Instruction, 1 expert in teaching and learning, 1 expert in biology, assessing the Index Of Consistency (IOC) of the learning objective with the test, to find the Index Of Consistency (IOC) of each exam by using the following criteria:

- •Score +1 for exams that are sure to be consistent with the learning objectives.
- •Score 0 for the exam that is sure to be consistent with the learning objectives.
- •Score -1 for tests that are sure to be inconsistent with the learning objective.

2. An item that has a consistency index equal to or greater than 0.5 is considered valid and can be used for testing, but if the consistency index is less than 0.5, then that item is not available and must be eliminated or modified.

3. Apply the learning achievement test to students in further studies.

Steps in creating a quality assessment form for the Computer Assisted Instruction.

The Computer Assisted Instruction Assessment Form about the reproductive system. (For experts), consisting of assessing the quality of the computer assisted instruction and opinions about the computer assisted instruction, with the evaluation criteria divided into 5 levels, excellent, good, average, poor, and very poor. The scores are 5,4,3,2 and 1 respectively.

Steps for creating a satisfaction assessment

The student satisfaction evaluation form with computer assisted instruction lesson on Reproductive system, consisting of evaluating satisfaction with computer assisted instruction and opinions on computer assisted instruction. The researcher created the following operations:

1. Study documents about creating a satisfaction assessment form.

2. a satisfaction assessment form by considering content, graphics and design and technical aspects. The criteria uses for evaluation are divided into 5 levels which are the most satisfied, very satisfied, moderate satisfied, less satisfied and least satisfied. The scores are 5,4,3,2 and 1 respectively

Data collection

In the study of using knowledge reading books created, using the One group pretest-posttest design experimental patterns, which is an experimental design with one experimental group (X), and observe the results 2 times before (O1) and after (O2) experiments, and with the following scheme:

$$(O_1 - X - O_2)$$

Where

X refers to the experimentation of the Computer Assisted Instruction on reproductive systems

O1 refers to the measurement results before the experiment using the Computer Assisted Instruction on reproductive systems.

O2 refers to the measurement results after the experiment using the Computer Assisted Instruction on reproductive systems.

Data preparation and data analysis

1. Finding quality of data analysis tools as follows

1.1. Analysis of the average quality of the Computer Assisted Instruction by experts and student satisfaction with the Computer Assisted Instruction.

1.2. Analysis of the index of consistency (IOC) between the learning objectives and the learning achievement test.

2. Hypothesis testing

2.1. Analysis to compare the learning achievement before and after learning with the Computer Assisted Instruction lesson of students, by using t-test Dependent sample.

2.2. Analyzing the average of students' satisfaction with the computer assisted instruction.

3. Statistics used in data analysisIn this research, the researchers used statistical data analysis as follows

3.1 Basic statistics include

1. The average score (Arithmetic Mean) (Luan Saiyot and Angkhana Saiyot). 2000: 306) used with the letter $\bar{X}$

$$\bar{X} = \frac{\sum X}{N}$$

Where $\sum X$ = the sum of all scores
X = score for each student
N = total number of students

2. Standard deviation of scores that are not classified (Ungrouped Data)

The formula

$$S.D. = \sqrt{\frac{\sum (X - \bar{X})^2}{N}}$$

Where S.D. = standard deviation
X = data (i = 1,2,3 ... N)
$\bar{X}$ = Arithmetic mean
N = total amount of data

3.2 Statistics for tools quality

1. Index of Consistency (Luan Saiyot and Angkhana Saiyot). 2000: 249) used with the letter IOC.

$$IOC = \frac{\sum R}{N}$$

When $\sum R$ = the sum of the expert's consideration
N = number of experts

3.3 Statistics used in data testing

1. Comparison of academic achievement before and after using books to enhance knowledge.

When $$t = \frac{\sum D}{\sqrt{\frac{n\sum D^2 - (\sum D)^2}{n-1}}}$$

t = difference of the sample group means
$\sum D$ = sum of the difference of scores before and after the experiment.
$\sum D2$ = The sum of the difference of scores before and after all the squared tests.
n = number of samples used in the research

RESEARCH RESULTS AND DISCUSSION

Research results

In this study, the researcher created the Computer Assisted Instruction lesson on reproductive system for Prathom Suksa 6 students, Suan Sunandha Rajabhat University Demonstration School, by conducting research as follows: the construction and finding of the quality of the Computer Assisted Instruction, and the implementation of the Computer Assisted Instruction created for experimenting with Prathom Suksa 6 students, Semester 1, the Academic Year 2019, Suan Sunandha Rajabhat University Demonstration School. In this study, the researcher proposed the results of data analysis for each hypothesis as follows:

1. Quality of the Computer Assisted Instruction on reproductive system for Prathom Suksa 6 students who have been evaluated in terms of contents, graphics, design and technical expertise from 3 experts, details are shown in the Appendix, in which the quality assessment results of the Computer Assisted Instruction are general with an average of 4.24 which means contents, graphics, and design, and the technical aspects of the Computer Assisted Instruction on reproductive systems for Prathom Suksa 6 students are at a good level, according to the hypothesis 1, where the average content quality of CAI is the highest, and evaluating the quality of the CAI in technical aspects with the lowest mean. However, all items evaluated are at a good level.

2. Compare the learning achievement before and after learning by using the computer assisted instruction on reproductive system for Prathom Suksa 6 students, by using the achievement test used in this research. There is a total of 20 items, a full score of 20, in which the Index Of the consistency assessment (IOC) between the learning objectives and the questions on the achievement test, turns out that the test has the Index Of the consistency (IOC) more than 0.5 and above, considered to be suitable for use when taking the test to measure the achievement of Prathom Suksa Students at Suan Sunandha Rajabhat University Demonstration School, 87 samples found that the achievement after learning by using the computer assisted instruction higher than before using the computer assisted instruction, according to the hypothesis 2, by using t-test Dependent sample.

3. The satisfaction of sample students towards the computer assisted instruction assessed in terms of contents, graphics, design, and technical, overall satisfaction assessment results are equal to 4.57, very satisfied, according to the hypothesis 3, details are shown in the Appendix, with the highest average technical satisfaction, and the lowest average graphic and design satisfaction. However, all items evaluated have an average of very high levels in all levels.

DISCUSSIONS

This study was an experimental research to create the computer assisted instruction on reproductive system for Prathom Suksa 6 students, Suan Sunandha Rajabhat University Demonstration School, studied the learning achievement before and after using the computer assisted instruction created, and studied the satisfaction of the students with the computer assisted instruction which could summarize the essence and the findings. The results of this study could be discussed as follows.

1. The quality of the computer assisted instruction was at a good level, according to the quality assessment by experts and the results of the evaluation of the students' satisfaction with the computer assisted instruction was in accordance with the hypothesis, probably due to Computer Assisted Instruction had the correct building and development process, according to the characteristics of the good computer assisted instruction as follows:

1.1 There was a topic to analyze the expected learning outcomes annually or the unit, wrote the analysis results in the form of Conceptual Framework, it should select the problem sub-unit or choose a unit that could be used by self-study to create the computer assisted instruction.

1.2 Determine the behavioral objectives. Once the mission has been analyzed completely, the behavioral objectives of each mission must be identified, with these behavioral objectives as a ladder to teaching objectives, this behavioral purpose may be called the Navigation purpose.

1.3 Preparation of the test to know how the learners have learned according to the activities you have prepared. The researcher has created a test to assess, namely the unit test, the test was evaluated by the quality of the test by experts in order to get good and reliable evaluation results.

1.4 Details of the presentation framework to indicate what messages, pictures, sounds, narration, and response in each lesson and learners, may be referred to Scriptwriting, and then ordered the content.

1.5 Selected the program to present the lesson, the design of the teaching may choose the program that had many formats, according to expertise and had to consider the ability of the program whether or not to meet the needs of our lessons such as sounds, colors, images, the learning data recording of learners.

1.6 Preparation of resources: Prepared images, still images, movies, audio files, screen images, etc. to be ready for use. May be placed on the device or CD-ROM. Ready to be used for lesson preparation. This information was already known in the process of creating the script.

1.7 Prepared the lessons, proceeded with the elaboration of the program selected, in accordance with the learning path framework set out in the storyboard and learning charts designed from the beginning.

1.8 Lessons were checked, before the lesson was implemented with content experts, checked the accuracy of the content structure and techniques. Presentation of computer programs, the researcher used 3 experts. When received the results of the examination from experts, the researcher used that information to improve the lessons to be more quality.

1.9 Language usage: the researcher chose words that were easy to understand, straightforward, and friendly in language, allowing readers to understand easily. The most natural and clear writing language was the language that was not too academic, consistent with Viriya Sirisingha (1994: 94)

1.10 Illustrations in accordance with Somporn Charunat (1995: 115).Most of the pictures were clear with drawings, consistent with the content, helped to convey the meaning of the text and attract attention, allowed the reader to understand the content quickly and without error, helped the reader to understand more accurately and clearly, and the color of the illustration was a color that was close to nature and reality, often using cool colors such as green, blue, yellow which gave a sense of hope, a wish arose, refreshing, in line with Sangkhet Nakpaijit (1987: 99-101).

2. The steps in creating the computer assisted instruction were systematically constructed in accordance with the steps of creating the good computer assisted instruction. The characteristics of the computer assisted instruction, including through the improvement and correction according to the recommendations of experts, both creating the computer-assisted instruction with content, graphic, design, and technical before applying to the sample, it made the quality of the computer assisted instruction lesson was good and could cause actual knowledge. Further studies by achievement tests before and after the experiment by using the computer assisted instruction showed better results.

3. The learning achievement in the reproductive system after learning by the computer assisted instruction was higher than before using the computer assisted instruction. Statistical significance at the level of .05, in line with the findings of Wiradej Kerdtakian (2003: Abstract), Chatri Jampasri (1997: 58), Suwakorn Mangchu (2000: Abstract) and Natthawee Utkrit (2000: Abstract) and Siriporn Poolsuwan. (2015: Abstract). found that the learning achievement after learning by using the computer assisted instruction was significantly higher at the level of .05, likely caused by the computer assisted instruction that the researcher created. It was a tool or channel for communicating knowledge, understanding. Causing learners to learn about the more digestive system, and it looked like it was based on the good computer assisted instruction, as already mentioned in the quality of computer assisted instruction.

CONCLUSION

The creation of the computer assisted instruction on the reproductive system for Prathom Suksa 6 students, summarized as follows:

1.The Computer assisted instruction on reproductive systems was of good quality.

2.The learning achievement of Prathom Suksa 6 students after learning was higher than before learning with statistical significance at the level of .05.

3.Prathom Suksa 6 students were satisfied with the computer assisted instruction on reproductive system at a high level

Suggestion

1. Suggestions for this research

1.1 The information should be studied correctly, clearly and appropriately for the target student group.

1.2 The planning of each study period should be planned carefully and appropriately, especially in the process of creating and developing the computer assisted instruction.

2. Suggestions for future research, the researcher has the following suggestions:

2.1 should study the comparison of the persistence in learning at various times such as 1 week and 1 month, etc.

2.2 The efficiency of the Computer Assisted Instruction should be evaluated before the next use.

2.3 Education should also be developed into other forms of teaching and learning media such as video creation, animation and sound explanations at the same time. This will help the students to have knowledge, understanding, and better study durability

3. Suggestions for future research

It should increase the nature of presentations that can increase the options for accessing knowledge, which may increase the avoidance of descriptive knowledge of that subject to the student

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