การพัฒนารูปแบบการสอนบนเครือข่ายอินเทอร์เน็ตเพื่อส่งเสริมความสามารถในการเรียนรู้คำศัพท์โดยวิธีการเดาความหมายจากบริบท ("รูปแบบการสอนแบบสายตาคำโมเดล")*

The Development of a Web-Based Instructional Model to Enhance Vocabulary Learning Ability Through Context-Clues Based Meaning Guessing Techique : "The Saitakham Model"

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อพัฒนารูปแบบการสอนบนเครือข่ายอินเทอร์เน็ตเพื่อส่งเสริมความสามารถในการเรียนรู้คำศัพท์ภาษาอังกฤษโดยวิธีการเดาความหมายจากบริบทและเพื่อหาประสิทธิภาพของบทเรียนเพื่อส่งเสริมความสามารถในการเรียนรู้คำศัพท์ภาษาอังกฤษโดยวิธีการเดาความหมายจากบริบทที่พัฒนาขึ้นตามเกณฑ์มาตรฐาน 85/85 (พรหมวงค์, 1978) และเพื่อเปรียบเทียบผลสัมฤทธิ์ทางการเรียนของนักศึกษาที่เรียนเพื่อส่งเสริมความสามารถในการเรียนรู้คำศัพท์ภาษาอังกฤษโดยวิธีการเดาความหมายจากบริบทบนเครือข่ายอินเทอร์เน็ต นักศึกษาที่ได้รับการสอนโดยวิธีเผชิญหน้ากลุ่มตัวอย่างที่ใช้ในการวิจัยในครั้งนี้คือนักศึกษามหาวิทยาลัยเทคโนโลยีสุรนารีที่เรียนรายวิชาภาษาอังกฤษ 3 ภาคการศึกษาที่ 1 ปีการศึกษา 2553 มหาวิทยาลัยเทคโนโลยีสุรนารี จำนวน 80 คน โดยแบ่งเป็นกลุ่มทดลองและกลุ่มควบคุม กลุ่มละ 40 คน กลุ่มทดลองได้เรียนบนเครือข่ายอินเทอร์เน็ตและกลุ่มควบคุมที่ได้รับการสอนโดยวิธีเผชิญหน้า หลังจากที่ทั้งสองกลุ่มได้ทำการทดสอบก่อนเรียน กลุ่มทดลองได้เรียนบทเรียนบนเครือข่ายอินเทอร์เน็ตโดยผ่านเว็ปไซต์ www.welmc.net และกลุ่มควบคุมได้เรียนโดยวิธีเผชิญหน้า จากนั้นนักศึกษาทั้งสองกลุ่มได้ทำแบบทดสอบหลังเรียน กลุ่มทดลองจะตอบแบบสอบถามและได้รับการสัมภาษณ์

เกณฑ์มาตรฐาน 85/85 นำมาใช้เพื่อทดสอบประสิทธิภาพของบทเรียนบนเครือข่ายอินเทอร์เน็ตโดยใช้สูตรการหาประสิทธิภาพของกระบวนการและค่าประสิทธิภาพของผลลัพธ์ (E_1/E_2) ในการเปรียบเทียบผลสัมฤทธิ์การเรียนคำศัพท์ภาษาอังกฤษของกลุ่มทดลองและกลุ่มควบคุมวิเคราะห์ข้อมูลโดยใช้การวิเคราะห์ความแปรปรวน (ANCOVA) เพื่อขจัดตัวแปรร่วมค่าเฉลี่ยเลขคณิต ผลการวิจัยพบว่ารูปแบบการสอนบนเครือข่ายอินเทอร์เน็ตเพื่อ

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ส่งเสริมความสามารถในการเรียนรู้คำศัพท์โดยวิธีการเดาความหมายจากบริบทหรือ The Saitakham Model ที่พัฒนาขึ้น ได้รับการประเมินจากผู้ทรงคุณวุฒิทางการออกแบบระบบการสอนและการสอนภาษาอังกฤษว่าอยู่ในเกณฑ์ "เหมาะสมมาก" ($\overline{X}$= 4.67) บทเรียนการสอนบนเครือข่ายอินเทอร์เน็ตเพื่อส่งเสริมความสามารถในการเรียนรู้คำศัพท์ โดยวิธีการเดาความหมายจากบริบทที่พัฒนาขึ้นมีค่าประสิทธิภาพ 83.50/84.25 ซึ่งเป็นไปตามเกณฑ์มาตรฐาน 85/85 ที่ตั้งไว้ และพบว่ากลุ่มทดลองมีผลสัมฤทธิ์ทางการเรียนสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05

Abstract

The present study aims to develop a web-based instructional model for enhancing English vocabulary learning ability by context-clues based meaning guessing technique, determine the efficiency of English vocabulary learning lessons via web-based instruction (WBI) based on the 85/85 (Brahmawong, 1978) and to compare achievement of English vocabulary learning ability of both experimental group and control group. The samples were 80 students who enrolled in the English III course in the trimester 1, academic year 2010 at Suranaree University of Technology. They were divided into two groups: the experimental group received tutoring to enhance English vocabulary learning ability by context-clues based meaning guessing technique via the web-based instruction (www.welmc.net) while the control group received tutoring from face to face method. After taking a pre-test, the experimental group was taught via the web-based instruction and the control group was taught by face to face method. When finished learning, both groups were asked to do a post-test.

The 85/85 standard criterion was used to determine the efficiency of English vocabulary learning lessons via web-based instruction by using the efficiency of the process and the efficiency of the product formula (E_1/E_2 formula). To compare the English vocabulary learning achievement both of the control and experimental groups, the Analysis of Covariance or ANCOVA was used to remove extraneous variability that derives from pre-existing individual differences. This study found that the web-based instructional model (The Saitakham Model) for enhancing English vocabulary learning ability by guessing meanings from the context clues was rated by the experts in Instructional System Design and English Language Teaching field as "Very Appropriate" ($\overline{X}$ = 4.67), the efficiency value of the development of a web-based instruction lessons to enhance English vocabulary learning ability by guessing meanings from the context clues are 83.50/84.25 which is higher than the standard level at 80/80, and the achievement of English vocabulary learning ability of the students in the

experimental group was higher than that of the students in the control group with statistically significant differences at 0.05

I. INTRODUCTION

It is a common fact that over the years, the development of information technology has spread widely all over the world. The expansion of technology has no boundaries. Most aspects of human life and whatever fields associated with human have been touched and affected by its development. Technology is the greatest key to change social, cultural, political values or education. It can be said that technological developments cause continuous changes to every sector of modern society.

In the age of technological education, media and technology have influenced education, especially the Internet. The Internet has invaded instructional settings. It is a tool that offers powerful possibilities for improving learning. The Internet is a worldwide computer network that enables communication among millions of users from around the world (Klssen and Vogel, 2003). As the Internet is increasingly integrated in education, the World Wide Web is becoming a powerful and dynamic medium for delivering instruction. The World Wide Web has emerged rapidly to become the premier electronic medium. Many institutions have adopted the World Wide Web as one of the feasible delivery methods for learning activities. Alexander (1995) stated that the web provides opportunities to develop new learning experiences for students not possible previously. The Web is a medium of learning and instruction. It has a potential to support the creation of well-designed resources, such as web-based instruction (WBI).

Nowadays, the achievement of most Thai undergraduate university students is limited in their academic studies because they have low proficiency in English reading. Therefore, many studies have attempted to find out good strategies or methods for enhancing students' English vocabulary learning ability such as Chamot and Kupper (1989), Coady (1979), Liu and Nation (1985), Nunan (1991), Rubin (1975), and they found that the characteristic of a good language learner is guessing. Wen and Johnson (1997) also found that while all learners consistently used guessing as a strategy, it was the high achievers who tend to guess according to the reading context. Saitakham (2000) investigated English vocabulary learning strategies employed by high and low proficiency English major students at Naresuan University, Thailand. The result of the study showed that good students most frequently use the strategy of guessing the meaning from context clues while poor students most frequently use dictionary strategies for learning English vocabulary. Suppasetseree and Saitakham (2008) also studied English vocabulary learning strategies of non-English major

students with different levels of English proficiency at Suranaree University of Technology, Thailand, and found that good students guessed the meaning of unknown words from the context clues, while poor students relied on dictionary use for learning English vocabulary. Krutkaeo (1980) examined the effect of context clues on students' speed reading ability. The results showed that the students who used context clues read faster than those who did not use them.

As the importance of English reading skills mentioned by many research studies, vocabulary knowledge is a factor for helping the students to comprehend the text. However, most Thai university students have low proficiency in English reading. Guessing vocabulary meanings from the context clues was found by many studies that it can enhance students' vocabulary learning ability. Moreover, web-based instruction (WBI) is discussed as one of the feasible delivery methods for learning activities. Most of institutions are offering it as a teaching and learning tool, and many studies have been carried out to document the profitability of teaching and learning via WBI. To respond to the problems in English vocabulary knowledge and English reading ability of Thai students and to investigate good vocabulary learning strategies to support students' reading ability as well as the usefulness of WBI, this present study attempts to develop a web-based instructional model for enhancing English vocabulary learning ability of the students. This can be regarded as a way to expand students' vocabulary and improve the student's knowledge of vocabulary in order to succeed in their classroom learning.

II. DESIGNING THE EFFECTIVE WEB-BASED INSTRUCTION AND INSTRUCTIONAL DESIGN

A good web course design will take advantage of technology to make learning more responsive, relevant, and meaningful to students, allowing spontaneous experiences without physical distance constraints (Lan, 1999, quoted in Pachec, 2005). In addition, a good web course should be constructed to reflect the shift from an instructor-centered approach to a student-centered approach (Grunet, 1997). Simmons (2008) stated that good characteristics of WBI should states clear objectives and prerequisites in learner terms, has consistent layout and design with a well-planed navigation scheme, employs a learner-directed, non-linear approach, provides frequent practice and

immediate feedback, has a source of motivation for learners, and uses a variety of media styles and presentation techniques to maintain interest and appeal to different learning.

Frizell and Hübscher (2002) stated that designing effective web-based instruction is a difficult task for instructors who lack experience in interaction and web-based instructional design. They also pointed out that instructional system design can provide course designers with principles and design guidelines associated with effective instruction that can be utilized in the design of web-based instruction.

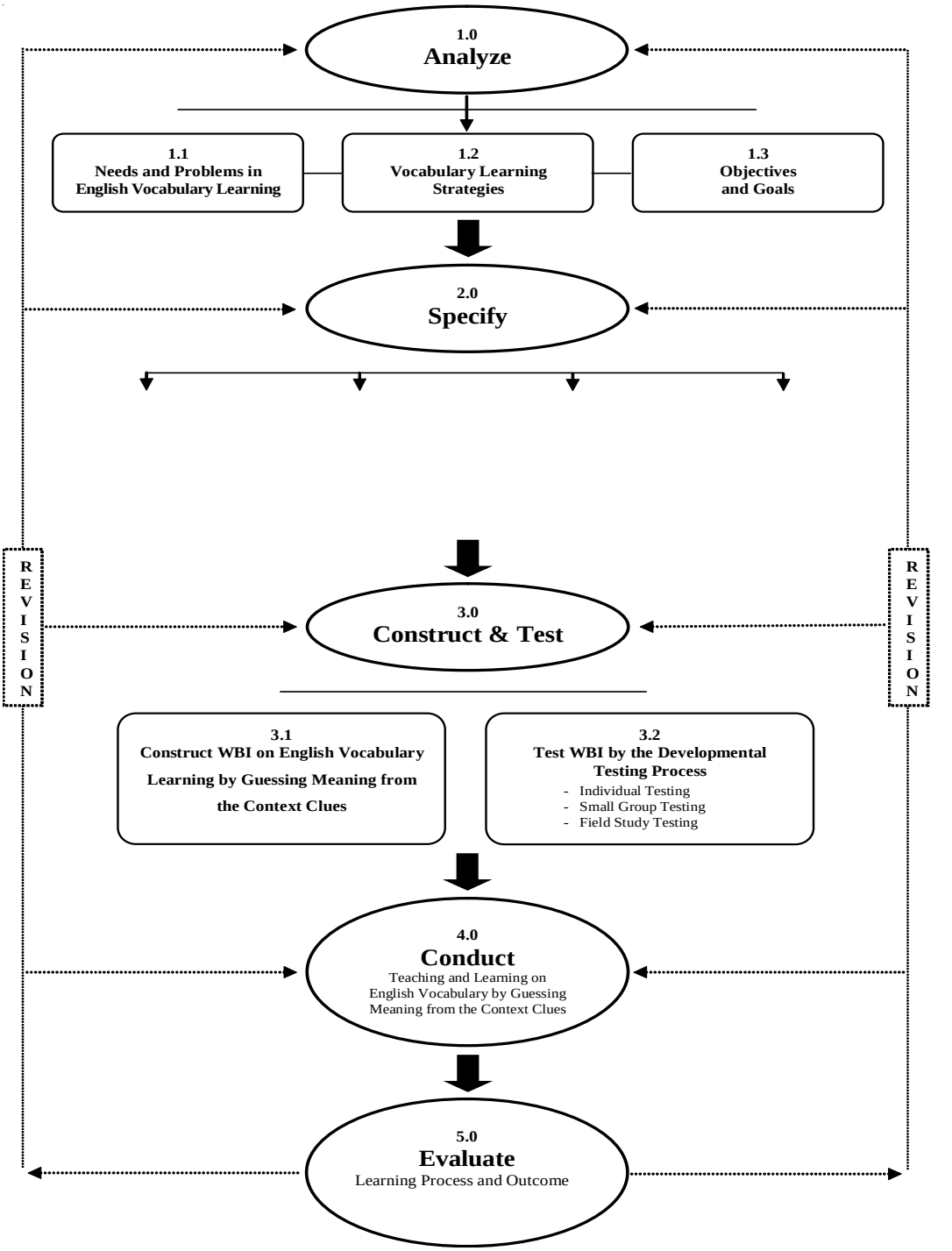
As web-based instruction has become one of the fastest-growing mediums in education, the instructors from a variety of academic areas are developing instructional materials for distance learning programs. These instructors are novice web designers and have received no training in interaction and web-based instructional design (Braxton, 2000 and Tennyson 1995). The need for design support is a major issue in the design of web-based instruction as the poor design of courses is one of the key problems with learning from the web (Bork and Britton, 1998 and Kessler, 1999).

Clark (1994) and Jonassen (1994) stated that instructional design of course materials directly affects learning effectiveness. In addition, Khan (1997) and Hannum (1998, quoted in Frizell and Hübscher, 2002) noted that to promote effective instruction, web-based courses must be designed with a focus on the opportunities and capabilities afforded by the web in relation to instructional design. Moreover, Moallem (2001) stated that employing instructional design principles and models in creating web-based instruction can help ensure that what is produced is of high quality and is able to present significant challenges to students.

III. THE SAITAKHAM MODEL

The Saitakham Model is a web-based instructional model for English vocabulary learning based on context-clues based meaning guessing technique. The Saitakham Model was designed by the researcher using an analysis and synthesis of the characteristics, principles, and approaches of many other instructional models. The Saitakham Model is shown in Figure on next page.

The Saitakham Model



As the figure shows, the Saitakham Model consists of five stages: analyze, specify and identify, construct and test, conduct, and evaluate.

1.0 Analyze

Analysis is the basis of the whole process. During this stage, teachers are required to analyze the students' needs and problems in English vocabulary learning, their use of English vocabulary learning strategies, and objectives and goals.

1.1 Needs and Problems in English Vocabulary Learning

During the preliminary phase of this study, the researcher examined the needs and the problems of SUT students with English vocabulary learning and the results show that most of the students have problems with the meaning of words. They cannot understand the meanings in context so they don't achieve as much as they should from English reading. The qualitative data showed that good vocabulary learning strategies are required in classroom learning. The students give priority to vocabulary learning strategies because they believe that those strategies are very useful and can affect their vocabulary learning ability.

1.2 The Use of English Vocabulary Learning Strategies

The use of English vocabulary learning strategies was also analyzed in the preliminary study. It was found that most students relied on guessing meanings from the context clues, using a dictionary, and using memory strategies.

1.3 Objectives and Goals

To analyze the objectives and goals is the last step of the analysis process. This step can help teachers write what they expect the students to accomplish. For this study, it is anticipated that the students can expand and improve their vocabulary knowledge in order to succeed in their classroom learning.

2.0 Specify

The second stage in the process involves specifying and identifying. In this phase, teachers are required to specify their vocabulary teaching method, identify contents, specify instructional media, and specify evaluation of vocabulary learning.

2.1 Vocabulary Teaching Method

The researcher's preliminary study attempted to find out good strategies for enhancing students' English vocabulary learning ability. The results show that high SUT students most frequently use the strategy of guessing meanings from context clues, while poor students most frequently use dictionary strategies for learning English vocabulary. This finding supports many other studies that guessing the word meaning from the context is one good learning strategy to enhance students' vocabulary learning ability.

Therefore, this strategy was selected as the teaching and learning method in this research study.

2.2 Content

The content of this study is based on the English III course at SUT. The objectives of this course aim to promote and enhance the students' vocabulary learning ability in order to succeed in English reading. Therefore, the course description of English III was analyzed to design the contents and lesson plans in classroom learning.

2.3 Instructional Media

To specify instructional media, the teachers should decide what media will be useful for teaching and learning. They should have a clear idea and consider their objectives for the instruction. The teachers should think about what method is appropriate for delivery of the lessons or learning tasks. What types of instructional media need to complete the tasks and are required for the course? Web-based instruction (WBI) is one of the best ways to promote student learning. It provides access to instruction anytime and anywhere. For example, a student can sit at the computer, in their home or take courses at a university. Many studies support that learning via WBI is a very important way to enhance the students' learning ability and their willingness to participate in the classroom (Hinnon, 2007; Duangjai, 2006; Napapong, 2006; Suppasetseree , 2005; Pateepsut, 2004; Bunnag, 2003; Somjai and Supaka, 2003; Dejthongpong, 2002; Suwanbenjakul, 2002; Vate-U-lan, 2001). SUT is one of many institutions that have adopted World Wide Web as one of the feasible delivery methods for teaching and learning. The computers and Internet network in classrooms and buildings are provided so the students can learn via WBI anytime, anyplace, and both inside and outside classroom. Because of the usefulness of WBI in teaching and learning, the researcher decided to select WBI on English vocabulary learning by guessing meanings from context clues as the instructional media of this study.

2.4 Evaluation of Vocabulary Learning

At this stage in the process, it is necessary to specify the evaluation. The teachers should decide what methods are to be used to evaluate the course or students' abilities such as by tests, exercises, assignments, questionnaires, interviews, peer evaluation, self-evaluation, self-reflection, or students' portfolios. For this study, the tests were used to assess and compare students' English vocabulary learning ability before and after the experiment. The tests were constructed by the researcher and employed as a parallel pre-test and post-test. They are in the form of multiple choices consisting of 80 questions with four alternatives.

3.0 Construct and Test

In this process, teachers have to construct and test the instructional media they will employ. For this study,

web-based instruction on English vocabulary learning by guessing meanings from context clues was constructed as the instructional media.

3.1 Construct

The steps in the construction and determination of the efficiency of English vocabulary learning lessons via web-based instruction are:

1) A study of the course description of the English III course focused on English vocabulary used in the course.

2) A review of related literature regarding English vocabulary learning by using context clues.

3) A study of how to create the Website.

4) Designing the web pages for web-based instruction to enhance English vocabulary learning ability by using context clues.

5) Creating the web pages for the on-line web-based instruction.

6) An Examination by the experts of "Web-based Instruction to Enhance English Vocabulary by Guessing Meanings from Context Clues".

7) A Revision of the website before using it in the try-out stages.

3.2 Test

To evaluate the effectiveness of English vocabulary learning lessons via Web-based Instruction, three steps of try-out in the developmental testing process (the individual testing, small group testing, and field study testing) were done to evaluate the lessons. The students' scores obtained from the exercises and the post-test from the individual testing, small group testing, and field study testing were used to determine the efficiency of English vocabulary learning lessons, based on the criteria of the 80/80 standard level (Brahmawong, 1978).

4. Conduct

At this stage in the process, the instructional media was utilized in teaching and learning. Web-based instruction on English vocabulary learning by guessing meanings from context clues was provided to the students for learning. In this study, 40 students who enrolled in English III course at SUT received tutoring to enhance English vocabulary learning ability by using context clues via WBI.

5. Evaluate

It is always necessary to evaluate learning processes and outcomes. This is the way to determine the significance of the model. Both formative and summative evaluations were used to assess the overall worth or the need for revision of the instruction.

Formative evaluation is part of the instructional process. It takes place during the development and subsequent try-out of the course. It provides the information needed to adjust teaching and learning while they are happening. Formative evaluation was to validate or ensure that the goals of the instruction or the learning process in the Saitakham Model were being achieved. Besides that,

it also helped for improvement all stages in the Saitakham Model. As the processes of the Saitakham Model, formative evaluation is very useful at the step of WBI testing. At this phrase, teachers might ask the students to look over the webpages to see if they are graphically pleasing, if there are errors teachers have missed, or if they have problems. Formative evaluation looks over the development process in using the Saitakham Model. It helps teachers catch things that are missing.

Summative Evaluation was also used in the Saitakham Model. It is a method of judging the worth of all process at the end of the instruction. It helps to focus the students' performance to see how well a group did on English vocabulary learning by guessing meanings from context clues via WBI. This evaluation can evaluate the learning materials and learning process utilized in the Saitakham Model. The Saitakham Model was designed with the analysis and synthesis of the characteristics, the principles, and the approaches of many models mentioned previously. It was created by using the system process and focusing on examining and solving the instructional problems, identifying the ways to teach, and assessing the effectiveness of the instruction. It is anticipated that the Saitakham Model will be one of the best approaches to provide the effectiveness in learning English vocabulary by guessing meanings from context clues via web-based instruction.

IV. RESEARCH METHODOLOGY

The samples of the study were 80 purposively selected students who enrolled in the English III course in trimester 1, academic year 2010 at Suranaree University of Technology, Nakhon Ratchasima, Thailand. The samples included two groups: the control and the experimental group. The control group also consisted of 40 students who received tutoring to enhance English vocabulary learning ability by context-clues based meaning guessing technique via the face to face method. The experimental group consisted of 40 students who received tutoring to enhance English vocabulary learning ability by context-clues based meaning guessing technique via web-based instruction. Both control group and experimental group received tutoring to enhance English vocabulary learning ability by context-clues based meaning guessing technique based on the content of English III course.

There are four instruments of this study: English Vocabulary Learning Lessons via WBI (www. welmc.net), the Saitakham Model, the evaluation form of the model, the lesson plans, and English vocabulary learning ability tests on guessing from the context clues.

The 85/85 standard criterion was used to determine the efficiency of English vocabulary learning lessons via

web-based instruction by using the efficiency of the process and the efficiency of the product formula (E_1/E_2 formula).

$$E_1 = \frac{\overline{X}}{A} \times 100$$

E_1 = Efficiency of the process – the percentage of average scores

$\sum x$ = Average scores all students obtained from the exercises

A = Total score of the exercises in the lessons

$$E_2 = \frac{\overline{F}}{B} \times 100$$

E_2 = Efficiency of the product – the percentage of average scores

$\sum F$ = Average scores all students obtained from the test

B = Total score of the test in the lessons

To compare the English vocabulary learning achievement both of the control and experimental groups, the Analysis of Covariance or ANCOVA model was used to remove extraneous variability that derives from pre-existing individual differences.

V. RESEARCH FINDINGS AND DISCUSSION

1. The Findings of the Development of the Saitakham Model to Enhance English Vocabulary Learning Ability by Context-Clues Based Meaning Guessing Technique

The evaluation form of the Saitakham Model was sent to the experts in Instructional Systems Design and English Language Teaching field. The result reveal that the experts very strongly agree that the steps of the Saitakham Model are clear and easy to understand, easy to implement, and the model is appropriate to be used in teaching English Vocabulary by guessing meaning from the context clues with the mean scores 4.67. In addition, the experts also very strongly agree that each component of the model has appropriate connection, with the mean scores 4.33. Overall, the experts very strongly agree that the model is satisfactory ($\overline{X}$ = 4.67).

Based on the findings the experts very strongly agreed that the Saitakham Model is suitable to teach English vocabulary by context-clues based meaning guessing technique via web-based instruction, because this model was designed using a systematic

process, and each component and step were clear and easy to understand. Thus, the model was suitable for implementation.

To design effective instructional approaches and models, the steps in the construction of the model are very important. In the process of development, the teachers need a step-by-step guide to design the model (The Michigan Department of Education, 2010). The Saitakham Model was created using a systematic process. The researcher studied and reviewed related literature on instructional system design in order to get a design concept. An analysis and synthesis was made of the characteristics, principles, and approaches of many instructional systems models such as those of ADDIE, Dick and the Carey, Kemp, ARCS, the ASSURE Model, and the SREO Plan, in order to create the Saitakham Model.

2. The Findings of the Development of a Web-based Instruction Lessons to Enhance English Vocabulary Learning Ability by Context-Clues Based Meaning Guessing Technique

To evaluate the effectiveness of English vocabulary learning lessons via web-based instruction, three steps of try-out in the developmental testing process (individual testing, small group testing, and field study testing) were done to evaluate the lessons. After the three steps of the developmental testing process were done, the lessons were used by the sample in the experimental group to determine the efficiency of English vocabulary learning lessons. It was found that the efficiency value of the development of a web-based instruction lessons to enhance English vocabulary learning ability by context-clues based meaning guessing technique are 83.50/84.25. Therefore, the efficiency of English vocabulary learning lessons of the study meets the 85/85 standard.

According to the efficiency of vocabulary learning lessons via web-based instruction at the level 83.50/84.25 (E_1/E_2), it can be seen that the efficiency of the outcomes (E_2) was higher than for the process (E_1). The reason might be that students became familiar with doing the exercises. They could practice doing the exercises again and again if they were not satisfied with their scores. Moreover, the format of the exercises was the same format as the test, so students were familiar with the format. This might have been a motive for them to pay more attention while taking the test in order to get higher scores. Thus, the efficiency of the outcomes ($E_2 = 84.25$) was higher than the efficiency of the process ($E_1 = 83.50$).

This finding agreed with many studies. Suppasetseree (2005) developed Remedial English lessons via the Internet and the finding revealed that the efficiency of the outcome was 86.27 while the efficiency of the process for the field study test was 85.03. Puttinate and

Phiancharean (2005) developed content-based computer assisted lessons and the efficiency of the content-based computer assisted instruction program was at the level: E_1 = 84.40 and E_2 = 85.67. Moreover, Sukpredee (2005) designed a multimedia computer instruction program and also found that the program had the efficiency rate of 84.06/86.14. In addition, Suppasetseree (2000) developed courseware lessons for English 1 and the tests of the efficiency of the lessons showed that the efficiency of the outcomes (E_2 = 87.93) was higher than the efficiency of the process (E_1 = 85.63).

3. The Findings of Comparison of English Vocabulary Learning Achievement by Context-Clues Based Meaning Guessing Technique for Experimental and Control Groups

To compare the English vocabulary learning achievement both of the control and experimental groups, the Analysis of Covariance or ANCOVA model by Scheffe was used to remove extraneous variability (students' English vocabulary learning ability) that derives from pre-existing individual differences. The data obtained from the pre-test and post-test were analyzed in order to see if there were significant differences between the control and experimental groups. The results are presented in the table 1.

Table 1. The Findings of Students' English Vocabulary Learning Achievement for Experimental and Control Groups Dependent Variable: post-test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1419.876[a]	2	709.938	64.976	.000
Intercept	521.169	1	521.169	47.699	.000
method * pretest	1419.876	2	709.938	64.976	.000
Error	841.312	77	10.926		
Total	45739.000	80			
Corrected Total	2261.188	79			

According to the table above, the p-value (Sig.) of each F ratio is given as .000, which means that it is not beyond the 0.05 level.These results show that the students in the experimental group who received tutoring English vocabulary by using context clues via web-based instruction had a higher average post-test score ($\overline{X}$ = 25.58) than the control group who received tutoring through face-to-face method ($\overline{X}$ = 21.40) with a statistically significant difference at the level of 0.05. This finding agreed with Suppasetseree (2005) who developed Remedial English lessons via the Internet and Srikalsin (2001) who developed an internet-based computer instruction on working principles and components of computers.

Both of them found that the achievement of students who received tutoring via the Internet, and those who received tutoring via the face-to-face method were "highly significantly" different. Moreover, Sa-ard (2004) developed web-based instruction on present simple tense and present continuous tense, and also found that the students who received tutoring via web-based instruction had a higher average score than students who received tutoring through the face-to-face method. It can be said that learning vocabulary by context-clues based meaning guessing technique via web-based instruction can help students have better understanding of the lessons,and that, therefore, will enhance their learning achievement, so it will be higher than that of the students in the control group.

VI. CONCLUSION

As the basic findings of the study, it can be seen that the web-based instructional model and the Saitakham Model were satisfactory to the experts. They "very strongly" agreed that the model was suitable to teach English vocabulary by context-clues based meaning guessing technique via web-based instruction.Moreover, the efficiency of learning lessons was higher than the standard level. The learning achievement of the students who learned via web-based instruction was higher than that the students who learned via the traditional face-to-face method.It can be concluded that learning English vocabulary by context-clues based meaning guessing technique via web-based instruction is an effective and suitable learning tool for enhancing and increasing the students' vocabulary knowledge. Web-based instruction can support and motivate students to learn without the restrictions of time and place. This is one of the best ways of learning, through the use of modern educational technology.

For further study, similar research should be conducted with other groups of students who have different levels of English proficiency, gender, skills in using

the Internet, etc. Moreover, a comparative study of the learning achievement between the students who learn via web-based instruction and other learning methods or approaches, such as Collaborative Learning, Cooperative Learning, Discovery-Based Learning, Engaged Learning, or Problem-Based Learning should be carried out.

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