ผลของการใช้ชุดฝึกอบรมบทเรียนอิเล็กทรอนิกส์เพื่อพัฒนาทักษะภาษาอังกฤษแบบองค์รวมต่อการเรียนภาษาอังกฤษของครูระดับประถมศึกษา[1]

The Effects of Using an E-learning Whole Language Course on Primary School Teachers' Learning

เกร็ดทราย วุฒิพงษ์ (Kretsai Woottipong)[2]

บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์สองประการ คือ (1) เพื่อพัฒนาชุดฝึกอบรมอิเล็กทรอนิกส์เพื่อพัฒนาทักษะภาษาอังกฤษแบบองค์รวมสำหรับครูระดับประถมศึกษาให้มีประสิทธิภาพตามเกณฑ์มาตรฐาน 80/80 และ (2) เพื่อศึกษาความแตกต่างระหว่างผลของชุดฝึกอบรมอิเล็กทรอนิกส์ต่อผู้เรียนที่มีความแตกต่างด้าน ก) ทักษะคอมพิวเตอร์ และ ข) ความรู้เดิมด้านภาษาอังกฤษ กลุ่มตัวอย่างในการวิจัยครั้งนี้เป็นครูระดับประถมศึกษาในโรงเรียนจังหวัดสงขลา จำนวน 156 ราย และอาจารย์สอนภาษาอังกฤษในระดับมหาวิทยาลัยในพื้นที่จังหวัดสงขลา จำนวน 5 ราย กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ได้มาโดยวิธีการสุ่มอย่างง่าย วิเคราะห์ข้อมูลโดยใช้การวิเคราะห์ความแปรปรวนพหุคูณ (MANCOVA) ผลการวิจัยพบว่า 1) ชุดฝึกอบรมอิเล็กทรอนิกส์ที่พัฒนาขึ้นมีค่าประสิทธิภาพเท่ากับ 80.33/81.10 ซึ่งเป็นไปตามเกณฑ์มาตรฐาน 80/80 ที่กำหนดไว้ 2) ความรู้เดิมด้านภาษาอังกฤษและทักษะคอมพิวเตอร์ไม่มีผลกระทบต่อผลสัมฤทธิ์ทางการเรียนและแรงจูงใจของผู้เข้าร่วมวิจัยที่ใช้ชุดฝึกอบรมอิเล็กทรอนิกส์

คำสำคัญ : ชุดฝึกอบรมบทเรียนอิเล็กทรอนิกส์, ทักษะภาษาอังกฤษแบบองค์รวม, ครูระดับประถมศึกษา

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[1]บทความนี้เป็นส่วนหนึ่งของงานวิจัยเรื่อง"การพัฒนาชุดฝึกอบรมบทเรียนอิเล็กทรอนิกส์ เพื่อเสริมสร้างทักษะภาษาอังกฤษด้านการออกเสียง การอ่านและการเขียนสาหรับครูระดับประถมศึกษาในโรงเรียนจังหวัดสงขลา" โดยทุนสนับสนุนการวิจัยงบประมาณแผ่นดิน มหาวิทยาลัยทักษิณ พ.ศ. 2558

[2]ผู้ช่วยศาสตราจารย์ ดร., สาขาวิชาภาษาตะวันตก คณะมนุษยศาสตร์และสังคมศาสตร์ มหาวิทยาลัยทักษิณ สงขลา 90000, e-mail : kretsai@yahoo.com

Abstract

The purpose of this study was two-fold: (1) to develop an e-learning course in English pronunciation, reading and writing for primary school teachers in Songkhla Province, and (2) to examine the difference between effects of the e-learning course on learners who possess different a) computer skill and b) background knowledge of English language. A sample group of 156 primary school teachers and 5 university lecturers in English language teaching from local universities in Songkhla province participated in this study. Simple random sampling was used to select the sample group. Multivariate Analysis of Co-Variance (MANCOVA) was employed to analyze the data. The results revealed that 1) the efficiency value of the e-learning lessons was 80.33/81.10. 2) background knowledge of English language and computer skill did not affect achievement and motivation scores of participants who learned via the e-learning course.

Keywords : E-learning Course, Whole Language, Primary School Teachers

Introduction

There are some reasons for the ineffective English language teaching in Thailand which are the causes of problems in English language teaching and learning especially in the primary and secondary schools. Also, Sripathum Noom-ura (2013 : 140 ; citing Noopong, 2002 : 40) reported that more than half of primary school teachers who were teaching English had not taken English as their major of their studies, and only around two-third of secondary school English teachers graduated with a bachelor's degree in English. In addition, Wiriyachitra (2002 : 4-9) revealed that some of the problems were teachers' heavy teaching loads, the lack of equipped classrooms and education technology, teachers' insufficient English language skills in terms of reading, writing, speaking and listening and cultural knowledge.

Geringer (2003 : 373) stated that a good teacher is a crucial factor in learners' learning process, and teacher quality outweighs the factors of funding, and class size. In addition, he further mentioned that professional development is one of important factors for improving teaching quality. Also, Joel, Richard, Sunhee and Steve (2008 : 135) agreed that improving teaching quality depends on improving professional development, and improving professional development depends on creating meaningful learning experiences for teachers.

Thus, those explained conditions lead to the failure of teaching English in Thailand education system. Obviously, the problems were taken for a long time, and develop itself to be critical problem because this is an important determining factor in the success of professional development. The whole language approach is one of the interesting methodologies to solve this problem.

Apart from the literature previously reviewed, the target participants' needs and problems in English pronunciation, reading and writing are examined by the researcher. According to the preliminary phase of this study, the result reveals that primary school teachers in Songkhla have problems in dealing with English pronunciation, reading and writing. Most of them do not understand how to pronounce, read and write effectively and they do not possess the strategies for improving the three skills independently. Moreover, they lack confidence in speaking, reading and writing English on their own, leading to low motivation to speak, reading and writing English.

According to Wang (2013 : 11 ; citing Goodman, 1986 : 40), language ability develops naturally as a result of experiences with language. He argued that the teaching of language as isolated skills was inappropriate and not likely to achieve as the focus of segregated-skill instruction is not on learning language for authentic communication. Furthermore, Anderson (1984 : 125) stated, as learners should be provided with the opportunity to use and explore language in contextually meaningful because speaking and writing skills are all inter-related. If language is taught as isolated skills, it is difficult because the human brain

cannot store bits and pieces of information for a long time.

In modern education system, adopting ICT in teaching is increasingly important. A number of using ICT in teaching are increasing. Besides technology, teachers are embracing other new techniques which are transforming the learning process from teacher-centered to learner-centered instruction. Learners can interact with fellow students and their teachers in different locations through the communication service provided by the internet. E-learning instruction can be designed to implement the theory of the whole language approach in the classroom. Studies have revealed the benefits of using e-learning to enhance learners' four English language skills, although learners' improvement is clearly revealed in receptive skills (e.g. reading and listening) (Stepp-Greany. 2002 : 165-180). According to Lunde (1990 : 68-78), the use of technology in foreign language learning seems to influence the improvement of linguistic skills. Many studies revealed an improvement in learners' writing skills via the use of networked computers (Beauvois. 1998; Warschauer. 1996 : 29-46).

Based on the information described above, technology plays a crucial role in helping learners develop their whole language competency. It would be useful if the study of e-learning instruction of English pronunciation reading and writing were conducted together. Therefore, this study aims to develop an e-learning course for enhancing English pronunciation, reading and writing skills of Thai primary school teachers based on the 80/80 efficiency criterion. The second purpose is to examine the difference between effects of the e-learning course on learners who possess different a) computer skills b) English pronunciation, reading and writing abilities.

In order to achieve the purposes, this research focuses on the following questions: (1) Do the efficiency of a process (E1) and a product (E2) of the e-learning course on English pronunciation, reading and writing skills meet the criteria of 80/80 Standard? and (2) Are there any significant differences between effects of the e-learning course on English pronunciation, reading and

writing skills on learners who possess different a) computer skills b) English pronunciation, reading and writing abilities?

The related studies on whole language approach, instructional design and technology and Gagné's Nine Events of Instruction are provided below to provide understanding of the theoretical backgrounds of the study.

Literature Review

A. Whole Language Approach

Worthman and Matlin (1995 : 67) described the concept of Whole Language that listening, speaking, reading, and writing skills were integrated and learned in the similar method. Language approach focuses on learners and their needs and interests as the heart of the curriculum planning which may have an effect on improving attitudes and motivation. Lems (1995) stated that whole language approach includes the process of interacting with authentic materials for communicative purposes which helps learners to improve their abilities in four skills in a natural way.

Several studies (e.g. Tu, 2004; Lin, 2007) have shown the effectiveness of the whole language approach in western countries, and the subjects of those studies included elementary students, high school students, and university students. To summarize, the results showed that learners benefited from the integrated instruction.

B. Instructional Design Model

Instructional design models are beneficial since they facilitate the work of practitioners in terms of conceptualizing representations in reality. According to Gustafson & Branch (2002 : 16-25), only a small proportion of the results of model testing has revealed in the literature, so it is likely that a number of models have never actually been executed. Several professional instructional practitioners employed instructional design models to a very limited extent in their instructional design practice. They also introduce different versions of the models in their

application to the instructional design process and may opt to leave out or change one or more stages of the process presented by the models. Therefore, the application and selection of a model is dependent upon the designers' understanding of the context, learning theories, obstacles or tasks since the models are situational and not universal. They offer a step-by-step approach to plan the instructional design process for specific learning and teaching initiatives (Morrison, Ross and Kemp. 2004 : 89-156 ; Siemens, 2002).

Several researchers are currently developing the processes for instructional design. There are also several existing instructional design models that are beneficial for course development, but selection of effective instruction is not a simple matter. This is because of the differences in approach of the various models. Hence it is necessary to select a model which is the most relevant in relation to the context of the particular course of instruction. Alternatively, a better choice is a generic instructional design model.

C. Gagné's Nine Events of Instruction

The e-learning lessons of this study were designed and constructed based on the framework of Gagné's nine events of instruction (1985: 83). Gagné's instructional theory was selected for this study because it has been recognized as a sound foundational instructional theory over several decades (Richey. 2000). In addition, the nine events of instruction are extensively deployed as one of the main components in all levels of instructional design (Mckinney. 2012 : 46). Wayne (2000 : 246) mentioned that it is crucial to deploy sound principles such as those proposed by Gagné in developing instructional technology to serve the needs of generations of learners. Gagné's nine instructional events have contributed significantly to the field of instructional technology and they are commonly applied in designing web-based instruction. Using this framework, more detailed design was applied to construct the materials to ensure that an adequate number of pronunciation, reading and writing activities were included. The nine steps are detailed below (Mckinney. 2012 : 4-6 ; Vincent. 2008 : 21-22) :

1. Gaining attention (reception).
2. Informing learners of the objective (expectancy).
3. Stimulating recall of prior knowledge (retrieval).
4. Presenting the material (selective perception).
5. Providing learning guidance (semantic encoding).
6. Eliciting performance (responding).
7. Providing feedback (reinforcement).

Research Methodology

1. Research design

A mixed method of the combination of quantitative and qualitative instruments and interviews (see table 1) was used in this study.

Table 1 *Research Design for this Study*

Group	1st twelve weeks		2nd twelve weeks	
	Beginning	**During**	**During**	**End**
Experiment (N = 91)	O1 O2 O3	x	x	O2 O3 O4
Control (N = 65)	O1 O2 O3	-	-	O2 O3

Note: O1 = Demographic Questionnaire
O2 = Achievement test
O3 = Instructional Material Motivation Questionnaire
O4 = Interview
X = Treatment
- = No treatment

All the participants were randomly assigned to an experimental group and a control group via simple random sampling method. Both experimental and

control groups were assigned to take English pronunciation, reading and writing classes as scheduled. However, apart from class attention, the experimental group also studied with the e-learning course individually. The research instruments were employed to both groups prior to the treatment. The participants in the both groups took a post-test which lasted 3 hours. Immediately after the post-test, the motivation questionnaire was administered to the participants. Then, nine participants in the experimental group with three participated university lecturers were interviewed for their opinions towards the participants' English pronunciation, reading and writing achievement and motivations.

2. Research Treatments

The research treatments used for this study included the e-learning lessons. E-learning lessons consisted of a tutorial designed to teach participants on three skills of English language: pronunciation, reading and writing. The overall design of the e-learning lessons in terms of instructional soundness is described below:

Instructionally sound e-learning: to better ensure that the e-learning was effective in teaching the intended three skills of English language and reflects best practices with the field of instructional design, the overall design of this e-learning employed processes and principles in instructional design suggested by Branch (2009 : 107) and construction of e-learning lessons was in line with the recommendation described by Gagné (1985 : 60-156) and Alessi and Trollip (2001 : 16-41).

In this study, the ADDIE Model served as the conceptual framework as detailed in the following figure:

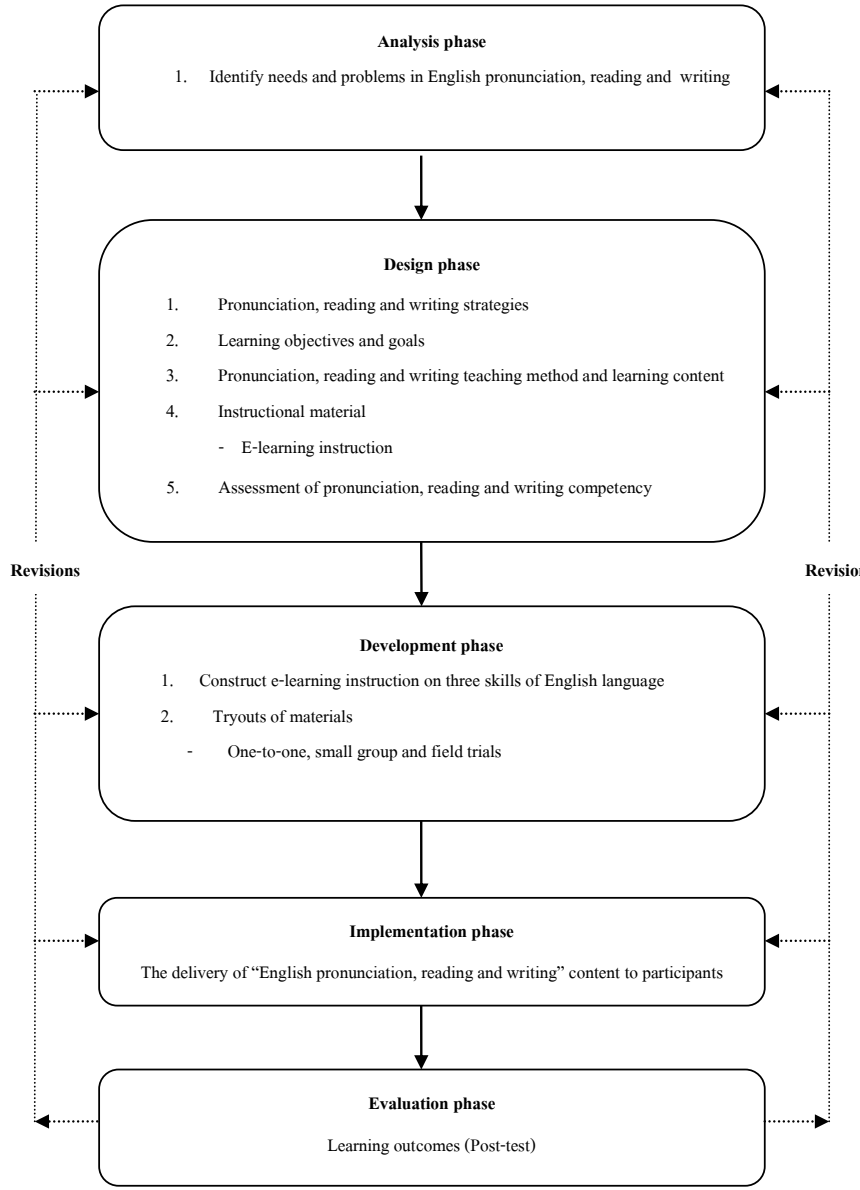

Figure 1 *Activities of the e-learning development process in each phase of the ADDIE Model.*

In the design phase of the ADDIE Instructional Model, Gagné's nine events of instruction were applied to design the e-learning lessons to enhance the effectiveness as described in the table summarized strategies and approaches relevant to each of the events of instruction applied to the e-learning of this study.

3. Population and sampling

The population were primary school teachers and ELT university lecturers from local universities in Songkhla province. The group of primary school teachers was purposively selected from 10 primary schools located in Songkhla Province. The primary schools had a mixed population with different language backgrounds: low, average and high proficiency levels, which provides an opportunity to investigate the effects of the e-learning course on participants with different language backgrounds and achievement levels. They were classified as high, medium and low EFL participants based on their pre-test scores. For the language university lecturers who were interested in participating in the study, they were informed about the study and the e-learning course during a training conducted in August, 2014. The participated language university lecturers introduced the study to the primary school teachers and invited them to join the study. As a result, 5 language university lecturers and 156 primary school teachers were participated in this study.

4. Variables

Independent variables: The primary school teachers' a) e-learning course use/ non use b) background knowledge of English pronunciation, reading and writing knowledge, and c) computer skills identified by the Demographic Questionnaire.

Dependent variable: The primary school teachers' a) learning achievement on English pronunciation, reading and writing skills, and b) motivation.

Research Instruments

The instruments used in this research are:

1. E-learning lessons for enhancing English pronunciation, reading and writing skills

2. Demographic questionnaire

3. The achievement test which was used as a pre-test and post-test to compare the achievement of participants' learning achievement on English pronunciation, reading and writing skills.

4. Instructional material motivation questionnaires

5. A semi-structured Thai language interview.

1. The Construction of e-learning course on English pronunciation, reading and writing skills

Learning contents focus on English pronunciation, reading and writing in 3 main units that were Unit 1: Pronunciation, Unit 2: Reading and Unit 3: Paragraph Writing. The sub-topics of unit 1 consisted of Organ of speech, Consonant sound, Vowel sound and Stress and Intonation. Unit 2 has three sub-topics: Skimming, Scanning and Guessing word meaning from context clues. The 4 sub-topics of unit 3 include: Introduction to a paragraph, Writing process, Paragraph unity and Paragraph coherence.

The content of initial e-learning lessons was approved and analyzed by 3 language specialists in English language teaching. After approval, the lessons were revised and improved accordingly. The storyboard was evaluated and approved by 5 media experts. Then, their feedbacks were used to improve the E-learning lessons in terms of clarity and appropriateness of explanations, the step-by-step lesson sequences, screen design, buttons and images. Then, the e-learning lessons were programmed. The developed e-learning course was tested by the following methods:

- One-to-one step testing (1:1).
- Small group testing (1:10).
- Field testing (1:100).

2. The Construction of Achievement Test

The content of the test was evaluated through Index of Item-Objective Congruence (IOC). In this study, the value of IOC is between 0.6-1.0, which was acceptable. The test items with value of level of difficulty between .20 to .80 and the discrimination index higher than .20 were selected. The test scores were calculated to check for the reliability using the Kuder-Richardson Formula 20 (KR20). The value of this reliability was 0.85.

3. The Construction of the Instructional Material Motivation Questionnaires

The questions were formulated based on Keller's ARCS Motivational Design Model. This model measures four attributes: Attention, Relevance, Confidence and Satisfaction. The initial questionnaire was then tested with students who are in different group from the sample group. Experts were consulted to validate the questionnaire. The value of IOC was between 0.6-1.0. The participants were required to rate the statements on a five-point scale from "Not true" to "very true" where the answer represents their opinions. The questionnaire was then administered with the experimental group of participants to study their motivations on learning English pronunciation, reading and writing skills via the e-learning course. The Cronbach's Alpha value of this questionnaire was 0.87.

4. The Construction of a Semi-Structured Interview in Thai

The interview was administered based on the preset protocol and research questions. The five participated university lecturers were interviewed regarding their opinions on the effects of the e-learning course on the participants. The stratified sampling was implemented to select three participants of low achiever, average achiever and high achiever. The interviewees were audio-recorded.

Data Analysis

The data obtained from the study were analyzed and interpreted in two main ways, by quantitative and qualitative analysis. Quantitative data obtained from the pre- and post-achievement tests and motivation questionnaire. Statistical test of multivariate analysis of covariance (MANCOVA) was employed to analyze the pronunciation achievement test's scores and motivation questionnaire to measure the effects of the e-learning course. Quantitative data includes the data obtained from the interview data analysis. The interview data were transcribed and then analyzed by using 1) open coding, and 2) axial coding. Then, axial coding or re-examination of the themes that had priorly been identified in order to determine whether they were linked was used. The data analysis from the semi-structured interview was then shown.

Results

1. Evaluation of Effectiveness of the E-learning Course on English Pronunciation, Reading and Writing Skills

To evaluate the effectiveness of English pronunciation, reading and writing lessons via e-learning course, three steps of try-out in the developmental testing process were conducted. After each of these steps of try-out, the content in each lesson was revised and improved in order to ensure the design was appropriate for the primary school teachers. The efficiency value of 80/80 of e-learning instruction on English pronunciation, reading and writing skills was defined by the researcher. The resultant efficiency value of the three try-outs: one-to-one testing (1:1), small group testing (1:10) and field group testing (1: 100) was as described below:

Table 2 *Resultant Efficiency Value of the E-learning Instruction Try-outs*

Try-out Group	Efficiency of Process (E1) (Defined efficiency value is 80)	Efficiency of Product (E2) (Defined efficiency value is 80)
One to one testing	71.10	74.44
Small group testing	74.81	76.29
Field group testing	80.33	81.10

Table 2 above showed that the value of efficiency of E1/E2 for one to one testing was 71.10/74.44. For small group testing, it was 74.81/76.29. Based on the results of both tests, it could be inferred that this e-learning course must be improved prior to further implementation. After it was revised and improved, it was tried out with 30 primary school teachers who were in different groups from the first and second testing stages. The result revealed that the value of efficiency of E1/E2 as 80.33/81.10. To summarize, this e-learning course is developed according to the standard criteria 80/80 defined. This corresponded to the first hypothesis of this study.

2. Omnibus MANCOVA Test for the Second Research Hypothesis

An omnibus MANCOVA test was conducted to assess the overall effect of the developed e-learning course on participants with differences in terms of background knowledge of English language and computer skills. The dependent variables were achievement and post score of motivation questionnaire. Pre-motivation and pre-test scores were used as covariate, and group, background knowledge of English language and computer skills were the independent variables. The analysis showed no statistically significant differences ($p > .05$) on achievement and motivation of the control and experimental group with different background knowledge of English language and computer skills (Wilks' lambda = 0.467, $F(4, 256) = .896$, $p > .05$).

Table 3 *Result of Omnibus MANCOVA Test*

Effect	Statistical Test	Value	F	Hypothesis df	Error df	Sig.
Group * background knowledge of English language * Computer skills	Pillai's Trace	.027	.897	4.000	258.000	.466
	Wilks' Lambda	.973	.896[a]	4.000	256.000	.467
	Hotelling's Trace	.028	.894	4.000	254.000	.468
	Roy's Largest Root	.028	1.786[c]	2.000	129.000	.172

3. Individual Hypothesis Test for the Second Research Hypothesis

The tests of between-subjects effects resulted in no statistically significant effects for both post-test (F (2, 129) = .332; P > .05) and post motivational questionnaire (F (2, 129) = 1.612; P > .05).

Table 4 *Result of Tests of Between-Subjects Effects*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Group * Computer skills * background knowledge of English language	Post-test	22.192	2	11.096	.332	.718
	Post Motivation	110.029	2	55.015	1.612	.204
Error	Post-test	4305.705	129	33.378		
	Post Motivation	4403.111	129	34.133		

To further investigate the results and reach better conclusions, the following two post hoc questions were proposed.

1. Did participants in the experimental group's report different achievement scores based on the amount of time and location that they learned via the e-learning instruction?

2. Did participants in the experimental group report different motivation scores based on the amount of time and location that they learned via the e-learning instruction?

To answer the first and second post hoc question related to the e-learning-use time/location, achievement and motivation, two analyses of variance (ANOVA) tests were conducted in which e-learning-use was an independent variable with five levels. The control group was categorized as zero and the experimental group was categorized from 1 with the lowest level of e-learning-use time to 5 with highest e-learning-use time. The e-learning-use time/location was reported by the university lecturers. In the first ANOVA test, achievement measured by post-test was considered as dependent variable, while in the second ANOVA test, the motivation measured by post-motivation questionnaire was considered as dependent variable.

The result of the first ANOVA test showed significant differences in post-test scores based on e-learning time/location. As depicted in Table 5, the experimental participants who often learned with e-learning in the school computer laboratory and classroom ($M = 60.47$, $SD = 3.062$) scored significantly higher than the ones who learned via e-learning course only three times in total in the school lab ($M = 49.67$, $SD = 4.32$). Table 6 showed that e-learning-use time/location had a significant effect on the post-test score, $F(5,150) = 734.41$, $p < .05$.

Table 5 *Results of Descriptive Statistics on Post-test with Different E-learning-Use Time/Location*

E-learning use	Mean	Standard deviation	N
No e-learning use	46.51	6.951	65
2.5 months /8 times (1.5-2 hours each time) / Laboratory	49.67	4.320	6
3 months /12 times (1.5-2 hours each time) / Laboratory	47.92	7.697	13
3 months /Twice a week (1.5-2 hours each time) / Laboratory	48.00	7.422	12
3.5 months /Twice a week (1.5-2 hours each time) / Laboratory and classroom	54.27	4.837	41
4.5 months /Twice a week (1.5-2 hours each time) / Laboratory and classroom	60.47	3.062	19
Total	50.60	7.737	156

Table 6 *Result of Statistical Difference of Post-test with Different E-learning-Use Time/Location*

Source	df	F	Mean square	Sig.
E-learning use	5	734.414	19.646	.000
Error	150			

Regarding post-motivation questionnaire, as shown in Table 7., the experimental participants who often learned via e-learning course at the school computer laboratory and classroom (M = 72.79, SD = 5.07) scored significantly higher than the ones who only learned via e-learning course three times at the computer laboratory (M = 68.17, SD = 6.36). Table 8 showed that e-learning-use time/location had a significant effect on the motivation scores, $F(5, 150) = 16.47$, $p < .05$.

Table 7 *Descriptive Statistics on Post-motivation Questionnaire with Different E-learning-Use Time/Location*

E-learning use	Mean	Standard deviation	N
No e-learning use	61.55	6.260	65
2.5 months /8 times (1.5-2 hours each time) / Laboratory	68.17	6.369	6
3 months /12 times (1.5-2 hours each time) / Laboratory	63.38	7.113	13
3 months /Twice a week (1.5-2 hours each time) / Laboratory	68.50	4.296	12
3.5 months /Twice a week (1.5-2 hours each time) / Laboratory and classroom	69.66	5.704	41
4.5 months /Twice a week (1.5-2 hours each time) / Laboratory and classroom	72.79	5.073	19
Total	65.99	7.268	156

Table 8 *Result of Statistical Difference of Post-motivation Questionnaire and Different E-learning-Use time/Location*

Source	df	F	Mean square	Sig.
E-learning use	5	16.47	580.329	.000
Error	150			

Discussions

The results revealed that the value of efficiency of E1/E2 was 80.33/81.10. The reasons that this e-learning course achieved 80/80 efficiency criteria are as follows:

1. Appropriate learning content was selected for the e-learning instruction.

2. The e-learning lesson was developed with the approval of media experts and English language specialists. According to their suggestions, the e-learning lesson was continuously improved after each trial with the students.

3. Evaluation of the e-learning lesson was conducted three times. After each trial, the evaluation score was improved so that the criterion of efficiency set for the experiment was achieved, confirming the implementation was successful.

The findings indicated that background knowledge of English language and computer skills did not play important roles in achievement and motivation among participants using the e-learning course compared to those who were tutored only by the conventional method.

Based on the interview results, the interviewed university lecturers and students had consistent views on the effect of background knowledge of English language, but the different views on the impacts of computer skills on learning achievement and motivation of the participants when they learned with the e-learning course.

The majority of university lecturers and participants reported that background knowledge of English language played crucial role on achievement and motivation. All university lecturers and more than half of participants believed on effects of background knowledge of English language on achievement and motivation. More than half of participants reported important effects of computer skills on participants' achievement and motivation.

Based on the university lecturers' interviews, it showed that they helped participants who did not possess required levels of background knowledge of English language, and computer skills to increase the required skills. Therefore, theses differences were not observed in the achievement and motivation tests taken at the end of the 24-weeks semester since the participants took the post-tests they had already dealt with their difficulties and gained required skills to learn the e-learning course. In addition, Kebritchi (2008) explained that background knowledge of English language and computer skills played a temporary role on the participants' achievement and motivation when they learned via the online computer game. The effect of these individual differences reduced and finally

disappeared as the participants developed required computer playing skills.

Recommendations

Recommendations for future e-learning instruction

Since the generalization of the results of this study is confined by many limitations, the recommendations proposed are as described below:

Similar research should be conducted with other groups of learners who have different levels of English competency, gender or skills in using internet.

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