การใช้ชุดฝึกอบรมบทเรียนอิเล็กทรอนิกส์ เพื่อเสริมสร้างทักษะภาษาอังกฤษด้านการออกเสียง การอ่านและการเขียนต่อความสำเร็จและแรงจูงใจของครูระดับประถมศึกษา[1]

Using E-learning Instruction to Enhance English Pronunciation, Reading and Writing Skills on EFL Primary School Teachers' Achievement and Motivation

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บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์สองประการ คือ (1) เพื่อศึกษาผลการใช้ชุดฝึกอบรมบทเรียนอิเล็กทรอนิกส์เพื่อเสริมสร้างทักษะภาษาอังกฤษด้านการออกเสียง การอ่านและการเขียนสำหรับครูระดับประถมศึกษาในโรงเรียนจังหวัดสงขลา (2) เพื่อศึกษาแรงจูงใจของครูระดับประถมศึกษาที่มีต่อการเรียนโดยใช้ชุดฝึกอบรมบทเรียนอิเล็กทรอนิกส์ กลุ่มตัวอย่างในการวิจัยครั้งนี้เป็นครูระดับประถมศึกษาในโรงเรียนจังหวัดสงขลา จำนวน 156 ราย และอาจารย์สอนภาษาอังกฤษในระดับมหาวิทยาลัยในพื้นที่จังหวัดสงขลา จำนวน 5 ราย กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ได้มาโดยวิธีการสุ่มอย่างง่าย วิเคราะห์ข้อมูลโดยใช้การวิเคราะห์ความแปรปรวนพหุคูณ (MANCOVA) ผลการวิจัยพบว่า กลุ่มทดลองมีผลสัมฤทธิ์ทางการเรียนและคะแนนแรงจูงใจในการเรียนภาษาอังกฤษสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติที่ระดับ 0.05 ผลการสัมภาษณ์กลุ่มตัวอย่าง พบว่ากลุ่มตัวอย่างมีความคิดเห็นต่อการใช้ชุดฝึกอบรมบทเรียนอิเล็กทรอนิกส์ ในทางบวกโดยคิดว่าเป็นสื่อที่มีประโยชน์และใช้ง่าย

คำสำคัญ : ชุดฝึกอบรมบทเรียนอิเล็กทรอนิกส์ ทักษะการออกเสียง การอ่านและการเขียนภาษาอังกฤษครูระดับประถมศึกษา

Abstract

The purpose of this study was two-fold: (1) to investigate the effects of e-learning course on English pronunciation, reading and writing achievement on primary school teachers in Songkhla Province, and (2) to examine the role of e-learning course on their motivation. 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 the learning achievement and motivation scores among participants using the e-learning course were higher than those taught through the conventional face-to-face instruction at a significance level of 0.05.

The interview result showed positive learning attitudes that the e-learning course was useful and easy to use.

Keywords : E-learning Course, English Pronunciation, Reading and Writing Skills, Primary School Teachers

Introduction

With the tremendous advances and popularity of the technology, computer-assisted instruction has become the method of choice for instructional development due to its potential for delivering better learning outcomes. It facilitates the handling and retrieval of teaching material by storage in a database which anyone can access via the Internet. 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; Lunde, 1990 as cited in [1]).

According to Alkan [2], the whole language approach emphasizes that human language learning moves from the whole to the parts rather than building sub-skills (e.g. grammar, spelling, vocabulary, and pronunciation) to lead toward higher abilities (e.g. reading comprehension). He further states that the four skills are interrelated. Freeman & Freeman [3] further supports that instructors need to provide natural reading, writing, speaking and listening teaching environments where learners can practice discrete language components. In addition, this approach enhances learners to work collaboratively with others, to create, and to take risks during instruction.

Although the whole language approach has been popular in western countries, Thai lecturers need to understand how to employ integrated-skill teaching techniques in a large class within limited class time. Previous research revealed the benefits related to e-learning instruction, most research was conducted in western countries, and some computer-assisted instruction did not take into consideration of the whole language principles [1].

Based on the information described above, technology appears to play a crucial role in helping learners develop their whole language competency. It would be useful if the study of e-learning instruction and teaching of reading, writing and pronunciation were conducted together. Therefore, this study aims to compare English pronunciation, reading and writing skills abilities between the experimental group and the control group. The second purpose is to examine the primary school teachers' motivations between the experimental group and the control group. In order to achieve the purposes mentioned above, this research focuses on the following questions: (1) Are there any significant different achievement scores between the experimental group and the control group? and (2) Are there any significant different motivations between the experimental group and the control group? The reviewed studies on instructional design and technology and motivation model are provided below to provide understanding of the theoretical backgrounds of the study.

Literature Review

Instructional Design and Technology

Online content development needs to be based on the principles of effective instructional design. These principles should be in line with sound teaching practices and built from solid educational learning theory. Cassarino [4] asserts that effective online learning is based on the principles of instructional

design and development. The design of e-learning instruction must consider cognitive processing of information, learning tasks, the needs of the learner, and the selection of instructional material. Based on studies conducted recently, when incorporating new technologies into a curriculum such as e-learning tools or computer games, the most important consideration to enhance learning is the instructional design and the instructional strategies used in the online course [5-6].

Studies reveal that the principles of instructional design are dependent on educational paradigms of the period in which these theories were proposed, so the models may not be adaptable in the current context of developing instruction for online educational settings. Despite there being no best practice in the use of available models for developing online instruction, designers of online instruction tend to employ conventional instructional design models that meet learners' expectations in the educational setting [7].

Studies on Motivation Model

The ARCS motivation model is one method used to motivate students to learn. ARCS motivation model encompasses four components of motivation that are attention, relevance, confidence, and satisfaction [8]. In the past several years, studies have shown the importance of motivating learners. For example, motivated learners tend to possess a better learning process and performance, higher self-confident, more creativity [9].

The implementation of the ARCS model has reported positive learning outcomes as the ARCS motivation model offers a systematic framework for teachers and designers as they analyze, design, develop and implement instructional materials. When ARCS motivation model strategies are integrated to teaching design, there is a high probability of enhancing students' motivation to learn [10].

The ARCS motivation scale has been used in this study to measure students' levels of motivation to learn via the e-learning course. Researchers have stated that learners' motivation towards learning in the classroom is one of the significant factors affecting their academic performance and achievement, leading to deeper engagement and academic success. When the ARCS model was applied to instructional media, researchers have indicated that a more supporting learning environment was created which promoted intrinsic motivation and promote self-regulated learning within learners [11-13].

Pronunciation, Reading and Writing

Pronunciation Instruction

An important aspect in teaching pronunciation includes micro-level skill (accuracy-based learning), macro-level skill (fluency-based learning) and awareness-raising classroom activities. At the micro-level skill, learners should be taught both in segmental (a study of sounds) and suprasegmental features (stress, intonation, rhythm, linking) (Gilbert 1984 as cited in [14]). Celce-Murcia, Brinton, & Goodwin (1996 as cited in [15]) explains segmentals as the basic inventory of distinctive sounds and shows the way that they combine to form a spoken language. Pronunciation teaching has focused on the mastery of segmentals through discrimination and production of target sounds via drills. Segmentals and suprasegmentals transcend the level of individual sound production and are produced unconsciously by native speakers. However, suprasegmentals extend across segmental. Since their elements provide crucial context and support (determine meaning) for segmental production, they are given a more prominent place in pronunciation instruction. According to [16], pronunciation instruction of sounds, words stress, sentence stress, and intonation are the pronunciation areas instructors should draw their students' attention to.

Reading Instruction

Barnett [17] suggests that students can be encouraged to use effective reading strategies by using the three activities for each stage of pre-reading, while-reading and post-reading. In pre-reading stage, activities that help readers access their prior knowledge about the reading topic can be utilized [18]. These activities include answering pre-text questions before going through the text such as answering questions based on the title/topic, making predictions based on previewing, skimming for general ideas, reading the introduction and conclusion and scanning for specific information. In the while-reading stage, activities that call for readers to obtain more information to understand the text content and to further develop their reading strategy are utilized [17]. These activities include guessing meaning of vocabulary by using context clues, analyzing reference words, reading for specific pieces of information and understanding text content. In the post-reading stage, activities that help readers check their comprehension and lead them to a deeper understanding of the text are used [18]. These activities include revising pre-reading expectations, checking what the reader thinks the author is saying, relating the text content to his/her own experience and responding to the text or criticizing it.

Writing Instruction

The process-oriented writing strategy has come into favor in recent years due to the limited success of the product approach. The writing process is a method of looking at the teaching of writing in which the focus has changed from the students' finished products (patterns of organization, spelling and grammar) to what students think and do as they write (planning, revising, and the like) [19-20]. Three stages have been proposed in specialists' models of writing process [21-25]. The three stages in this process are undertaken iteratively and will develop and increase the learners' writing competence.

The stages in the process-oriented approach to writing can be summarized as follows:

1. Prewriting is the planning of writing or preparing information prior to writing.

2. Writing is the stage that uses the prepared data from the first stage to compose a draft in which the content is organized. At this stage, the learners will pay attention only to content, not the accuracy of language used, in order to minimize their anxiety. Then, rewriting occurs after learners uncover their weak points in the composition and revise the content and language with more appropriate choice of words. The learners must rewrite their drafts.

3. Evaluation is the stage that helps learners to recognize the quality of their work after they have improved and rewritten their first drafts.

Research Methodology

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 a ballot drawing method. Both experimental and control groups took English Pronunciation, reading and writing classes as scheduled. However, the experimental group also studied with the e-learning course individually. The control group studied with the conventional face-to-face instruction. These instruments were employed to both groups prior to the treatment: 1) demographic questionnaire to identify the participants' demographic data, 2) a paper-based pretest to identify the participants' English pronunciation, reading and writing proficiency levels, and 3) instructional material motivation questionnaire to identify the participants' motivation levels on English pronunciation, reading and writing skills. 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 in both groups. Then, nine participants in the experimental group together with three participating university lecturers were interviewed for their opinions towards the participants' English pronunciation, reading and writing achievement and motivations.

Research Treatments

The research treatments used for this study included the e-learning lesson. The overall design of the e-learning lesson 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 [26] and construction of e-learning lesson was in line with the recommendation described by Gagné et. al [27] and Alessi and Trollip (as cited in [28]). In this study, the ADDIE Model served as

the conceptual framework as detailed in the following sub-sections:

Analysis phase

In the analysis phase, participants' needs and problems in English pronunciation, reading and writing are examined. 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.

Design phase

At this stage, strategies, learning objectives, teaching method and learning content, instructional material and assessment of competency are designed for the teaching of these three language skills. Based on the preliminary study, primary school teachers do not possess the strategies for three language skills independently. When asked to identify the techniques that are required for effective English pronunciation they marked three elements provided in the questionnaire: consonant sound, vowel sound, stress and intonation. For English reading skill, they rated on understanding the main idea and vocabulary as the crucial strategies for successful reading, whereas grammar, organization, and content were the top list of writing elements.

For the learning objectives, it is anticipated that participants' English pronunciation, reading and writing competency can be promoted to achieve proficiency in their learning. Regarding pronunciation teaching method and learning content, the results of the preliminary study demonstrate that participants who possessed technical knowledge about the placement of

mouth had higher scores than those who did not have background knowledge about it. Based on the results described, the researcher concluded that the higher pronunciation scores of students are due to English pronunciation techniques. Thus, the pronunciation strategies regarding organ of speech, consonant sound, vowel sound, stress and intonation are selected as a teaching method in this study. For writing skill, learners who visibly planned their writing had higher scores than those who did no planning prior to writing. The results showed that the higher writing scores of students are due to writing techniques, otherwise known as the writing process. Therefore, the writing process is selected as a teaching method in this study. In terms of reading skill, those who paid attention to the connections between sentences or tried to understand the passage as a whole were learners who received higher scores than those who tried to understand a text by understanding words and sentences in the text. As a result, the teaching method for developing reading skill focused on reading strategies: skimming, scanning and guessing word meaning from context clues.

For instructional material, e-learning instruction was selected to deliver the lessons. Based on the findings of the needs-analysis study, participants need to spend more time practicing English speaking, reading and writing at their own pace and in their own time outside classroom.

For the assessment of participants' English pronunciation, reading and writing competency, pre-testing and post-testing were undertaken to evaluate and compare their English pronunciation, reading and writing competency.

Development phase

The e-learning instructional material was developed in this phase. The try-outs of materials with representative students, also known as formative evaluation, were utilized during this stage to ensure that they meet the objectives and will be effective.

Implementation phase

During this stage, the e-learning lesson was conducted in teaching English pronunciation, reading and writing. A total of 91 primary school teachers in Songkhla Province participated in studying English pronunciation, reading and writing through e-learning instruction. The purpose of this stage is to ensure appropriate use of the instructional media by participants.

Evaluation phase

The summative evaluation was conducted after the implementation of e-learning instructional material to check its effectiveness.

Gagné's nine events of instruction

In the design phase of the ADDIE Instructional Model, Gagné's nine events of instruction were applied to design the e-learning lesson 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 lesson of this study below:

Table 2 Events of Instruction in the E-learning Lesson

Event of Instruction	Examples in E-learning Lesson
Pre-instructional phase	
1. Gaining attention	The activities in the Warm-up session of each unit were designed to stimulate student involvement and to capture their attention before the beginning of the lesson.
2. Informing learners of the objectives	A list of learning objectives or what the students will be able to achieve is presented on the first page of each unit.

Event of Instruction	Examples in E-learning Lesson
Pre-instructional phase	
3. Stimulating recall of prior knowledge	A quick primer about the previous lesson and a brief summary were included at the beginning and end of some units to avoid confusion with the content of the previous unit. Additionally, activities in this E-learning lesson help learners to associate new information with prior knowledge and to better understand previous concepts or content. These activities were included in a Explore session and a Practice session for each unit.
Instructional Phase	
4. Presenting the material	Learning content in the Explore session was organized and displayed in small segments to avoid memory overload and to facilitate learning and information recall. Techniques such as highlighting specific words and sentences in bold or color were used to help in differentiating content. A variety of media such as explanatory texts, graphics, audio, narration or spoken explanation is exploited to enhance the appeal to students
5. Providing learning guidance	The instruction on how to learn to pronounce, read and write is presented.
6. Eliciting performance	After completing the above activities, students were guided to a Practice session in order to confirm their understanding of the content and to increase their retention rate.
7. Providing feedback	At the end of each exercise, guidance and answers to questions were provided in real time to students regarding their performance.
Post-instructional Phase	
8. Assessing performance	Having completed all sessions in each unit, learners were to take the tests at the end of each unit. In these tests, learning guidance is not provided. The post-test which students were required to do after completing all units will provide an indication of the degree of enhancement achieved.
9. Enhance retention and transfer	Lesson summary that includes “Extra practice” which link to 3D Virtual World to teach English language skills associated with the three skills: pronunciation, reading and writing. This is not a section of the e-learning lesson, nor did the researcher construct the content on the websites containing additional practice.

Population and sampling

The population consisted of primary school teachers and language 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 participating language university lecturers introduced the study to the primary school teachers and invited them to join the study. A total of 5 language university lecturers and 156 primary school teachers participated in this study.

Variables

Independent variables : The primary school teachers' a) E-learning course use/ non use and b) prior English pronunciation, reading and writing knowledge measured by the paper-based pre-test.

Dependent variables : The primary school teachers' a) learning achievement on English pronunciation, reading and writing skills measured by the post-test, and b) their motivation measured by the Instructional Material Motivation Questionnaire.

The Construction of Lesson Plans for Conventional Face-to-Face Instruction

The construction of the lesson plans for conventional instruction was developed by the following methods:

1. Studying the concept of how to develop three lesson plans of pronunciation, reading and writing skills in terms of terminal objective, learning objectives and contents.

2. Constructing the lesson plans for developing English pronunciation, reading and writing abilities.

3. Examining the lessons plans by 3 language specialists in English teaching.

4. Improving and revising the lesson plans prior to implementing with the control group.

The Construction of E-learning course on English pronunciation, reading and writing skills

The construction of the e-learning course was developed by the following methods:

1. The methods and principles of constructing e-learning course were studied from related articles, books and researches.

2. The content and instructional objectives were analyzed, selected and outlined based on the findings from the textbooks.

3. The selected contents from Item 2 were used to construct the e-learning lessons focusing on topics of teaching and learning elements which were similar to those topics in the lesson plans of the conventional face-to-face instruction.

4. The content of initial e-learning lessons was then approved and analyzed by 3 language specialists in English teaching. After approval, the lessons were revised and improved accordingly.

5. The e-learning lessons were designed and a storyboard was written. Each unit consisted of contents, exercises, pre-test and post-test, assembled in a series of frames. The frames contained animated images, a narration, background music, sound effects and buttons for interaction.

6. The storyboard was evaluated and approved by 5 media experts. The evaluation form of the Department of Curriculum and Instruction Development [29] was used to examine the quality of the e-learning lessons in 4 aspects: content, instructional design, screen design and techniques.

7. Before first administering the experiment with students, feedback from 5 media experts was 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.

8. 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).

The Construction of Achievement Test

The procedure for constructing the pre and post achievement tests is as follows:

1. Construct the table of content analysis (learning unit objectives) in order to identify the numbers of items and how to measure the test content and the objectives.

2. The result of the analysis in Step 1 was used to construct the items of objective test

3. Three English language specialists were consulted to check its content and validity. 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.

4. The revised tests were tried out with 50 fourth-year students who have ever studied English pronunciation, reading and writing in order to check the level of difficulty of test items and the discrimination index.

These students were a different group from those in the sample group.

5. 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.

6. The test items from item 5 were then employed in the study.

The Construction of the Instructional Material Motivation Questionnaires

The procedure for constructing the questionnaire is as follows:

1. Some related literature on motivation and methods in developing a questionnaire were reviewed to develop the initial questionnaire. 20 questions were formulated based on Keller's ARCS Motivational Design Model. This model measures four attributes: Attention, Relevance, Confidence and Satisfaction.

2. The initial questionnaire was then tested with students who are in different group from the sample group. The results were used to improve the test by making it more comprehensive, reliable and valid for collecting data.

3. 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. After that the initial questionnaire was tested and improved to make it more comprehensive, reliable and valid for collecting data.

4. 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.

The Construction of A Semi-Structured Interview in Thai

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 interviews were audio-recorded.

Data Analysis

The data obtained from different methods of the study were analyzed and interpreted in two main ways, by quantitative and qualitative analysis.

The data obtained from the pre- and post-achievement tests and instructional material motivation questionnaire

Statistical test of multivariate analysis of covariance (MANCOVA) was employed to analyze the achievement test scores and motivation questionnaire to confirm the effects of the e-learning course.

In this study, to answer the first and second research questions, the dependent variables were the achievement test score and motivation score. The independent variables were the two learning methods (tutoring through the e-learning course and the conventional face-to-face instruction on English pronunciation, reading and writing skills). The results of achievement and motivation pre-test scores at the beginning of the experiment were the covariates to control the effect of the participants' variance.

The data obtained from interview data analysis

The interview data were transcribed and then analyzed by using 1) open coding, and 2) axial coding. In open coding, the entire interview transcripts were read and reread to identify and tentatively name the salient themes which were later labeled and coded. These themes served as a framework for analysis. Words or phrases that were the same were classified into the

same theme. These themes were modified during the subsequent steps of analysis.

Then, axial coding or re-examination of the themes that had previously been identified in order to determine whether they were linked was used. The data analysis from the semi-structured interview was then shown.

Results

Omnibus MANCOVA Test the First and Second Research Hypotheses

An omnibus MANCOVA test was conducted to assess the overall effect of the developed e-learning course on the dependent variables achievement and motivations. The analysis showed overall statistically significant group differences ($p < 0.05$) as a result of using developed e-learning course in instruction (Wilks' lambda = 0.762, F (2, 151) = 23.549, p = 0.000).

Table 3 Omnibus MANCOVA Test

Effect		Value	F	Hypothesis df	Error df	Sig.
Group	Wilks' Lambda	.762	23.549[a]	2.000	151.000	.000

Individual Hypothesis Test for the First and Second Research Hypotheses

A better understanding of the source of the overall effect from the omnibus test is determined from the tests of between-subjects effects. The tests of between-subjects effects resulted in statistically significant effects for both post-test ($F (1, 152) = 38.454$; $P < 0.05$) and post motivational survey ($F (1, 152) = 14.028$; $P < 0.05$).

Table 4 Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Group	Post-test	1731.763	1	1731.763	38.454	.000
	Post Motivation Survey	518.907	1	518.907	14.028	.000
Error	Post-test	6845.246	152	45.035		
	Post Motivation Survey	5622.540	152	36.990		

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

1. Did participants in either the experimental or control group show significant improvement in the three English language skills of pronunciation, reading and writing, as measured by the post-test?

2. Did participants in either the experimental or control group show significant improvement in the motivation subscales of attention, relevance, confidence, and satisfaction, as measured by the motivation survey?

To answer the two questions, paired-samples t-tests were used to compare the scores of experimental versus control groups from pre-test to post-test, and four subscales of motivation survey (see Table 5).

Table 5 The Comparison of the Motivation Scores of Experimental and Control Group

		Paired Differences		t	df	Sig.
		Mean	Std. Deviation			
Experimental group	Pre-test – Post-test	-18.242	7.081	-24.575	90	.000
Control group	Pre-test – Post-test	-11.138	6.023	-14.910	64	.000
Experimental group	Pre-Attention – Post-Attention	-3.890	3.016	-12.302	90	.000
Control group	Pre-Attention – Post-Attention	-.462	2.107	-1.766	64	.082
Experimental group	Pre-Relevance – Post-Relevance	-4.132	2.857	-13.798	90	.000
Control group	Pre-Relevance – Post-Relevance	-.815	2.669	-2.463	64	.016
Experimental group	Pre-Confidence – Post-Confidence	-.484	2.478	-1.861	90	.066
Control group	Pre-Confidence – Post-Confidence	-.338	2.594	-1.052	64	.297
Experimental group	Pre-Satisfaction – Post-Satisfaction	-2.429	2.805	-8.258	90	.000
Control group	Pre-Satisfaction – Post-Satisfaction	-.046	2.267	-.164	64	.870

Table 5 showed that the participants in both experimental group, $t(90) = -24.575$, $p < .05$, and control group, $t(64) = -14.910$, $p < .05$ achieved significant gains in scores from pre-tests to post-tests. The experimental group reported a greater gain in the post-test as the mean differences of the achievement scores was 18.24 as compared to the mean difference of 11.13 for the control group.

Table 5 showed that for the four subscales of motivation of the experimental group, there was significant differences for the first three subscales: attention, relevance and satisfaction with $t(90) = -12.302$, $p < .05$, $t(90) = -13.798$, $p < .05$, $t(90) = -8.258$, $p < .05$, respectively. However, there was no statistically significant difference for the subscale of confidence with $t(90) = -1.861$, $p > .05$. For the control group, the result showed nonsignificant

results (significance = .082, .297 and .870) for attention, confidence, and satisfaction. However, there was a statistically significant difference for the subscale of relevance with t (64) = -2.463, p > .05.

Table 6 The Comparison of English Proficiency Scores of Experimental and Control Group

		Paired Differences		t	df	Sig.
		Mean	Std. Deviation			
Experimental group	Pre-test – Post-test	-18.242	7.081	-24.575	90	.000
Control group	Pre-test – Post-test	-11.138	6.023	-14.910	64	.000
Experimental group	Pronunciation skill 1-Pronunciation skill 2	-5.484	2.183	-23.967	90	.000
Control group	Pronunciation skill 1-Pronunciation skill 2	-.415	2.061	-1.625	64	.109
Experimental group	Reading skill 1-Reading skill 2	-7.956	3.370	-22.524	90	.000
Control group	Reading skill 1-Reading skill 2	-5.708	3.263	-14.102	64	.000
Experimental group	Writing skill 1-Writing skill 2	-4.901	3.022	-15.469	90	.000
Control group	Writing skill 1-Writing skill 2	-3.185	2.744	-9.358	64	.000

Table 6 showed that the participants in both experimental group, t (90) = -24.575, p < .05, and control group, t (64) = -14.910, p < .05 achieved significant gains in scores from pre-tests to post-tests. The experimental group reported a greater gain in the post-test as the mean differences of the achievement scores was 18.24 as compared to the mean difference of 11.13 for the control group.

From Table 6, the finding showed significant results in the experimental group for the three sub skills of English language including pronunciation, reading, and writing skills. For the control group, the result showed a statistically significant difference for the two sub skills of reading and writing skills. However, there was no statistically significant difference for pronunciation (significance = .109).

Discussions

The result did show significant improvement of the achievement post-test of those who learned with the e-learning course as compared to those who did not learn via the e-learning course. The reasons for positive effects of the e-learning course were reported by the participating university lecturers and participants. Based on the university lecturers' comments, the e-learning course provided an experiential nature and it was an alternative way of teaching and learning. In addition, the e-learning course transformed participants' the fear of English language. For the participants, comments, the e-learning course was effective as it integrated learning and fun together and challenged participants to learn English language. The overall results did indicate that the e-learning course was an effective teaching and learning tool to develop the three English language skills of the participants. Using the e-learning course to support the three English language skills was suggested by the participated university lecturers as an appropriate alternative way of teaching.

Significant improvement was found in the motivation of the participants who learned via the e-learning course as compared with those who did not use the e-learning course. The participating lecturers and participants reported in their interviews that the e-learning course improved the participants' motivation toward the three English language skills. The results suggest that the e-learning course should be integrated with classroom activities if teachers want to enhance English class motivation.

Recommendations

Recommendations for future e-learning instruction

There are two suggestions that are useful for e-learning instruction in the future.

1. Sufficient practice time is necessary for improving their English pronunciation, reading and writing skills. Moreover, if learners have more time to practice the three English sub skills via the e-learning course by themselves, it may help promote student autonomy.

2. This e-learning course can be recognized as a tool or resource for stimulating and encouraging the learners to improve their English pronunciation, reading and writing skills. It should be a supplementary tool for learning enhancement and practicing outside the classroom.

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