

ผลของการใช้หลักสูตรฝึกอบรมกลยุทธ์การอ่านต่อความเข้าใจในการใช้
กลยุทธ์การอ่านและความสามารถในการอ่านภาษาอังกฤษของนักศึกษาสาขา
วิชาภาษาอังกฤษ คณะศึกษาศาสตร์ มหาวิทยาลัยทักษิณ

The Effects of Using a Reading Strategy Training Program on
Understanding of Reading Strategy Usage and English Reading
Ability of English Major Students, Faculty of Education, Thaksin
University

Received : 2020-04-10

Revised : 2020-04-23

Accepted : 2020-07-20

ผู้วิจัย มลฤดี สิริชัย¹

Monrueedee Sittichai¹

mrsthongsri.m@gmail.com

บำรุง ไตรรัตน์²

Bamrung Torut²

เสงี่ยม ไตรรัตน์³

Sa-ngiam Torut³

ปราณี นิลกรณ์⁴

Pranee Nilkorn⁴

บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อ 1) ศึกษาความรู้และความจำเป็นของทักษะการอ่าน การใช้และความจำเป็นของกลยุทธ์การอ่าน และความต้องการในการฝึกอบรมกลยุทธ์การอ่าน ของนักศึกษาสาขาวิชาภาษาอังกฤษ คณะศึกษาศาสตร์ มหาวิทยาลัยทักษิณ 2) พัฒนาหลักสูตรฝึกอบรมกลยุทธ์การอ่านให้มีประสิทธิภาพตามเกณฑ์ 75/75 และ 3) ประเมินประสิทธิผลของหลักสูตรฝึกอบรมในประเด็นความสามารถในการอ่าน ความเข้าใจในการใช้กลยุทธ์และขนาดของผล และความคิดเห็นของนักศึกษาต่อหลักสูตรฝึกอบรม กลุ่มตัวอย่าง ได้แก่ นักศึกษาสาขาวิชาภาษาอังกฤษ คณะศึกษาศาสตร์ มหาวิทยาลัยทักษิณ จำนวน 29 คน โดยวิธีการเลือกแบบเจาะจง เครื่องมือที่ใช้ในการวิจัย ได้แก่ แบบสอบถามความต้องการ หลักสูตรฝึกอบรม แบบทดสอบการอ่าน แบบประเมินตนเองด้านความเข้าใจในการใช้กลยุทธ์ แบบสอบถามความคิดเห็นต่อหลักสูตรฝึกอบรม และแบบสัมภาษณ์แบบกึ่งโครงสร้าง วิเคราะห์ข้อมูล

¹ นักศึกษาระดับปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาหลักสูตรและการสอน คณะศึกษาศาสตร์ มหาวิทยาลัยศิลปากร

Ph.D. Student in Department of Curriculum and Instruction, Faculty of Education, Silpakorn University

² ผู้ช่วยศาสตราจารย์ ดร. ภาควิชาหลักสูตรและวิธีสอน คณะศึกษาศาสตร์ มหาวิทยาลัยศิลปากร

Assistant Professor Dr. in Department of Curriculum and Instruction, Faculty of Education, Silpakorn University

³ ผู้ช่วยศาสตราจารย์ ดร. ภาควิชาหลักสูตรและวิธีสอน คณะศึกษาศาสตร์ มหาวิทยาลัยศิลปากร

Assistant Professor Dr. in Department of Curriculum and Instruction, Faculty of Education, Silpakorn University

⁴ ผู้ช่วยศาสตราจารย์ ดร. ภาควิชาสถิติ คณะวิทยาศาสตร์ มหาวิทยาลัยศิลปากร

Assistant Professor Dr. in Department of Statistics, Faculty of Science, Silpakorn University

โดยใช้สถิติพื้นฐาน ได้แก่ ค่าเฉลี่ย ค่าเบี่ยงเบนมาตรฐาน ค่าขนาดของผล และค่าทดสอบ t แบบไม่อิสระต่อกัน ผลการวิจัยพบว่า 1) นักศึกษามีความรู้ด้านทักษะการอ่านและการใช้กลยุทธ์ในระดับปานกลางแต่มีความจำเป็นต้องใช้ในระดับมาก 2) หลักสูตรฝึกอบรมที่พัฒนาขึ้นมีประสิทธิภาพเท่ากับ 79.94/77.76 สูงกว่าเกณฑ์ที่กำหนดไว้ 3) นักศึกษามีความสามารถในการอ่านภาษาอังกฤษและมีความเข้าใจในการใช้กลยุทธ์หลังฝึกอบรมสูงกว่าก่อนฝึกอบรมอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และมีขนาดผลที่ใหญ่มาก และนักศึกษามีความพึงพอใจต่อหลักสูตรฝึกอบรมโดยรวมในระดับมากในประเด็นการเพิ่มความเข้าใจในการใช้กลยุทธ์การอ่าน การพัฒนาความสามารถในการอ่าน และการจัดลำดับเนื้อหาและขั้นตอนการสอนที่เหมาะสม อย่างไรก็ตาม นักศึกษาระบุความพึงพอใจต่อกระบวนการเรียนการสอนที่เน้นการสอนกลยุทธ์แบบชัดเจนน้อยที่สุดเมื่อเปรียบเทียบกับด้านอื่น ๆ

คำสำคัญ : การพัฒนาหลักสูตรฝึกอบรม, กลยุทธ์การอ่าน, ความสามารถในการอ่านภาษาอังกฤษ

Abstract

The objectives of this study were 1) to investigate knowledge and necessity of English reading skills, usage and necessity of reading strategies, and needs for reading strategy training of English major students, Faculty of Education, Thaksin University; 2) to develop a training program to meet the efficiency criteria of 75/75; and 3) to investigate the effectiveness of the training program in terms of the students' reading ability, their understanding of the reading strategy usage, and their opinions on the training program. The research instruments used for this study were a needs analysis questionnaire, a Reading Strategy Training Program, English reading ability tests, a self-checklist of understanding of reading strategy usage, a questionnaire on the students' opinions toward the training program, and a semi-structured interview. The participations were 29 fourth-year undergraduate students, majoring in English, Faculty of Education, Thaksin University in the academic year 2019. They were selected purposive sampling. Data were analyzed by mean, standard deviation, effect size and independent t-test. The results showed that: 1) the students' reading skills knowledge and understanding of reading strategies usage were identified at a moderate level; however, their necessity was identified at a high level; 2) The developed training program reached the efficiency criteria of 79.94/77.76, which was higher than the established requirement; 3) The average of the mean of English reading ability and understanding reading strategy usage after training was significantly higher than that before the training at .05 level with very large effect size, and the students' overall satisfaction toward the training program was at a high level in terms of enhancing the understanding of reading strategy usage, improving reading ability, appropriate ordering of the contents and the learning activities. However, teaching and learning procedures based on explicit strategy instruction were identified at a low level of satisfaction compared with other aspects.

Keywords : Training program development, reading strategy, English reading ability

Introduction

Reading is one of the important skills, especially as a tool for searching knowledge, information, and entertainment in various sources such as newspapers, advertisements, labels, instructions, and magazines (Brien, 2012). According to Anderson (1999), reading is an important and necessary skill for EFL students and in English classrooms to seek knowledge from textbooks, researches, and academic articles. Students with good reading ability can make good progress and meet their learning satisfaction. Importantly, reading is one of the main skills tested in many standardized tests such as TOFEL, IELTS, TOEIC, and CU-TEP in order to identify the testers' English competency.

However, students' lack of reading skills such as guessing the meanings of difficult words, and identifying the main idea was identified as a problem. In addition, the English teachers also lacked knowledge in terms of techniques in teaching reading strategies; as a result, teaching and practicing reading strategies were avoided (Adunyarittigun, 2002; Tanghirunwat, 2003). Another problem identified by Piyanukool (2001) concerning the teachers was that they had insufficient training. Moreover, some training did not meet the teachers' needs while others focused more on theory than practice. These problems can be seen as obstacles of the implementation of reading strategies. Therefore, the problems need to be resolved.

Reading strategies are considered beneficial for EFL students in terms of developing their reading ability, enhancing their self-awareness of strategy usage, promoting effective learning, reaching self-success, increasing their motivation, self-confidence, and avoiding their failure in reading (Brown, 2000). Reading strategies can be taught and trained. Furthermore, positive effects were found after reading strategy training in terms of increasing reading competence, enhancing comprehension, rising of strategy usage, and gaining higher average scores in reading posttests (Carder, 2011; Medina, 2012). It is obvious that reading strategies are very crucial for EFL students to raise their comprehension.

Numerous studies on reading strategy have shown positive effects on the students' comprehension of reading and satisfied scores in reading posttests (Khaokaew, 2012; Kim, 2013; Shirvan, 2016; Wang, 2015). According to these studies; however, the top-down reading strategies which are related to the global strategy such as previewing, questioning, predicting were emphasized. Using global strategies seem to take time to reach comprehension; furthermore, the strategies are suitable for English native speakers and ESL learners who have good English competence. According to the Top-down Reading Process, the students have to use their prior knowledge and experience to guess and comprehend the texts. Conversely, according to Fatemi (2014), the bottom-up reading strategies which concentrate on analyzing words, phrases and sentences seem to be a

good approach for EFL and low English proficiency learners to develop their reading skills and reading ability. Without background knowledge concerning the texts, students can use their linguistic competence to analyze sub-skills reading strategies so that they can build their comprehension. Sub-skill reading strategies may be more appropriate for students who have limited English proficiency and for EFL students than global reading strategies.

Previous research suggests that developing programs or models for teaching reading strategies benefit student's reading comprehension and critical reading ability, increasing self-awareness, and enhancing reading strategy usage (Razi, 2014; Tantisattayanon, 2012). Although teaching reading strategies provides students several advantages, English major students in Faculty of Education were not considered as participants in previous research. These students are going to practice teaching for a year in schools and may become English teachers in the future; thus, it is worthwhile to enhance their reading skill knowledge, their understanding of reading strategy usage, and their English reading ability in order that they help improve their high school students' reading ability and reading strategy usage. According to previous studies, almost a semester was spent for teaching and training the students in their reading classes. However, some teachers may have limited time to teach both the contents of the reading courses together with the extra reading strategies. A short training program may be a good alternative for both the teachers and the students. In this study, the researcher develops the training program focusing on sub-skills reading strategies that serves the needs of the participants and investigates the effectiveness of the training program. The findings in this study may reveal the effectiveness of explicit sub-skill reading strategies instruction with English major students in the Faculty of Education.

Objectives

The objectives of this study are as follows:

1. To investigate fundamental data in terms of knowledge and necessity of English reading skills, usage and necessity of reading strategies, and needs for reading strategy training of English major students, Faculty of Education, Thaksin University
2. To develop a training program to meet the efficiency criteria of $E1/E2 = 75/75$
3. To investigate the effectiveness of the training program which involves the following aims: 3.1) to compare the students' reading ability before and after the training and its effect size 3.2) to compare the students' understanding of the reading strategy usage before and after the training and its effect size and 3.3) to survey the students' opinions on the training program.

Methodology

Participants

The participants of this study were 29 fourth year English major students in the Faculty of Education, Thaksin University in the Academic Year 2019. They were selected using a purposive sampling technique.

Instruments

The instruments for this research were as follows:

The instruments for this research were as follows:

1. The needs analysis questionnaire consisted of three parts concerning the participants' reading skills knowledge and necessity, the participants' understanding of reading strategy usage and necessity, general information and training program requirements of the participants. The students were asked to rate statements on a five-point Likert scale ranging from "very low" to "very high".

2. The Reading Strategy Training Program consisted of ten modules concerning general ideas of reading skills and reading strategies, five reading comprehension strategies, and five critical reading strategies. Each module was organized following these seven steps: 1) warm-up, 2) explanation, 3) modeling, 4) guided practice, 5) independent practice, 6) evaluation, and 7) wrap-up. Reading strategy knowledge and usage at the end of each module were assessed using open-ended questions and multiple-choice items. Content validity and appropriateness of the training program were evaluated by five specialists. Before implementing the training program, the same program was used in a pilot study with ten fourth year English major students in the Faculty of Education, Songkhla Rajabhat University. The training program reached the efficiency criteria of 78.82/ 78.75 which was higher than the established requirement.

3. The self-checklist concerning the understanding of reading strategy usage was a five-point Likert scale. The students must rate their level of understanding of the ten reading strategies from "least understood" to "most understood" before and after the training.

4. The English reading ability tests including the pretest and posttest consisted of 40 multiple-choice items. Both pretest and posttest were the same. The value of level of difficulty was between .20 to .80. Moreover, the test items with the discrimination index higher than .25 were selected. The tests were tried out with the students who were not the participants in the study. The test scores were calculated to check for reliability using the Cronbach's Alpha Coefficient. The value of this reliability was 0.70.

5. The questionnaire on the students' opinions toward the training program covered six aspects concerning choosing reading strategies, setting the objectives, teaching and

learning procedure, ability of the trainer, materials, evaluation, and benefits. The students were asked to rate statements on a five-point Likert scale ranging from “least satisfied” to “most satisfied”.

6. The semi-structured interview included open-ended questions concerning six aspects: 1) understanding of reading strategy usage, 2) reading ability, 3) the effectiveness of teaching procedure, 4) the problems found during training, 5) the application of knowledge in real situations, and 6) the suggestions for improving the training program.

All the research instruments were evaluated by five specialists in order to see the value of Index of Item-Objective Congruence (IOC), and the value of IOC of all the instruments was 1.0.

Procedure

The procedure for this study was divided into three phases.

The first phase was needs analysis. Based on the study of English curricula, theories, related studies concerning reading skills and reading strategies, and Common European Framework of Reference for Languages (CEFR), appropriate levels of reading and important reading sub-skills for university students were determined. In addition, seven steps in teaching reading strategy were done, which included the following: 1) warm-up, 2) explanation, 3) modeling, 4) guided practice, 5) independent practice, 6) evaluation, and 7) wrap-up. Based on the students' needs assessment, the gaps between the reading skill knowledge and its necessity, and the reading strategy usage and its necessity were revealed. Ten reading sub-skill strategies including understanding difficult words, identifying pronoun references, understanding sequencing, finding the main idea, identifying causes and effects, distinguishing facts from opinions, making inferences, identifying the author's purpose, analyzing propaganda, and analyzing biased statements were chosen to design and develop the training program in the second phase.

The second phase was curriculum design and development, and pilot study. The results of the first phase were used in this phase to identify the objectives of the training program, the contents and learning objectives, the teaching and learning procedure, learning evaluation, and to examine the quality and improve the modules of the training program. The ten-module reading strategy training program was developed based on the table of the unit content specification which was confirmed by five experts. The developed training program and the instruments for finding the efficiency and effectiveness of the training program were examined by five experts before using them in a pilot study. The results of the pilot study confirmed the efficiency and effectiveness of the training program when the training program met the efficiency criteria of 78.82/ 78.75, which was higher than the established requirement.

The third phase was curriculum implementation and evaluation in which the completed training program was implemented with the participants of this study. Before training, the objectives and the research procedure were explained, and the pre-test and the pre-self-checklist were done. While training, ten modules of the training program were taught by the researcher based on the seven steps in teaching reading strategy mentioned earlier. Three hours was allotted for each of the ten modules. After training, all the participants were given the post-test, post-self-checklist, and the questionnaire concerning their opinions toward the training program. Furthermore, 12 students were selected purposive sampling as participants for the in-depth semi-structured interview for opinions on the training program.

Data Analysis

To determine whether the training program was efficient, mean scores and percentage were calculated based on Brahmawong (2013) to compare the average scores of testing after each module with the average scores of the reading ability test after training. In addition, to discover whether the training program was effective, the data from the pre-test and post-test, together with the self-checklist before and after training, were analyzed using dependent t-test statistics to compare the student's reading ability and understanding of reading strategy usage before and after training. Furthermore, the effect size was calculated using the formula of Cohen (1988).

Results

Students' English reading skill knowledge and its necessity

To investigate students' English reading skill knowledge and its necessity, the needs analysis from the questionnaire was used to determine participants' level of their reading skill knowledge and its necessity for reading. The results from the questionnaire showed the average knowledge of students' reading skills ($\bar{X} = 3.08$, S.D. = 0.88) but a high level for its necessity ($\bar{X} = 3.74$, S.D. = 0.77). The results revealed the gap between the knowledge and the necessity of the reading skills. Insufficient reading skill knowledge concerned these four parts which were ordered from the highest difference to the lowest difference of mean scores between knowledge and necessity: 1) critical reading, 2) reading comprehension, 3) sentences, and 4) vocabulary. The questionnaire responses were given in Table 1.

Table 1 Mean scores and standard deviation of students' English reading skill knowledge and its necessity

Reading skills related to	Level of knowledge			Level of necessity			d	Rank
	\bar{X}	S.D.	Meaning	\bar{X}	S.D.	Meaning		
1. Vocabulary	3.42	0.79	high	3.71	0.74	high	-0.29	4
2. Sentence	3.21	0.89	average	3.52	0.85	high	-0.31	3
3. Comprehension	2.93	0.95	average	3.90	0.77	high	-0.97	2
4. Critical reading	2.78	0.90	low	3.84	0.73	high	-1.06	1
Total	3.08	0.88	average	3.74	0.77	high		

Students' reading strategy usage and its necessity

To investigate students' opinions on reading strategy usage and its necessity, the students were asked to respond to the questionnaire to identify their frequency of reading strategy usage and its necessity. The results from the questionnaire found that the students used the strategies "sometimes" ($\bar{X} = 3.33$, S.D. = 0.82), whereas the necessity of the reading strategy was found at a high level ($\bar{X} = 4.02$, S.D. = 0.70). Identifying propaganda, understanding the character's traits and feelings, and analyzing biased statements were viewed as the most necessary reading strategies; conversely, understanding the meaning of sentences, identifying pronoun reference, and identifying the main idea were identified as the least necessary. The results of the needs assessment revealed the gap between the students' understanding of reading strategy usage and its necessity. Table 2 shows the mean scores and standard deviation of students' reading strategy usage and its necessity.

Table 2 Mean scores and standard deviation of students' reading strategy usage and its necessity

Reading strategies	Level of usage			Level of necessity			d	Rank
	\bar{X}	S.D.	Meaning	\bar{X}	S.D.	Meaning		
1. Difficult words	2.96	1.00	sometimes	4.04	0.75	high	-1.08	4
2. Meaning of sentences	3.65	0.82	often	3.81	0.88	high	0.16	14
3. Main idea	3.49	0.91	sometimes	3.56	0.79	high	-0.07	12
4. General information	4.01	0.76	often	4.35	0.57	high	-0.34	11
5. Specific information	3.54	0.79	often	3.94	0.74	high	-0.40	10
6. Sequencing	3.15	0.93	sometimes	3.77	0.71	high	-0.62	7
7. Causes/effects	3.12	0.89	sometimes	4.17	0.61	high	-1.05	5

Reading strategies	Level of usage			Level of necessity			d	Rank
	\bar{X}	S.D.	Meaning	\bar{X}	S.D.	Meaning		
8. Character's traits	3.10	0.85	sometimes	4.67	0.58	very high	-1.57	2
9. Pronoun references	3.86	0.70	often	3.88	0.77	high	-0.02	13
10. Facts/opinions	3.38	0.63	sometimes	3.89	0.65	high	-0.51	8
11. Inferences	3.22	0.77	sometimes	4.14	0.67	high	-0.92	6
12. Comparison/contrast	3.84	0.69	often	4.29	0.63	high	-0.45	9
13. Author's purpose	3.28	0.61	sometimes	3.62	0.80	high	-0.34	11
14. Biased statements	2.81	0.97	sometimes	3.95	0.64	high	-1.14	3
15. Propaganda	2.54	0.91	sometimes	4.17	0.77	high	-1.63	1
Total	3.33	0.82	sometimes	4.02	0.70	high		

The efficiency of the English reading strategy training program

To evaluate the efficiency of the English reading strategy training program, the ten-module training program and the reading ability tests were administered in a pilot study with ten fourth year students in the Faculty of Education, Songkhla Rajabhat University. The results from the pilot study showed that the training program reached the efficiency criteria of 79.94/77.76, which was higher than the established requirement of 75/75 (Brahmawong, 2013) in terms of the efficiency of the teaching procedure of the training program and the efficiency of the students' reading ability. Table 3 shows the percentage of scores from the tests after each module and the percentage of scores from the posttest.

Table 3 Percentage of mean scores from the tests after each module and from the posttest

	Percentage of scores from the tests after each module										Tests after each module	Post-test
	1	2	3	4	5	6	7	8	9	10		
\bar{X}	71.03	75.69	89.79	80.11	81.03	75.59	87.76	80.86	83.53	73.79	79.94	77.76
S.D	13.18	8.42	8.32	7.84	11.74	8.03	4.74	7.91	10.95	9.94	4.39	6.10
Rank	10	7	1	6	4	8	2	5	3	9		

The effectiveness of the training program

To evaluate the effectiveness of the training program, the students' reading ability, understanding of reading strategy usage, and opinions on the training program were examined.

To determine the students' English reading ability, the percentage of the scores from the pretest and the posttest were calculated. The results revealed that there was a significant difference in the mean scores ($d = 20.34$, $S.D = 3.76$, $t = 30.88$; $p = .000$) with very large effect size when the effect size was 5.41 as seen in Table 4. This suggests that the students' English reading ability significantly improved after the English reading strategy training program.

Table 4 : Comparison between the English reading ability pretest and posttest and the effect size

English reading ability	\bar{X}	S.D.	Mean difference (d) (S.D. (d))	t	p	Effect Size
Pretest	23.07	3.05	20.34	30.88	0.000*	5.41
Posttest	31.10	2.44	(3.76)			

To determine the students' understanding of reading strategy usage, the data from the self-checklist were analyzed. The results revealed that there was a significant difference in the mean scores ($d = 24.67$, $S.D = 3.26$, $t = 22.26$; $p = .000$) with very large effect size when the effect size was 6.84. It is obvious that the students' understanding of reading strategy usage significantly developed after the English reading strategy training program. Table 5 shows the differences between students' understanding of reading strategy usage before training and after training.

Table 5 Comparison between the understanding of reading strategy usage before training and after training and the effect size

Understanding of reading strategy usage	\bar{X}	S.D.	Mean difference (d) (S.D. (d))	t	p	Effect Size
Pretest	56.04	6.20	24.76	22.26	0.000*	6.84
Posttest	80.80	6.40	(3.62)			

To determine the students' opinions toward the English reading strategy training program, the students were asked to respond to the questionnaire concerning seven aspects and identify the level of their satisfaction. The results from the opinion questionnaire show overall satisfaction towards the training program at a high level ($\bar{X} = 4.49$, $S.D. =$

0.55). Setting purposes of the strategies, selecting reading strategies, and usefulness gained from the training were identified with the highest level of satisfaction. On the other side, teaching and learning procedure, materials used, and evaluation were the aspects that had the lowest level of satisfaction. In addition, the students' responses from the semi-structured interview revealed favorable opinions in terms of the usefulness of the training program on the students' understanding of reading strategy usage and their reading ability. Moreover, because of the effectiveness and explicitness of the training program, the students believed that a reading strategy training program may be applied in real reading situations and in teaching reading in schools. Table 6 shows mean scores, standard deviation, and students' opinions on the reading strategy training program.

Table 6 Mean scores, standard deviation, and students' opinions toward the reading strategy training program

Aspects	\bar{X}	S.D	Meaning	Rank
1. Choosing reading strategies	4.56	0.52	very high	2
2. Setting the objectives	4.58	0.51	very high	1
3. Teaching and learning procedure	4.33	0.65	high	7
4. Ability of the trainer	4.50	0.54	high	4
5. Materials	4.39	0.58	high	6
6. Evaluation	4.47	0.53	high	5
7. Benefits	4.55	0.54	very high	3
Total	4.49	0.55	high	

As regards the effectiveness of the training program in terms of English reading ability, understanding of reading strategy usage, and opinions toward the training program, the results reveal that the English reading strategy training program was effective to improve student's reading ability, enhance students' understanding of reading strategy usage, and meet a high level of students' satisfaction toward the training program.

Discussion

The results of the study are discussed below.

1. The results concerning the reading skills and reading strategies needed for English major students in the Faculty of Education, Thaksin University are as follows:

1.1 The results of the study showed necessary and appropriate reading sub-skills which concern four aspects of reading skills: critical reading, reading comprehension, understanding sentences, and understanding vocabulary. Reading skills related to critical reading such as analyzing propaganda and making inferences were seen as very important reading sub-skills. Reading skills related to reading comprehension such as identifying the main idea and identifying causes and effects were found very necessary. Reading skills related to sentences such as understanding transitional words and key words were found to be much needed. Finally, understanding difficult words was a very important sub-skill of understanding vocabulary. These essential reading sub-skills were confirmed by Prasansaph (2018) and Zhou, Jiang, and Yao, (2015). Moreover, Chewarussamee (2019) found that these reading skills are insufficient skills for high school students and university students, and trainings should be provided urgently to raise the students' reading comprehension and English reading ability. The reasons why the sub-skills of reading comprehension and critical reading are important to train the students might be because these sub-skills can help students comprehend texts better. Lindsay and Knight (2006) stated that training several sub-skills of reading are very important to increase comprehension while reading and taking a second language test.

1.2 The results of the study also revealed the necessary reading strategies which are related to reading strategies based on the sub-skills of reading comprehension and critical reading. The reading strategies with the highest difference of mean scores were analyzing propaganda, understanding the character's traits and feelings, analyzing biased statements, understanding difficult words, understanding causes and effects, making inferences, sequencing, distinguishing facts from opinions, analyzing comparison and contrast, understanding specific information, understanding general information, analyzing the author's purpose, and identifying main idea. The results of this study are the same as that of Khaokaew (2012), Medina (2012), and Salataci and Akyel (2002) which found the effectiveness of teaching sub-skill reading strategies for intermediate students and university students. The reason why reading strategies are worthwhile to be taught to the students is that these strategies are crucial tools to help students achieve comprehension while reading. Graham and Bellert (2004) stated that reading strategy instruction is an effective way to help students to overcome the difficulty of reading and to be independent and effective learners.

2. Another result from the present investigation was that the developed training program in this study reached the efficiency criteria of 79.94/77.76, which was higher than the established requirement of 75/75. This is related to the studies of Chewarussamee (2019), Prasansaph (2018), and Tantisattayanon (2012) that implemented programs that taught reading skills to increase the students' reading comprehension and critical reading through instructional models and reading modules. The results of their studies showed

good efficiency of the models and the modules which was higher than the established requirement of 75/75. The first reason why the training program met the efficiency criteria of 75/75 might be because the students' needs analysis was done before designing and developing the program. Richards (2001) suggested that developing a curriculum or a training program should start with needs assessment to identify the students' needs and what they want to learn in order to prepare suitable teaching and learning environments to serve their real needs. The second reason might be because the training program was designed and developed systematically. Richard (2013) identified that there were many aspects being considered when developing a curriculum or a training program: analyzing students' needs, setting the purpose of the curriculum, selecting and ordering contents, creating appropriate teaching and learning procedure, selecting or developing teaching materials, creating learning activities, evaluating its instruments, and evaluating the curriculum. The last reason that the training program was effective might be because formative and summative assessments were implemented during and after training. Based on Graves (2000), assessment is important to assess students' knowledge and ability.

3. The results concerning the effectiveness of the training program after its implementation are described below.

3.1 The average scores of reading ability after training was significantly higher than before training with very large effect size. Such finding is similar with that of Shirvan (2016) and Tantisattayanon (2012) which found that the average scores of the posttests were significantly higher than the average scores of the pre-test with large effect size after the students were taught sub-skills of reading comprehension and critical reading. In addition, according to Hasan (2015), positive effects of reading strategy instruction on reading ability and reading comprehension of EFL learners were found when the average scores of the students' post-test in the experimental group were significantly higher than the controlled group.

The first reason why students' reading ability after training was significantly higher than before training might be because of the well-planned assessment that suited the reading strategies. The multiple choice test which is one of the objective tests was implemented as a tool to assess the students' reading ability before and after training. Before using with the participants of this study, the pre and post reading tests were examined by experts to check for content validity and were used with other students who had similar characteristics as the participants in this study to find out whether the tests were reliable with appropriate level of difficulty and discrimination. The second reason might be because a training program was implemented as a tool for teaching reading strategies and providing the students with practice of such strategies. Brown (2000) and Razi (2014) asserted the effectiveness of the training program on the student's English reading ability in their studies when the average scores of the students' posttest were significantly higher than the pretest with large effect size.

3.2 The average mean scores of understanding of reading strategy usage after training were significantly higher than before training with very large effect size. Like this present study, Mejang (2004) discovered that the given teaching reading strategies could increase the students' understanding and usage of reading strategies with large effect size.

The first reason why the students' understanding of strategy usage after training was significantly higher than before training might be because the training program was developed step by step to make sure that it was relevant and appropriate for them. Graves (2000) stated that to develop English curriculum to suit both students and teachers, the curriculum should follow these seven steps: 1) analyzing needs, 2) setting purposes and objectives, 3) considering contents, 4) selecting materials, 5) ordering contents and activities properly, 6) specifying what and how to evaluate students' ability, and 7) considering available and restricted resources. These aspects directly concern the effectiveness of the implementation of the curriculum. Another reason might be because of the effectiveness of the teaching and learning procedure which was based on the steps for Explicit Strategy Instruction that focuses on clear and detailed explanation and how to use the strategy. Adler (2001) suggested five main steps for teaching strategies: 1) explanation, 2) modeling, 3) guided practice, 4) independent practice, and 5) self-evaluation. The reading strategy training program in this study was taught following these five steps.

3.3 The students identified overall satisfaction on the training program at a high level. The results of this study are related to the studies of Chewarussamee (2019) and Prasansaph (2018) that the students in their studies also identified a high level of satisfaction toward the provided instructional models focusing on reading comprehension and critical reading.

Based on this present study, the practical reading strategy in each module of the training program might be the first reason for a high level of satisfaction. According to the results of the tests after using the modules, the students could get the average scores of nearly 80 percent in each module. Moreover, the average scores of the posttest were significantly higher than the average scores of the pretest at .05 level. In addition, the results of the informal interview showed the students' positive opinions towards the training program in terms of enhancing the understanding of reading strategy usage and improving reading ability. Appropriate ordering of the contents and the learning activities were also the areas identified by the students with much agreement. Graves (2000) stated that organizing contents and learning activities for students should start with the easy ones and gradually increase to more difficult ones.

However, teaching and learning procedure which was based on explicit strategy instruction was the aspect in the training program that was identified at a low level of satisfaction compared with other aspects. The first reason might be because explicit strategy instruction consists of many steps; furthermore, the students are unfamiliar with some

steps including modeling through the think aloud technique. Nevertheless, Graham and Bellert (2004) and Manset and Nelson (2005) confirmed that explicit strategy instruction is an effective way to help students overcome difficulties in reading; the more explicit strategy instruction was implemented, the more the students' comprehension improved. Another reason might be because some reading strategies, especially critical reading strategies consisted of challenging activities and exercises, specifically in the practice step when the teacher's support was gradually decreased. The students had to use most of their English proficiency, make an attempt, and spend a considerable amount of time doing activities, exercises, and reading tests. These difficulties may have affected some participants, especially those with low levels of English proficiency. Such difficulties could have contributed to the low level of opinions among students in terms of the teaching and learning procedure.

Recommendations

The following recommendations for future research are proposed:

1. Pretest-posttest design should be implemented to compare the differences between an experimental group and a controlled group in order to assure more reliability and effectiveness of the reading strategy training program.
2. Student teachers should be followed up at the secondary schools where they practice their teaching to examine how effectively they apply reading strategy instruction in real classes.
3. A research-based strategy should be done starting from surveying the teachers' understanding of the strategy usage. The data from the survey will be a guideline for developing a training program that serves the English teachers' needs.
4. As the Bottom-up Teaching Reading Approach seems to be effective for EFL learners in analyzing sub-skills reading strategies, there should be a comparative study to compare the Bottom-up Teaching Reading Approach and the Top-down Teaching Reading Approach for EFL learners with different English ability levels.
5. Since abilities to analyze sub-skills reading strategies are mostly related to linguistic competence, the training program needs to have English teacher training in the area so that they can be more effective in teaching reading.

Acknowledgement

This research was supported through a graduate scholarship provided by the National Research Council of Thailand (NRCT) as of fiscal year 2018.

References

- Adunyritigun, D. (2002). An investigation of factors affecting English language reading success: A case study of an EFL college readers. *Thammasat Review*, 7(1), 244-271.
- Anderson, N. (1999). *Exploring second language reading: Issues and strategies*. Boston: Heinle & Heinle.
- Brahmawong, C. (2013). Developmental testing of media and instructional package. *Silpakorn Educational Research Journal*, 5(1), 7-20.
- Brien, E. (2012). *Teaching primary English*. London: SAGE Publications Ltd.
- Brown, H.D. (2000). *Principles of language learning and teaching*. New York: Pearson Education.
- Carder, S.M. (2011). *The effects of reading comprehension strategies on achievement for English Learners (ELs)*. (Doctoral dissertation). California State University. USA.
- Chewarussamee, R. (2019). *Development of a business English reading cooperative learning model to enhance reading comprehension, critical reading skills and business ethnic awareness for undergraduate students of management science, Silpakorn University*. (Doctoral dissertation). Silpakorn University. Nakhon Pathom. [in Thai]
- Cohen, A.D. (1988). *Statistical power analysis for the behavioral sciences*. (2nd ed.). Hillsdale, J: Lawrence Earlbaum Associates.
- Graham, L., & Bellert, A. (2004). Difficulties in reading comprehension for students with learning difficulties, quoted in Wong, B. (ed.) *Learning about learning disabilities*. Elsevier Academic, 1, 251-279.
- Graves, K. (2000). *Designing language courses*. London: Heinle & Heinle Publishers a Division of Thomson Learning.
- Hasan, S. W. (2015). The effect of teaching reading comprehension strategies on Iraqi EFL College students' performance in reading comprehension. *Journal of Babylon University*, 23(2), 544-561.
- Khaokaew, B. (2012). *An investigation of explicit strategy instruction on EFL reading undergraduate English majors in Thailand*. (Doctoral dissertation). University of Bedfordshire. England.
- Kim, S.S. (2013). *The impact of transactional strategies instruction on the reading comprehension of a diverse group of second graders*. (Doctoral dissertation). University of San Francisco. USA.
- Lindsay, C., & Knight, P. (2006). *Learning and teaching English: A course for teachers*. Oxford: Oxford University Press.
- Manset, W.G., & Nelson, J.M. (2005). Balanced, strategic reading instruction for upper elementary and middle school students with reading disabilities: A comparative study of two approaches. *Learning Disability Quarterly*, 28, 59-74.

- Medina, S.L. (2012). Effects of strategy instruction in an EFL reading comprehension course: A case study. *PROFILE*, 14(1), 79-89.
- Mejang, A. (2004). *The development of an English reading strategy instruction model based on collaborative learning principles for enhancing reading learning outcomes of university students*. (Doctoral dissertation). Chulalongkorn University. Bangkok.
- Piyanukool, S. (2001). *Effects of teaching reading through discussion of text structures*. Retrieved April 20, 2018, from <http://www.lib.uni.com/dissertations/fullcit/3073547>.
- Prasansaph, S. (2018). *The development of instructional models of task-based and cooperative learning for English critical reading and communicative writing skills*. (Doctoral dissertation). Silpakorn University. Nakhon Pathom. [in Thai]
- Razi, S. (2014). Metacognitive reading strategy training of advanced level EFL learners in Turkey. *The Reading Matrix*, 14(2), 337-360.
- Richards, J. C. (2001). *Curriculum development in language teaching*. Cambridge: Cambridge University Press.
- Richard, J. (2013). Curriculum approaches in language teaching: Forward, central, and backward design. *RELC Journal*, 44(1), 5-33.
- Salataci, R., & Akyel, A. 2002. Possible effects of strategy instruction on L1 and L2 reading. *Reading in a Foreign Language*, 14(1), 1-17.
- Shirvan, M.E. (2016). Assessing and improving general English university students' main sub-skills of reading comprehension: A case of University of Bojnord. *Sino-US English Teaching*, 13(4), 245-260.
- Tanghirunwat, C. (2003). *The reading difficulties faced by Thai engineers in telecommunication industry in reading English technical textbooks and manuals*. (Master's thesis). The University of Thai Chamber of Commerce. Bangkok.
- Tantisattayanon, Y. (2012). *Development of business English reading modules focused on business ethical issues to enhance critical reading skills and business ethical awareness for the students of Rajamangala University of Technology Rattanakosin*. (Doctoral dissertation). Silpakorn University. Nakhon Pathom. [in Thai]
- Wang, X. (2015). Effect of meta-cognitive strategy training on Chinese EFL learners' reading competence. *International Journal of English Linguistics*, 5(1), 159-169.
- Zhou, J., Jiang, Y., & Yao, Y. (2015). The investigation on critical thinking ability in EFL reading class. *English Language Teaching*, 8(1), 83-94.