



Collaborative Strategic Reading (CSR) Instruction and its Effects on Thai EAP University Learners' Reading Comprehension across Two Proficiency Levels

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ABSTRACT

This study examined the effects of Collaborative Strategic Reading (CSR) instruction on the reading comprehension of Thai university students majoring in Electrical Power Engineering. The participants were 15 more proficient and 15 less proficient learners studying in an English for Academic Purposes (EAP) course. The scores from the pre-and post-reading comprehension tests were compared after 10 weeks of CSR instruction. The results from the Paired-sample t-test indicated that both proficiency groups significantly improved their reading comprehension. With regard to the six reading skills investigated, the results showed significant improvement in the main idea, referential relationship, vocabulary in context, and inference skills, but not in the factual information and organization and logic skills. To explore the participants' perceptions towards the intervention, an attitude questionnaire and a semi-structured interview were used to collect data. The responses revealed positive perceptions towards the use of CSR instruction. Therefore, it can be concluded that the combination of strategy instruction and cooperative learning in CSR helps improve EAP learners' reading comprehension and enhance their active involvement in cooperative learning groups. It is suggested that EAP teachers use this viable multi-component instruction to help improve learners' reading comprehension and active class participation.

Keywords: English language teaching (ELT), collaborative strategic reading (CSR), English for academic purpose (EAP), reading comprehension, proficiency levels

Introduction

The main focus of English for Academic Purposes (EAP) is using English in an academic setting, especially for studying and researching at a university (Hyland, 2006). In the EAP context, reading is the main source of knowledge not only for language learning but also for the learning of science, technology, and advanced research (Grabe & Stoller, 2013).

For Thai EAP university learners, the reading of textbooks and other academic materials can be challenging as it requires both language and content knowledge (Nuttall, 1996). According to Nuttall, learners encounter reading problems due to a number of factors such as unknown vocabulary or unfamiliar content. Moreover, many readers encounter reading difficulties because they lack the skills and strategies needed to achieve reading comprehension. This is often because they are unable to figure out their reading problems as they cannot apply appropriate reading strategies (Eskey, 1986). Anderson (1991) states that reading strategies enable English as a Foreign Language (EFL) and English as a Second Language (ESL) learners to comprehend a text better and this enables them to overcome reading difficulties.

Collaborative Strategic Reading (CSR) is a reading strategy approach designed to enhance the reading comprehension of learners with diverse abilities (Klingner & Vaughn, 1998). It combines reading strategy instruction with a cooperative learning approach where learners are trained to use four main comprehension strategies (preview, click and clunk, get the gist, and wrap up) and encouraged to participate in group work. With regard to the cooperative learning element, group activities benefit learners in exchanging information, building up confidence, and improving text comprehension (Bouchard, 2005). According to Vygotsky (1978), communication and interaction with peers are important for learning as knowledge from working in groups contributes to a positive learning process.

Although previous research studies have revealed the effectiveness of CSR instruction in improving the reading comprehension of EFL and ESL learners (Anggeraini et al., 2018; Aulia et al., 2020; Rojabi, 2018; Sroinam, 2017; Syafii, 2022), no studies have yet investigated the impact of CSR instruction on the reading comprehension of Thai EAP university learners with different proficiency levels. Furthermore, as EAP reading is driven by the academic context in which it operates, investigating how Thai EAP university learners studying a common discipline, Electrical Power Engineering, learn to use reading strategies cooperatively in dealing with typical language use and text structure in engineering texts would contribute to the body of knowledge on EFL/ESL reading strategy instruction. Therefore, the present study aims to examine the effects of CSR instruction on Thai EAP university learners' reading comprehension across two proficiency levels (more proficient and less proficient EAP learners). The results of the present study can offer effective reading strategy interventions suitable for learners with different proficiency levels. The two main research questions in this study are as follows:

1. Is there a significant difference between EAP learners' reading comprehension before and after the CSR instruction?
 - 1.1 Is there a significant difference between more proficient EAP learners' reading comprehension before and after the CSR instruction?
 - 1.2 Is there a significant difference between less proficient EAP learners' reading comprehension before and after the CSR instruction?
2. What are the attitudes of EAP learners towards the CSR instruction?

Literature Review

Reading Comprehension

Anderson (2008) defines reading as meaning-making processes which involve the interaction of the reader, the text, reading strategies, and fluency. The intersection of these four

elements represents the point where meaningful reading occurs. As reading comprehension combines these four elements, the reader is required higher order skills beyond the ability to decode words in the text. Furthermore, Snow (2002) defined reading comprehension as “the process of simultaneously extracting and constructing meaning through interaction and involvement with written language” (p. 11). From these definitions, it can be concluded that reading is a complex cognitive process of meaning construction which involves interaction among various elements including the text, reader, strategies, and fluency. For this reason, reading strategies are considered to be key factors guiding text comprehension in the reading process.

The term “strategies” refers to the conscious actions that readers bring into their reading. Reading strategies involve tactics used by readers to engage and comprehend the text (Anderson, 1991). There are two main types of reading strategy: cognitive and metacognitive. Cognitive strategies refer to the conscious actions that readers employ to comprehend a text, such as guessing meaning, note taking, and summarizing. Metacognitive strategies, on the other hand, refer to the conscious processes that readers use to monitor and regulate cognitive strategies, such as planning, monitoring, and evaluating (Flavell, 1979). Thus, it is important for learners to realize the use of different reading strategies in helping them comprehend a text and to cope with the reading difficulties encountered.

Learners perform differently in their reading based on their proficiency levels. For example, skilled readers utilize various reading strategies. It is known that the ability to apply various types of reading strategies is the prime characteristic of skilled readers (Anderson, 2008). Problem-solving is another useful strategy which skilled readers use in their reading. In addition, skilled readers monitor their cognitive processes while reading: they know not only the strategies to be used but also when and how to use them to ensure success in reading comprehension (Carrell, 1991). Conversely, unskilled readers hardly monitor their own memory, their understanding of the text, or their performance of other cognitive processes (Flavell, 1979).

Grabe and Stoller (2013) state that teachers need to understand skilled reading in order to explore how it is learned and what can be done to teach such abilities to students. Furthermore, Eskey (1986) suggests that teachers develop their own reading instruction to suit their learners with regards to what they know and what they can do already. At the university level, Oranpattanachai (2023) suggests that teachers help learners improve their reading comprehension by training and demonstrating how to use various reading strategies. Thus, it can be asserted that having an awareness of what reading strategies skilled readers use in their reading process and which ones suit their students’ needs best, EAP teachers can help improve the reading comprehension of learners with different proficiency levels.

Collaborative Strategic Reading (CSR)

Collaborative Strategic Reading (CSR) combines a cooperative learning approach with reading strategy instruction. Based on the principles of CSR, learners work together in a small group and employ appropriate comprehension strategies in different stages of reading: preview (before reading), click and clunk (during reading), get the gist (during reading), and wrap-up (after reading). In every stage, learners have a chance to talk and exchange ideas and to develop their social skills (Klingner & Vaughn, 1999). The teacher’s role is one of facilitator to support the activities and assist their learners when they encounter problems (Johnson & Johnson, 1999).

The four main reading strategies taught in CSR are as follows:

1). Preview. Two important components of preview are brainstorming and predicting. Learners are trained to preview the text by looking at the heading, pictures, charts, graphs, tables, and key vocabularies.

2). Click and Clunk. Click refers to when readers comprehend the texts, whereas clunk refers to when readers cannot understand the text. A clunk could be a word, concept, or idea which the reader does not understand. To figure out clunks, four fix-up strategies are suggested as follows:

1. Reread the sentence without the word.
Think about what information that is provided that would help you understand the meaning of the word.
2. Reread the sentence with the clunk and the sentences before and after the clunk looking for clues.
3. Look for a prefix or suffix in the word.
4. Break the word apart and look for small words you know.

(Klingner & Vaughn, 1998 p. 34)

3). Get the Gist. The two stages of get the gist are indicating the most important “who” or “what” in the paragraph and locating the most important information about “who” and “what”.

4). Wrap Up. After reading, learners generate questions about the key ideas and try to answer them. Then they review their understanding by summarizing the main ideas in their CSR learning logs.

With regard to a cooperative learning approach, learners are assigned to work in a small group with specific roles and responsibilities: leader, clunk expert, gist expert, announcer, encourager, and timekeeper. According to Johnson and Johnson (1999), grouping organizes learners heterogeneously, exposing them to a variety of ideas and perspectives and engaging them in more elaborate thinking.

In terms of the materials used in CSR, cue cards can be a useful tool to explain learner roles and the steps of the CSR instruction. This helps learners increase confidence to perform their roles, follow the steps, and stay focused on the task. In addition, learning logs enable learners to record their ideas or any problems that occurred through their participation in CSR to keep on track of their reading tasks.

In the EFL university context, reading is considered to be the most necessary skill as it helps university students to obtain information through academic texts in their disciplines. However, many non-native EAP learners encounter academic reading difficulties. To overcome these problems, implementing CSR instruction in an EAP classroom by training learners to work in small groups and apply the four main reading strategies of CSR with the reading process (Klingner & Vaughn, 1998; 1999) can be an effective method.

Related Studies

There have been some recent studies that have investigated the effectiveness of CSR instruction in helping EFL university learners comprehend English texts better. For instance, studies conducted by Anggeraini et al. (2018), Rojabi (2018), and Aulia et al. (2020) with students majoring in English Education have indicated that CSR instruction can help students improve their reading comprehension. These studies reported that the reading procedures in CSR helped students understand the text easier and encouraged students to actively participate in group activities. Similar results were also found in a more recent study conducted by Syafii (2022) with students from an accounting study program.

Other studies, which compared CSR instruction to other reading instruction methods, also demonstrated that EFL students who received CSR instruction performed better than those in a control group. For example, Khonamri and Karimabadi (2015) conducted a study with English literature students and found that there was a significant difference between the CSR group and the traditional group. In addition, Nosratinia and Fateh (2017) conducted a study with female English language learners at a language institute comparing the effects of CSR instruction to Content-Based Instruction (CBI). The results indicated that learners in both the CSR and CBI groups significantly improved their reading comprehension after the intervention. Babapour et al. (2019) examined the effects of CSR instruction and Shadow Reading Instruction (SHR) on learners with different proficiency levels at an English language institute. The results showed that the

students in both the CSR and SHR groups significantly increased their reading comprehension after the intervention. The results, however, indicated no significant interaction between the reading intervention of CSR and SHR and the students' proficiency levels.

Another study conducted by Maming (2019) combined CSR with Task-based Learning (TBL). The results revealed that students in an English education program who had received CSR instruction integrated with TBL instruction performed significantly better than students in a control group. In Thailand, however, only one study has been found on the impact of CSR at university level. Sroinam (2017) investigated the effects of CSR instruction on Thai graduate students majoring in Teaching English to Speakers of Other Languages (TESOL). The study revealed the positive effects of CSR on students' reading comprehension. Moreover, the students reported high levels of positive feelings towards CSR instruction.

In addition, a few studies have investigated CSR instruction in combination with other reading instruction methods. Chatviriyawong (2017) developed a model by integrating CSR instruction with a task-based approach utilizing SCAMPER techniques (substitute, combine, adapt, modify, magnify or minify, put to other uses, eliminating, rearrange or reverse). This model was introduced to Thai vocational diploma students majoring in Commercial Trades. The reading instructional model was found to enhance the students' reading comprehension and creative thinking ability. The results also showed the highest level of overall reading strategy usage. Similarly, Saraiwang (2020) developed an English reading instructional model by integrating CSR instruction with Problem-based Learning (PBL) and implemented it with Thai undergraduate students majoring in General Management. The results revealed that the students significantly improved their reading comprehension and reading strategy use after the implementation. In addition, the students had a positive attitude towards the model.

It seems clear from the previous literature that although a number of studies investigating the effects of CSR instruction on EFL students have been undertaken, none have been carried out with Thai undergraduate EAP learners. Moreover, previous studies have not investigated the effects of CSR instruction on learners with different levels of proficiency. To bridge this gap, the present study aims to examine the effects of CSR instruction on the reading comprehension of Thai EAP university learners across two proficiency levels.

Methodology

This study adopted a mixed-method design, using multiple sources of data collection including pre- and post- reading comprehension tests, an attitude questionnaire survey and semi-structured interviews.

Participants

The participants consisted of 30 Thai university students majoring in Electrical Power Engineering. They had enrolled in an English Reading for Academic Purposes (ERAP) course, a compulsory course required by the university, taught by the researcher at a public university in the northeast of Thailand. The students were assigned into two different levels of proficiency based on their scores of the pre-reading comprehension test. Fifteen participants whose scores were higher than the mean scores were assigned into the more proficient group while the rest of the participants whose scores were lower than the mean score were assigned into the less proficient group. Three voluntary students from each proficiency group participated in the semi-structured interviews. There were six of them altogether.

Instrumentation

Reading Materials

Eight reading passages were selected from several sources, including textbooks, magazines, and manuals based on four key types of academic text organization: definition, classification, instruction, and process. Each text type consisted of two technology-related passages selected based on topics deemed to be of interest for the group of students. The eight selected passages modified to be used in the course were:

- 1) What is AI?
- 2) GPS
- 3) Mobile Devices
- 4) Types of Electricity-Modern Method
- 5) Electric Shock
- 6) Changing a Fuse in a Consumer Unit
- 7) Heating Systems
- 8) The Digital Home.

The length of each passage was between 300-350 words with the reading difficulty established at the CEFR B2 level and an average of 15 words from the academic world list. Three experts in English Language Teaching (ELT) were asked to validate the passages based on an Index of Item-Objective Congruence (IOC). These experts had all been awarded with a doctoral degree in ELT and were experienced English teachers. The average IOC values of the eight reading passages were acceptable at 0.90, 0.93, 0.97, 0.90, 0.97, 0.90, 0.88, and 0.93, respectively.

The Pre- and Post-reading Comprehension Tests

Sixty-item pre- and post-reading comprehension tests were used to measure the participants' reading comprehension before and after the CSR instruction. Three reading passages of 300-350 words in length with 10 questions each were selected from the reading comprehension section of a standardized test. The reading skills assessed were main idea (3 questions), factual information (8 questions), organization and logic (2 questions), referential relationships (3 questions), vocabulary in context (8 questions), and inference (6 questions). The pre-reading comprehension test was also used to assign the participants into two different levels of proficiency: more and less proficiency levels. Based on the mean score of the pre-reading comprehension test, those whose scores were higher were assigned into the more proficient level, while those whose scores were lower were assigned into the less proficient level.

The Attitude Questionnaire

A five-point Likert scale attitude questionnaire was designed to explore the students' attitudes towards the CSR instruction. The questionnaire consisted of four parts: 1) General Impression towards CSR Implementation, 2) Perceptions of CSR Reading Comprehension Strategies, 3) Perceptions of Cooperative Learning Groups in CSR, and 4) Perceptions of the CSR Materials. The questionnaire was translated into Thai to avoid any confusion. The average IOC value of the three ELT experts for the overall questionnaire was acceptable at 0.87. Moreover, the questionnaire was piloted with 30 engineering students who had similar characteristics and background of study with the participants in the study. Finally, a reliability test was conducted using Cronbach's alpha, which yielded an acceptable value of 0.90.

The Semi-structured Interviews

Six interview questions translated into Thai based on the four parts of the attitude questionnaire and interview sheets were designed and used to support the researcher in asking questions and taking notes of the responses. The questions were first submitted to the three ELT experts to validate based on the IOC. The average IOC value for the interview questions was acceptable at 0.95. Then, the interview questions were piloted with three engineering students who had similar characteristics and background with the participants in the study.

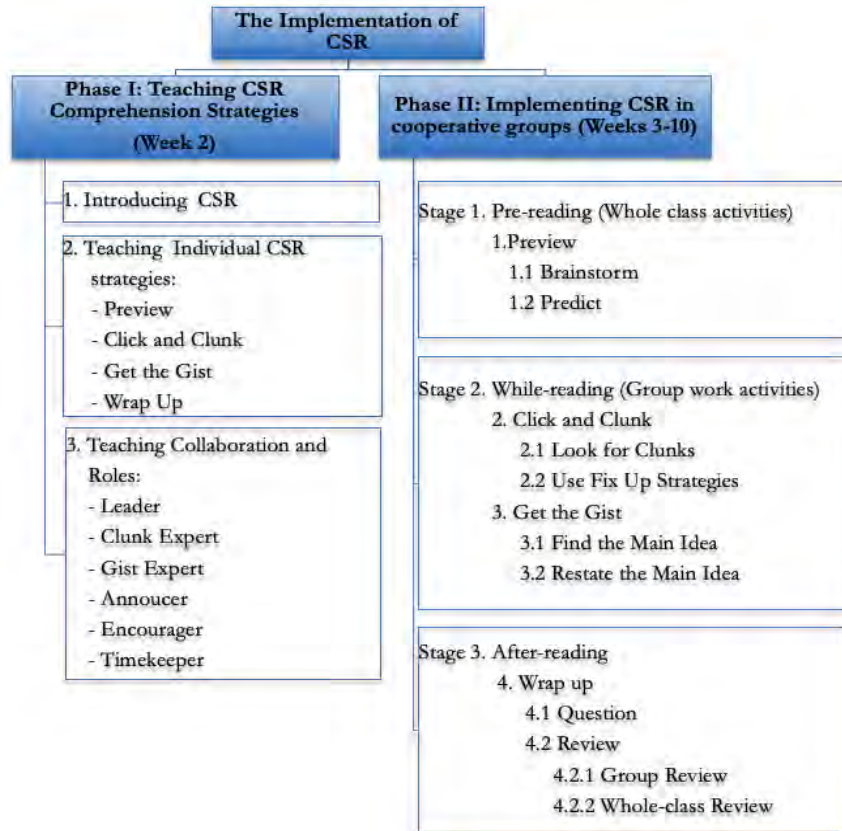
The six questions asked included two questions designed to elicit the participants’ general perceptions towards the CSR instruction, two questions used to elicit perceptions concerning the CSR reading comprehension strategies, one question to gain more information regarding their perceptions of the cooperative learning groups, and a question to elicit perceptions towards the CSR materials.

Data Collection

The study was conducted for 12 weeks. The pre-reading comprehension test was administered in Week 1. As shown in Figure 1, the CSR instruction was implemented between Weeks 2 and 10. The total time for the CSR instruction in each lesson was 90 minutes. The post-reading comprehension test and the attitude questionnaire were administered in Week 11. Finally, in Week 12, six participants were randomly selected to participate in the interview sessions.

Figure 1

The Implementation of CSR



(Adapted from Klingner & Vaughn, 1998)

Data Analysis

To answer Research Question 1, the overall scores from the pre- and post- reading comprehension tests of the whole group and the two proficiency levels as well as their scores for each question type were analyzed using SPSS.

Descriptive statistics were utilized to describe the means and standard deviations of the results. Further analysis using a Paired Samples t-test was conducted to examine if there was a significant difference between the two proficiency groups' overall reading comprehension scores as well as the scores of each question type before and after the CSR instruction.

To answer Research Question 2, the data collected from the attitude questionnaire were analyzed using the SPSS program to explore attitudes towards the CSR instruction. Descriptive statistics were also employed to describe means and standard deviations. The overall mean score, the mean scores of each part, and the mean scores of each item were interpreted based on three levels of agreement: high (mean of 3.5 or higher), medium (mean of 2.5-3.4), and low (2.4 or lower). Furthermore, the data drawn from the semi-structured interviews were transcribed and coded by quantifying common themes regarding general impressions towards CSR, perceptions concerning the CSR reading comprehension strategies, perceptions of the cooperative learning groups, and perceptions of the CSR materials.

A thorough inspection of the reading materials, the attitude questionnaire, and the semi-structured interviews was carried out by the experts in the field of ELT. This together with the pilot studies was to ensure the instruments were enriched with all concepts pertaining to the study. Moreover, for ethical consideration, the participants were informed that the information obtained would be kept confidential and that their participation in the study would not affect the grades for the course in any way.

Results

EAP Learners' Reading Comprehension

Table 1 presents the results obtained from the pre- and post-reading comprehension tests.

Table 1

Paired Samples t-test of Pre- and Post-Reading Comprehension Tests

	M	SD	t	Sig. (2-tailed)
Pre-Test	9.20	2.64	7.56	0.00*
Post-Test	13.37	3.33		

* $p < 0.01$

As shown in Table 1, there is a significant difference in the mean scores obtained from the pre- and post-reading comprehension tests at the 0.01 level ($t = 7.56$, $p = 0.00$).

Further analysis of the question types disclosed that there were significant differences at the 0.01 level in the mean scores obtained from the pre- and post-reading comprehension tests of main idea ($t = 5.13$, $p = 0.00$), referential relationship ($t = 3.01$, $p = 0.00$), vocabulary in context ($t = 4.33$, $p = 0.00$), and inference questions ($t = 3.97$, $p = 0.00$). However, there were no significant differences found in relation to questions concerning factual information ($t = 0.81$, $p = 0.42$) and organization and logic ($t = 1.43$, $p = 0.16$).

Table 2 shows the results obtained for Research Question 1.1: Is there a significant difference between more proficient EAP learners' reading comprehension before and after the CSR instruction?

Table 2

Paired Samples t-test of More Proficient EAP Learners on Pre- and Post-Reading Comprehension Tests

	M	SD	t	Sig. (2-tailed)
Pre-Test	11.40	1.24	4.94	0.00*
Post-Test	14.80	3.23		

* $p < 0.01$

As seen from Table 2, there is a significant difference between the pre- and post-reading comprehension tests at the 0.01 level ($t = 4.94$, $p = 0.00$) in the mean scores of more proficient EAP learners' reading comprehension.

Further analysis of the question types showed that there were significant differences at the 0.05 level in the mean scores obtained from the pre- and post-reading comprehension tests of main idea ($t = 2.80$, $p = 0.01$), factual information ($t = 2.32$, $p = 0.03$), vocabulary in context ($t = 2.18$, $p = 0.04$), and inference questions ($t = 2.21$, $p = 0.04$). However, there was no significant difference found in the organization and logic ($t = -0.82$, $p = 0.42$) and referential relationship ($t = 1.33$, $p = 0.20$) questions.

Table 3 illustrates the results obtained for Research Question 1.2: Is there a significant difference between less proficient EAP learners' reading comprehension before and after the CSR instruction?

Table 3

Paired Samples t-test of Less Proficient EAP Learners on Pre- and Post-Reading Comprehension Tests

	M	SD	t	Sig. (2-tailed)
Pre-Test	7.00	1.60	5.90	0.00*
Post-Test	11.93	2.84		

* $p < 0.01$

As seen from Table 3, there is a significant difference between the pre- and post-reading comprehension test at the 0.01 level ($t = 5.90$, $p = 0.00$) in the mean scores of less proficient EAP learners' reading comprehension.

Further analysis of the question types showed that there were significant differences at the 0.01 level in the mean scores obtained from the pre- and post-reading comprehension tests of main idea ($t = 4.78$, $p = 0.00$), organization and logic ($t = 3.21$, $p = 0.00$), referential relationship ($t = 3.16$, $p = 0.00$), vocabulary in context ($t = 4.00$, $p = 0.00$), and inference questions ($t = 3.41$, $p = 0.00$). However, there was no significant difference found for the questions concerning factual information ($t = -1.00$, $p = 0.33$).

The Attitudes of EAP Learners towards the CSR Instruction

Results from the Attitude Questionnaire

Table 4 demonstrates the findings obtained from the attitude questionnaire.

Table 4

Means, Standard Deviations, and Levels of Range Results from the Attitudes Questionnaire

Item	M (n = 30)	SD	Level
A. General Perceptions of CSR			
1. Reading classes are interesting to me during CSR implementation.	4.20	0.61	High
2. CSR increases my motivation to read.	4.33	0.61	High
3. CSR helps me understand the text better.	4.37	0.67	High
4. CSR increases my reading strategy use.	4.13	0.68	High
Overall	4.26	0.64	High
B. Perceptions of CSR Reading Comprehension Strategies			
5. Preview strategy helps me connect prior knowledge with a new topic.	4.33	0.71	High
6. Preview strategy helps me predict what I learn about the topic.	4.43	0.73	High
7. Click and clunk strategy helps me monitor understanding about information in the text.	4.07	0.45	High
8. Click and clunk strategy helps me choose the appropriate strategies to figure out the problems (unknown words, concepts, or ideas).	4.27	0.69	High
9. Get the gist strategy helps me find the main idea of the text.	4.43	0.68	High
10. Wrap up strategy helps me review the important idea of the entire text.	4.00	0.74	High
Overall	4.26	0.67	High
C. Perceptions of Cooperative Learning Groups in CSR			
11. Cooperative learning groups help me understand the text better.	4.33	0.55	High
12. Cooperative learning groups motivate me to work collaboratively and help each other in the group.	4.23	0.63	High
13. Cooperative learning groups develop positive relationships among group members.	4.50	0.68	High
14. Cooperative learning groups enable me to participate in sharing information, making decisions, and solving problems.	4.17	0.91	High
Overall	4.31	0.69	High
D. Perceptions of CSR Materials			
15. Cue cards help me understand and follow the procedures of CSR.	4.17	0.65	High
16. Cue cards help me understand the roles assigned in CSR.	4.33	0.71	High
17. Learning logs help me keep a record of my reading.	4.07	0.87	High
Overall	4.19	0.74	High

Table 4 reveals the means, standard deviations, and levels of perception of the overall items, the four overall parts, and each individual item obtained from the analysis. The overall mean score of the participants' attitudes towards the CSR instruction was reported at a high level of perception (M = 4.26, SD = 0.68). As seen from the table, the participants reported positive perceptions at the high level in all four overall parts: Part A: General Perceptions of CSR Implementation (M = 4.26, SD = 0.64); Part B: Perceptions of CSR Reading Comprehension Strategies (M = 4.26, SD = 0.67); Part C: Perceptions of Cooperative Learning Groups in CSR

Implementation (M = 4.31, SD = 0.69); and Part D: Perceptions of CSR Materials (M = 4.19, SD = 0.74).

For the individual items, it can be seen that all 17 items were reported at a high level of perception. The highest mean score was found in Item 13: Cooperative learning groups develop positive relationships among group members. (M = 4.50, SD = 0.68). The lowest mean score was with Item 10: Wrap up strategy helps me review the important idea of the entire text. (M = 4.00, SD = 0.74).

Results from the Semi-structured Interview

The findings obtained from the semi-structured interview revealed that in general, the participants had positive attitudes towards the CSR instruction. They all agreed that the instruction helped them to comprehend the text better and to increase their reading strategy use. Moreover, they also mentioned that it assisted them in learning new vocabulary. Examples of responses for the general perceptions towards the CSR instruction are as follows:

“It helped me understand the text better. Moreover, it helped me learn strategies and steps of getting the main idea”. [Student 1]

“It helped me understand the text better. I learned the new vocabularies and knew how to pronounce them”. [Student 5]

Regarding perceptions towards the CSR reading comprehension strategies, the responses revealed that the participants were able to comprehend texts better. The four different reading strategies were mentioned by the participants to be helpful strategies. Getting the gist was reported as a very useful strategy in identifying important ideas from the text by most participants. A response for the perceptions towards the CSR reading comprehension strategies is as follows:

“It helped me increase many used of reading strategies. Before that I guessed from the overview of the text and tried to connect each part. For the CSR implementation, it helped me understand the text better. This included before, during, and after reading activities. It also included questioning activity. All of these helped me comprehend the text better”. [Student 2]

In terms of their perceptions towards the cooperative learning groups in CSR, all participants agreed that cooperative learning had positive impacts on their reading comprehension. They pointed out that they could understand the text better, were motivated to work collaboratively and help each other in the groups, and were able to participate in sharing information, making decisions, and solving problems. In addition, the participants reported that the cooperative learning groups helped them learn new vocabulary by sharing unknown words or ideas with their peers. An example of the perceptions towards cooperative learning groups in CSR implementation is as follows:

“CSR group work had an impact on our reading. Group work allowed us to discuss in the group because sometime what we understood might be wrong. So, discussing with friends helped us in getting the right understanding. This allowed us to solve the problems in the group because there were some unknown words. We could discuss with friends to fix the problems”. [Student 4]

Regarding perceptions towards the CSR materials, the participants expressed the benefits of the cue cards and learning logs in completing the reading tasks. These two CSR materials helped them understand and follow the steps of CSR, so they could keep on track of their reading. Moreover, they could understand the assigned roles, which helped them to actively participate in groups. In addition, the two materials helped them identify the important ideas of each section and the whole text easier. An example of the perceptions towards the CSR materials is as follows:

“CSR materials helped me follow the steps of CSR. Each text came with sections 1, 2, and 3. When we read section 1, we tried to get the main idea for this section. And for sections 2 or 3, we did the same processes. This made me understand the text easier. Moreover, it helped me to read in steps”. [Student 3]

Discussion

The Effectiveness of CSR on EAP Learners' Reading Comprehension

The present study examined the effects of CSR on Thai EAP learners across two proficiency levels. The findings showed that learners across both proficiency levels had significantly improved their reading comprehension after the CSR instruction. This implies that CSR can help students with different abilities improve their reading comprehension (Klingner & Vaughn, 1998).

The result regarding the positive effects of CSR on reading comprehension supports the findings of previous research (Anggeraini et al., 2018; Aulia et al., 2020; Babapour et al., 2019; Khonamri & Karimabadi, 2015; Maming, 2019; Nosratinia & Fatch, 2017; Rojabi, 2018; Syafii, 2022). In the Thai context, Chatviriyawong (2017), Saraiwang (2020) and Sroinam (2017) also found that CSR facilitated Thai university EFL students' reading comprehension.

A possible explanation for this could be that the CSR instruction promotes a student-centered classroom which engages students to actively participate in group discussion among group members with specific roles and responsibilities. Group discussion encourages interactive learning in which learners are exposed to various ideas and perspectives from their peers (Johnson & Johnson, 1999). Thus, they gain knowledge and experience through social interaction and communication with their peers (Vygotsky, 1978).

Another explanation could be that the CSR employs reading strategy instruction to train learners how to use reading strategies appropriately. In the present study, the learners were explicitly taught the four CSR reading comprehension strategies (preview, click and clunk, get the gist, and wrap up), which were crucial for the improvement of their reading comprehension. For the preview strategy, the learners were motivated to activate their background knowledge to acquire new knowledge. According to Carrell (1984), previewing facilitates learners in comprehending the text better. With regard to the click and clunk strategy, the learners were trained to solve reading problems by discussing with peers and applying fix-up strategies to figure out unknown words, concepts, or ideas. This strategy, as a self-monitoring and metacognitive strategy, enabled the learners to reflect on and monitor their cognitive process during reading. As noted by Carrell (1991), the self-monitoring strategy can have a great impact on a readers' level of achievement. In terms of the get the gist strategy, the learners were encouraged to find the main idea of each paragraph by identifying important information. Discussing and brainstorming the main idea of the text with group members was able to help readers understand the text better

(Pongsatornpiat, 2021). For the wrap-up strategy, the learners were trained to formulate questions and summarize the text. Through questioning and summarizing, learners improve their comprehension of the entire text (Duke & Pearson, 2002).

The differences between the two proficiency groups in terms of their reading comprehension after the CSR instruction is inconsistent with a study carried out by Babapour et al. (2019), which found no significant difference between the elementary and the intermediate level groups. This contradictory result may be because the learners' proficiency levels in Babapour et al.'s (2019) study were assigned from general language proficiency tests. The proficiency groups in this study, however, were assigned from their reading comprehension abilities.

Concerning the reading skills assessed, there were significant differences in the learners' scores on the pre- and post-reading comprehension tests in terms of the main idea, referential relationship, vocabulary in context, and inference questions. Thus, it can be assumed that in general learners can use the four reading strategies in CSR to help them comprehend a text better. The significant differences found in terms of main idea, vocabulary, and inference were in line with the results found among Thai vocational diploma students in Chatviriyawong's (2017) study, which implemented a reading model integrating CSR instruction with a task-based approach and SCAMPER techniques (substitute, combine, adapt, modify, magnify, put to other uses, eliminating, and rearrange or reverse). However, while these vocational diploma students were also found to have improved their identifying text structures and recall of details abilities, no significant difference was found in the learners' factual information and organization and logic skills. This might be because these two skills are not the main focus of CSR, and the reading model in Chatviriyawong's study combined CSR instruction with a task-based approach with SCAMPER techniques. The fact that the lower proficiency group in this study was found to have a lower score in reading for factual information in the post-test needs further investigation. One possible suggestion is that the multiple-choice test used in this study might have enabled the less proficient learners to accidentally guess the correct answers in the pre-test.

The Attitudes of EAP Learners towards CSR

In terms of the attitudes of the learners towards CSR instruction, the findings from both the questionnaire and the interviews confirm that the learners had positive attitudes towards the CSR instruction. They rated all items under the four parts in the questionnaire positively (at a high level). The interview data shows that they viewed CSR as a useful intervention in helping them increase their use of reading strategies. They expressed that they could comprehend the text better by sharing and discussing the content of the text with other group members. These results are in line with previous studies. For example, Aulia et al. (2020) reported that CSR group activities helped increase the motivation and interest of Indonesian undergraduate students towards reading. Khonamri and Karimabadi (2015) also pointed out that through participating in CSR group work, their Iranian undergraduate students reduced anxiety and increased positive attitudes towards reading. Similarly, Sroinam (2017) stated that the group activities in CSR helped Thai graduate students reduce anxiety in reading as group members helped each other read and solve problems.

Johnson and Johnson (1999, p.73) assert that cooperative learning helps students "build more positive and supportive relationships (including relationships with diverse individuals)". In CSR, more proficient readers share their knowledge with their less proficient peers and they help one another to comprehend the text and solve reading problems. Knowing that group members would help each other when they encounter reading problems can help reduce a learner's anxiety and increase their motivation while reading a text.

Another possible explanation for the positive attitudes towards the CSR instruction could be that the CSR learning logs helped learners keep on track of and concentrate on their reading tasks. Learners used their CSR learning logs to help them follow the procedures of CSR. The learning logs reminded them to use appropriate reading strategies in each stage of reading. Accordingly, CSR learning logs can be considered as useful material in motivating learners to accomplish their reading tasks.

Lastly, it could be that learners are more confident in reading after they are trained and know how to use CSR reading strategies effectively. As seen from the results, all four strategies were suggested by the learners as useful strategies in helping them comprehend the text better. This is consistent with the findings in a study by Anggeraini et al. (2018) regarding the perceptions of Indonesian undergraduate students on effective reading strategies in improving their reading comprehension. The activities for each stage of CSR were also reported to help learners focus on reading and obtain important ideas for each section and the whole text. Thus, get the gist strategy was mentioned as the most useful strategy.

The findings imply that the positive CSR learning atmosphere, which learners engage in, can help them increase their motivation, interest and self-confidence in their reading activities, enabling them to comprehend texts better.

Conclusion and Implications

The present study revealed the positive effects of CSR on both more and less proficient EAP learners' reading comprehension and their active involvement in the teaching and learning process. It confirms previous research where the combination of strategy instruction and cooperative learning in CSR can be used as an effective teaching methodology in teaching reading comprehension. This combination was particularly valuable to the Thai university EAP context of this study. The engineering students in the study had specific needs that they all shared both in terms of the specific language used and the text structure of the text they read. Thus, in their small group discussions, they were more motivated to interact actively to share ideas with the group members to maximize each other's text comprehension using the four main reading strategies of CSR.

In addition, the results highlight that working with peers in small groups enables learners with mixed abilities to actively co-construct text meaning together. The study suggests that EFL teachers can take advantage of the collaboration among learners with different reading proficiency levels to assist one another in applying the four reading strategies to improve their reading comprehension. To implement CSR effectively in their lessons, teachers are suggested to first model the method to the whole class, giving explanation and procedures in CSR, provide learners opportunity to practice using the method, and give support as needed. In terms of strategy instruction, Winograd and Hare (1988) assert that teachers should explain not only what strategies, but why, how, when, and where the strategies should be used. Moreover, how to evaluate the use of each strategy is also recommended. "Teachers should show students how to evaluate their successful/unsuccessful use of the strategy, including suggestions for fix-up strategies to resolve remaining problems" (p. 124).

Limitations and Suggestions for Further Research

The limitations of the present study and recommendations are as follows. Firstly, as convenience sampling was used, the participants in the study were only students majoring in Electrical Power Engineering. To generate more research on the influence of CSR, further research should be conducted with EAP learners in other fields of study to see if they can obtain the same benefit. Secondly, the participants in this study were assigned into more and less EAP proficiency groups with only 15 participants per group. Thus, this study is limited by the small sample size for each proficiency level. It is suggested that further research should include more participants for each group to achieve a normal distribution and, in particular, to expand more on the differences between the two proficiency groups in terms of the effects of CSR on different reading skill improvement. Thirdly, the low scores obtained from both the pre- and post-reading comprehension tests showed that the participants in this study were quite low in their English reading proficiency level. It is suggested that further research examine EAP learners with a higher reading proficiency level to compare the results with those found in this study and in other previous ones. Finally, future researchers are encouraged to investigate the implementation of CSR instruction in combination with other language learning models to explore the impacts of further combinations on EAP learners' reading comprehension.

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