การพัฒนาความสามารถด้านการอ่านอย่างมีวิจารณญาณโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาท กรณีศึกษาโรงเรียนกาฬสินธุ์พิทยาสรรพ์

CRITICAL READING ABILITY DEVELOPMENT THROUGH RECIPROCAL TEACHING : A CASE STUDY OF SECONDARY SCHOOL STUDENTS IN THAILAND

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บทคัดย่อ

งานวิจัยนี้มีจุดประสงค์สามประการคือ (1) เพื่อพัฒนารูปแบบการเรียนการสอนโดยใช้วิธีการสอนแบบแลกเปลี่ยนบทบาทและกลวิธีอภิปัญญาเพื่อส่งเสริมความสามารถด้านการอ่านอย่างมีวิจารณญาณสำหรับนักเรียนมัธยมศึกษาตอนปลาย (2) เพื่อประเมินประสิทธิผลของรูปแบบการเรียนการสอนในการพัฒนาการอ่านอย่างมีวิจารณญาณ และ (3) เพื่อสำรวจทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนที่ได้พัฒนาขึ้น กลุ่มตัวอย่างเป็นนักเรียนมัธยมศึกษาตอนปลาย จำนวน 50 คน ที่ได้ลงทะเบียนเรียนวิชาการอ่านและการเขียนในปีการศึกษา 2556 ซึ่งใช้การเลือกแบบจำเพาะเจาะจงและแบบแผนการวิจัยเป็นแบบ One-group pretest-posttest design การเก็บข้อมูลได้ดำเนินการโดยการใช้ข้อสอบวัดผลสัมฤทธิ์ ในการประเมินความสามารถในการอ่านอย่างมีวิจารณญาณก่อนและหลังการทดลองโดยนำผลคะแนนของนักเรียนที่ได้จากการสอบก่อนและหลังการทดลองมาเปรียบเทียบโดยใช้ paired sample t-test และ gained score analysisเพื่อวัดความแตกต่างของผลคะแนนและระดับคะแนนที่พัฒนาขึ้นก่อนและหลังการสอนโดยใช้รูปแบบการสอนที่พัฒนาขึ้น นอกจากนี้ระหว่างการทดลองยังใช้แบบบันทึกการเรียนของนักเรียนและแบบบันทึกการสอนของครูเพื่อเก็บข้อมูลเชิงคุณภาพเกี่ยวกับการพัฒนาทักษะการอ่านอย่างมีวิจารณญาณและทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนและยังได้สำรวจทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนโดยใช้แบบสอบถามที่ได้พัฒนาขึ้นโดยเฉพาะหลังการทดลอง

ผลการวิจัยพบว่า ผลคะแนนการอ่านอย่างมีวิจารณญาณก่อนและหลังการทดลองมีความแตกต่างกันอย่างมีนัยสำคัญที่ระดับ 0.01 เมื่อคำนวณระดับคะแนนการพัฒนาแล้วพบว่า 100%ของนักเรียนทั้งหมดมีการพัฒนา ด้านทัศนคติของนักเรียนที่มีต่อรูปแบบการเรียนการสอนโดยพิจารณาจากแบบสอบถามทัศนคติ แบบบันทึกการเรียนของนักเรียน และ แบบบันทึกการสอนของครู พบว่า นักเรียนมีทัศนคติที่ดีต่อรูปแบบการเรียนการสอนนี้

ผลการวิจัยแสดงให้เห็นว่า รูปแบบการเรียนการสอนที่พัฒนาขึ้นนี้เป็นรูปแบบที่มีประสิทธิภาพซึ่งสามารถนำไปใช้ในการพัฒนาความสามารถในการอ่านอย่างมีวิจารณญาณของนักเรียนมัธยมศึกษาตอนปลายได้

คำสำคัญ : การอ่านอย่างมีวิจารณญาณ การสอนแบบแลกเปลี่ยนบทบาท

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ABSTRACT

The purposes of the research were to develop the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for upper secondary school students, to examine the effectiveness of the developed model, and to investigate the students' attitudes towards the model. The participants of the study were 50 high school students during the academic year 2013, selected by means of a purposive sampling technique. The instruments employed in the study were a multiple critical reading achievement test and students' attitude questionnaires developed by the researcher to collect the quantitative data. The qualitative data were gained through using the students' journals and the teacher's journals. The findings revealed that the means scores of the posttest were higher than the pretest scores at 0.01 level of significance. The gained score analysis showed that all students were able to develop their critical reading ability. The mean scores of the attitude questionnaire were 4.45 and the S.D was 0.11. The content analysis indicated that most of the students expressed positive opinions towards the model. Based on these findings, it could be concluded that the developed model was effective in enhancing students' critical reading ability and promoting positive attitudes.

Keywords: Instructional Model, Reciprocal Teaching, Metacognitive Reading Strategy, Critical Reading

Introduction

In Thailand, it is compulsory for sixth graders, ninth graders, and twelfth graders to take an Ordinary National Educational Test (ONET). Especially, for twelfth grade students, ONET scores are used for application for admission to undergraduate studies and English is one of the eight subjects set in the ONET exam. Not only ONET but also the General Aptitude Test (GAT) is mandatory for twelfth graders who want to study in college or university. According to the National Institute of Educational Testing Service (NIETS), the results of English in GAT (year 2012, and 2013) reveal that the maximum is 150 out of 150, the minimum is 0, and the mean is 52. For ONET (year 2011), the maximum is 98 out of 100, the minimum is 0, and the mean is 21. Based on these results, it is worth noting that the overall test scores both ONET and GAT are quite low. Rojsaranrom (2012) notes that the main causes that contribute to poor results in ONET and GAT are students' learning style as they prefer memorizing rather than employing critical reading skills.

In order to handle the poor results in ONET and GAT, many studies (Flavell, 1979; Palincsar & Brown, 1984; Naranunn, 1996; Moore et al., 2003; Feryal, 2008; Yoosabai, 2008; Cooper, Timothy & Greive, Cedric, 2009; Philip & Hua, 2010) have shown that reciprocal teaching with metacognitive reading strategy has an important bearing on critical reading. However, in Thai context, research on the teaching of reciprocal teaching with metacognitive reading strategy to enhance critical reading is rare. Consequently, the researcher intends to develop an instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for upper secondary school students. It is expected that the developed critical reading instructional model will

help students read critically and be valuable for teachers to set up a suitable learning activity, prepare a learning course, design the curriculum, and acquire suitable teaching materials to foster students' critical reading ability.

Critical reading is a process involving the ability to analyze, synthesize, and evaluate what one reads (Paul, 1990). Cheek et at., (1989) recommended that teachers design and use appropriate strategies to encourage students to engage in critical reading rather than in reading and learning isolated facts.

Critical reading can be improved through metacognitive reading strategies (Flavell, 1979; Naranunn, 1996; Moore et al., 2003; Feryal, 2008; Yoosabai, 2008; Philip & Hua, 2010). Metacognitive reading strategy is considered to support the condition for critical reading because metacognitive experiences are "likely to occur in situations that stimulate a lot of careful, highly conscious thinking" (Flavell, 1979, p.908).

Besides metacognitive reading strategy, reciprocal teaching can be used to enhance critical reading (Palincsar &Brown, 1984; Cooper, Timothy & Greive, Cedric, 2009). Palincsar & Brown (1984), the fathers of this field, stated that reciprocal teaching includes a set of four study activities: summarizing what is just read, questioning involving the main idea or summary of the text, clarifying ambiguous points, and predicting the content before reading. Reciprocal teaching makes use of the conversation between students and teachers before, during, and after reading because holding a conversation with others fosters students to acquire critical reading ability. According to

instructional processes, the teacher explicitly teaches the desired contents, and with the help of the teacher, students can employ strategies for tackling problems. Then the teacher lets students practice in small groups under the supervision of the teacher. Students are designated to act as a group leader, a questioner, a predictor, a clarifier, and a summarizer and take turn to perform these roles interchangeably. While students are practicing and gradually increase responsibility, the teacher assesses, gives feedback, and gradually decreases responsibility. When students can perform independently, the teacher removes help. Finally, students can be effective autonomous readers with critical reading ability. The teacher acts as a mentor, an assessor, and a facilitator. In conclusion, reciprocal teaching is used to enhance critical reading ability, while metacognitive reading strategy is employed to control the use of reciprocal teaching activity, and to examine whether reciprocal teaching can increase critical reading ability.

Purposes of the study

The purposes of the study were to develop an instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability for higher secondary students, to examine the effectiveness of the model, and to investigate students' attitudes towards the developed model.

Research questions

This study aims to answer the following questions: (1) What are the components of the instructional model based on reciprocal teaching with metacognitive reading strategy to enhance critical reading ability?; (2) Does the instructional

model based on reciprocal teaching with metacognitive reading strategy help students enhance critical reading ability? If so, how?; and (3) What are the students' attitudes towards the developed model?

Significance of the study

Theoretically, the current study presents an instructional model which will enable teachers and course developers to apply the construction processes and the results of the study instead of using a traditional teaching method.

Practically, the developed model can be: (1) advantageous for teachers as a ready-to-use instructional model for teaching critical reading; (2) valuable for teachers to apply it to teach a variety of English skills and other levels of critical reading; and (3) some guidelines for other researchers to conduct an instructional model for enhancing students' reading ability.

Method of study

1. Population and Samples

The setting was Kalasinpittayasan school, Kalasin province, Thailand. The population of the study consisted of 50 higher secondary school students (grade 11) enrolled for Reading and Writing (Eng 40202), an elective course based on the Thai National Curriculum (2001). The sample was gained through purposive sampling.

2. Instruments

Six instruments were used in this study: a pretest, a posttest, reading lesson plans, students' attitude questionnaire, teacher's journals, and students' journals. The pretest and posttest were employed to examine the effectiveness of the developed model, while the questionnaire, teacher's journals, and students' journals were used to investigate the students' attitudes towards the developed model.

3. Data analysis

Dependent sample t-test was used to detect the significant difference between the mean scores of the pretest and posttest to see whether the developed model was effective in enhancing critical reading ability. Gained score analysis was utilized to examine the levels of critical reading ability development. Mean and standard deviations were employed to compute the scores gained from the students' attitude questionnaire. Additionally, content analysis was utilized to analyze the information obtained from the teacher's journals, and the students' journals. Mean, standard deviations, and content analysis were used to triangulate the results to support and confirm the students' attitudes towards the model.

Results

This section discusses the findings based on the objectives of the study. That is, the result of the model development, the investigation of the effectiveness of the developed model, the reconfirmation of the effectiveness of the developed model, and the students' attitudes towards the model are presented.

1. The result of the model development

The developed model was composed of five components: rationales, objectives, contents, instructional processes, and evaluation. The rationales are based on the National Education Act (1999), The Basic Education Core Curriculum (2008), and the student-centered. The students are exposed to reciprocal teaching strategy with metacognitive

reading strategy through explicit teaching and group working. The teacher acts as an instructor, a guide, a motivator, a mentor and a facilitator. The students' roles are learners, creators, leader and autonomous critical readers. For the objectives, the developed instructional model aims to help students enhance critical reading ability. The contents of the model are reading passages which based on the conceptual framework of reciprocal teaching and metacognitive reading strategy. The instruments used for the evaluation are critical reading achievement test, students' journals, teacher's journals, and students' attitude questionnaire. According to the developed model, the heart of the instructional model is the instructional processes, consisting of three stages: (1) activating and explicit teaching, (2) guided teaching, modeling, and transferring, and (3) independent practicing and mentoring. At the first stage of the learning, the students were explicitly taught how to use reciprocal teaching merged with metacognitive reading strategy to improve critical reading skills. Students worked in groups of five to alternately take their roles to complete responsibilities in the reading goals. Later, when students gradually improved their critical reading skills, the teacher continually removed help. At the end of the learning processes, students gained more advanced and became autonomous critical readers.

2. The results of the investigation of the effectiveness, the confirmation, and the attitudes were analyzed by the quantitative, and the qualitative method.

2.1 Quantitative analysis

The quantitative data were gained from two parts: the achievement test (pretest-posttest), and the students' attitude questionnaire. On the pretest and posttest, quantitative data analysis was carried out into two stages: the main study of the model experiment stage, and the model implementation stage. According to the main study of the model experiment stage, the purpose of this stage was to investigate the effectiveness of the developed model. The scores were computed by a computer program using dependent sample t-test. The results were shown in table 1.

Table 1 : The pretest and posttest mean scores of the experimental stage

Test	N	Min	Max	Mean	S.D.	t-statistic	Sig. (2-tailed)
Pre-test	50	8	16	13.22	1.92	29.42	0.000
Post-test	50	14	21	17.97	1.90		

(Total score = 24)

In table 1, the mean score of the pretest of 50 students was 13.22 (S.D. = 1.92) with the highest score of 16 and the lowest score of 8.   Moreover, the mean score of the posttest score of 50 students was 17.97 (S.D. = 1.90) with the highest score of 21, and the lowest score of 14 . In order to analyze the differences of the pretest and posttest, Dependant Sample t-test was utilized. It was found that the posttest mean scores were significantly higher than the pretest mean scores at the level of 0.01.

Moreover, the sub skills of the main skills of critical reading were presented and compared to examine the effects of the instructional model on each of the sub skills.

Table 2: Comparison of critical reading skills using dependent sample t-test (divided according to the sub skills of critical reading skills) of the experiment stage (Total score of each sub skill = 4)

Main skills	Sub skills	Test	N	Mean	S.D.	t-statistic	Sig.(2-tailed)
Analysis	Distinguishing (fact/opinion)	Pretest	50	1.18	0.74	9.35	0.000
		Posttest	50	2.10	0.46		
	Classifying	Pretest	50	1.26	0.63	4.93	0.000
		Posttest	50	1.98	0.71		
Synthesis	Combining	Pretest	50	1.16	0.73	9.35	0.000
		Posttest	50	2.16	0.51		
	Predicting	Pretest	50	1.32	0.76	5.73	0.000
		Posttest	50	1.86	0.67		
Evaluation	Prioritizing	Pretest	50	1.02	0.76	8.66	0.000
		Posttest	50	1.96	0.53		
	Concluding	Pretest	50	1.08	0.69	4.56	0.000
		Posttest	50	1.74	0.77		

As the table 2 displays, the mean scores of the posttest in all critical reading sub skills were higher than the pretest. The significant level of all sub skills were at the level of 0.01. It was also indicated that the biggest difference between the pretest and posttest mean scores was in combining skill, while the smallest difference was in predicting skill. This shows that after the treatment of the developed instructional model, the students had achieved most in the skill of combining; whereas in terms of predicting, they gained less

improvement. In overall, they had improvement in all sub skills of critical reading. It could be interpreted that the developed model was found effective in helping students level up their critical reading ability.

As the model implementation stage, it was aimed to reconfirm the effectiveness of the developed model. The pretest, and posttest were the same version as used in the experiment stage. The scores were computed by computer program using dependent sample t-test. The results were shown in table 3

Table 3 : The pretest and posttest mean scores of the implementation stage (Total score = 24)

Test	N	Min	Max	Mean	S.D.	t-statistic	Sig. (2-tailed)
Pre-test	50	8	16	12.90	1.87	24.86	0.000
Post-test	50	13	20	17.02	1.58		

In table 3, the mean score of the pretest of 50 students was 12.90 (S.D. = 1.87) with the highest score of 16 and the lowest score of 8. Moreover, the mean score of the posttest score of 50 students was 17.02 (S.D. = 1.58) with the highest score of 20, and the lowest score of 13. Dependent Sample t-test was employed to analyze the data. The findings revealed that the posttest mean score was significantly higher than the pretest mean score at the level of 0.01. Hence, it could be concluded that the developed model was reconfirmed to be effective in enhancing students' critical reading ability.

In addition, the sub skills of the main skills of critical reading were analyzed and compared to inspect the effects of the instructional model on each of the sub skills. The contribution of the subskill analysis was exhibited in table 4.

Table 4: Comparison of critical reading skills using dependent sample t-test (divided according to the sub skills of critical reading skills) of the implementation stage (Total score of each sub skill = 4)

Main skills	Sub skills	Test	N	Mean	S.D.	t-statistic	Sig.(2-tailed)
Analysis	Distinguishing (fact/opinion)	Pretest	50	1.00	0.75	4.37	0.000
		Posttest	50	1.60	0.60		
	Classifying	Pretest	50	1.08	0.77	4.07	0.000
		Posttest	50	1.64	0.69		
Synthesis	Combining	Pretest	50	1.04	0.66	4.17	0.000
		Posttest	50	1.70	0.78		
	Predicting	Pretest	50	1.06	0.51	5.31	0.000
		Posttest	50	1.70	0.67		
Evaluation	Prioritizing	Pretest	50	1.02	0.65	4.77	0.000
		Posttest	50	1.60	0.57		
	Concluding	Pretest	50	1.16	0.61	4.07	0.000
		Posttest	50	1.72	0.70		

As the table displays, the mean scores of the posttest in all critical reading sub skills were higher than those of the pretest. The significant level of all sub skills were at the level of 0.01. It was also indicated that the biggest difference between the pretest and posttest mean scores was in combining skill, while   the smallest difference was in classifying skill. This showed that after the treatment of the developed instructional model, the students had achieved most in the skill of combining, whereas in terms of classifying, they gained less improvement. In overall, they had improvement in all sub skills of critical reading. It could be noted that the developed model was found effective in helping students level up their critical reading ability. So, the reconfirmation of the model was claimed.

Besides the analysis by means of t-test, in order to gain deeper information about the development of the students' critical reading ability, Development Score or Gained Score (GS) analysis was used to examine the difference between the students' pre-test and post-test scores. This exhibits the levels of the development which were classified into four levels: basic, moderate, high, and very high level (Kanjnawasee, 2013). The results of the analysis were demonstrated in table 5

Table 5: Levels of Development Score or Gained Score (GS) of the experiment stage

and the implementation stage (total students =50)

Score(%)	Level of Development	Number of students	
		Experiment stage	Implementation stage
76-100	Very high development	-	-
51-75	High development	13	5
26-50	Moderate development	35	40
1-25	Basic development	2	5

The table shows that in the experiment stage, 13 students gained high development level, 35 of them obtained moderate development level, and 2 person were in the basic development. For the implementation stage, 5 students gained high development level, 40 of them obtained moderate development level, and 5 person were in the basic development. The purpose of this analysis was to investigate the students' development levels. It was found that most students gained moderate development level, and all of them were able to increase their critical reading ability.

Based on the findings from the model experiment stage, and the model implementation stage, it could be affirmed that the developed model was effective in assisting students improve critical reading ability.

With regard to the quantitative data gained from the students' attitude questionnaire which consisted of five-level Likert scale questions (Likert, 1932) and open-ended questions, it was presented that the grand mean score of $\bar{x}$ was 4.45 . This indicated that most students strongly agreed with the questionnaire questions. According to the standard deviation (S.D.), it was found that the grand mean score was 0.11. This also indicated that most students expressed positive attitudes towards the developed model which was consistent with the grand

mean score of $\bar{x}$. Based on these findings, it could be claimed that students had positive attitudes towards the developed instructional model. Moreover, most students strongly agreed that the developed instructional model provided them with learning enjoyment and that they would recommend the program to other students.

For the open-ended part given at the end of the attitude questionnaire which provided students with the opportunities to present additional suggestions and comments, it was found that most students expressed positive opinions towards the developed instructional model. They noted that the model was more interesting, more fun and more challenging. Some of the students said that the class was different from other classes because they felt free to work in groups, to take their roles, and to exchange ideas with friends, and the teacher. The learning activities were more enjoyable when working in a group. Other students supported that the class was not the same as the previous classes. They performed the assigned tasks happily, relaxedly, and cooperatively.

Based on the findings from quantitative data analysis, it is worth mentioning that this instructional model assisted students to improve critical reading skills. Some presented that the model provided them with the knowledge to think and read critically. They were able to group, classify, and evaluate what they read. After learning with this model, they had increased critical reading ability.

2.2 Qualitative analysis

In order to prove whether the developed model was effective in helping students improve critical reading ability, qualitative data from the teacher's journals, and students' journals were analyzed using content analysis.

According to the students' journals, at the end of each class, students were asked to reflect their opinions by writing students' journals for five minutes. The majority of the students favored the developed model in many aspects as shown in table 6.

Table 6: A summary of students' opinions towards the developed instructional model

through their journals.

Stage	Students' attitudes towards the model
Pre-reading	1. Assisting them to know rough story before reading. 2. Providing them enjoyment. 3. Enhancing their reading skills.
While-reading	1. Equipping them more for questioning skills. 2. Providing them clarifying skills. 3. Helping them gain monitoring skills.

Post-reading	1. Increasing their reading skills.
	2. Providing more confident in reading.
	3. Creating pleasurable environment.
	4. Giving them opportunities to practice independently.

The table demonstrates how students' responses echoed their positive feelings towards the model in several aspects in each reading stage. For example, they said that the learning activities enabled them to feel ore confident in reading, helped them increase their reading ability, provided them pleasurable learning atmosphere, equipped them opportunities to practice working in a group, gained interpersonal skills, geared up them to read more critically, and provided them with enjoyment. However, the students presented their negative attitudes regarding the time allotted, non-cooperation, questions left unanswered.

For the teacher's journals, the roles of the teacher in the instruction are being a lecturer, a facilitator, a designer, a supporter, a motivator, a mentor, and an examiner. In order to examine students' opinions towards the model, the teacher observed students' behaviors and recorded the results in the teacher's journals. Students' reactions were observed throughout the lesson and at the end of the class, the teacher recorded it based on the reading stages: pre-while-post reading stage. It was revealed that the students had favorable opinions towards the model which was consistent with the results gained from students' attitude questionnaire and from students' journals. For example, they enjoyed learning, paid close attention, performed the designed tasks actively, and shared the experiences with friends and the teacher reasonably. So it could be interpreted that the developed instructional model was productive in helping students improve critical reading skills in three aspects, namely analysis, synthesis, and evaluation.

Discussion

The results of the study reveal that the developed instructional model is effective in helping students' critical reading skills and encouraging students' positive opinions. The results are supported by the other researchers' findings such as Vygotsky (1978); Palincsar & Brown (1984); Naranunn (1996); Doolittle, et al (2006); Feryal (2008); Yoosabai (2008); Cooper & Creive (2009);Philip & Hua, (2010) yielding positive results in favor of examing the critical reading skills through reciprocal teaching and metacognitive reading strategy.

According to the research findings, the students' development in critical reading ability could be due to the following reasons.

1. The assistance from the teacher

Theoretically, the help of the teacher through using activating, and explicit teaching is essential for language learning because it helps students become metacognitive, and it creates independent critical readers (Vygotsky, 1978; Palincsar & Brown, 1984; Naranunn, 1996; Doolittle, et al, 2006; Feryal, 2008; Yoosabai, 2008; Cooper & Creive, 2009; Philip & Hua, 2010).

In the first stage of this study, activating strategy was applied to initiate the students' prior knowledge. For instance, the teacher asked the students to monitor what being read or the teacher employed questioning technique using "what I know", "what I want to know", and "what I learned". Gradually, after the students had stimulated their background knowledge, they were provided opportunities to share their experiences in a group discussion. Finally, the students were able to make connections to the reading materials autonomously. In order to follow the students' progress, the teacher examined and got feedback periodically. This would help students move forward to level up their critical reading stage.

Also, explicit teaching strategy was utilized in the first stage of the instructional process to instruct students essential knowledge for critical reading approach. Explicit teaching involved directing students attention toward the specific learning, describing new reading strategy and how to use it effectively, and modeling concepts and reading process reasonably. For example, the teacher divided topics and contents into small sections and taught separately. The next step was to set the purpose of the reading, instructed students what to do, demonstrated them how to do it. Finally, the teacher allowed the students to practice in a group to master their new reading strategy. The explicit instruction was systematically developed from the little responsibility of the students to the total students responsibility. When the students were able to conduct the whole responsibility by themselves, the teacher removed help. The students came to be independent

readers, while the teacher acted as a mentor. This would help students gain unknown critical reading approach, and obtain more confidence in reading.

2. The collaboration between the teacher and the students

Based on the second stage of the instructional process, guided teaching, modeling, and transferring, the teacher and the students had to work together to achieve the critical reading strategy. As this instructional process was called the collaborative instruction, and in order to help students master the critical reading skills, the teacher had to model the reading procedures and let them process the reading methods by themselves under the teacher's control. The teacher demonstrated how to use reciprocal teaching with metacognitive reading strategy to improve critical reading ability, while the students observed, and imitated the critical reading procedures. Later, the teacher allowed the students to perform the designed task in a group to reach the desired reading goals. During this time, the teacher gave essential feedbacks and assessed the students' performance. The teacher withdrawn help, when found that the students gained more advanced in using critical reading strategy. Eventually, the teacher completely transferred responsibility to the students for practicing by themselves.

According to the research findings, it was revealed that the mean scores of the posttest were significantly higher than the mean scores of the pretest at 0.01 level. Also, the triangulation of the data from the students' attitude questionnaire, the students' journals, and the teacher's journals confirmed the students' critical reading ability

development, and exhibited the positive attitudes towards the developed model. The students' development in terms of critical reading ability referred to the effectiveness of the developed model which could be stemmed from their experiences derived from the collaboration between the teacher and the students as mentioned above.

      3. Social interaction

      In the third stage of the instructional process of the developed model: the independent practicing and mentoring: the students had to work in a group in order to take their roles to complete the designated tasks. In this stage, students were assigned to take roles of the group leader, the predictor, the clarifier, the questioner, and the summarizer ,interchangeably. They took turns to finish their responsibilities in reading. At this point, the social interaction was implanted and continually improved, students became independent critical readers with high social interaction skills. In this process, social interaction provided students critical reading skills (Vygotsky, 1978; Flavell, 1979; Palincsar & Brown, 1984;Naranunn, 1996; Doolittle, et al, 2006; Velliaries, 2009).

Conclusion

      This study aimed to develop instructional model for Thai high school students, to investigate the effectiveness of the developed model and to examine the students' attitudes toward the model. The model was constructed pertaining to the theoretical framework of reciprocal teaching, metacognitive reading strategy. The developed model consisted of five components involving rationales, objectives, contents, instructional process, and evaluation. The core part of the developed model was the instructional process which comprised of three stages.

      For the investigation of the effectiveness of the model, dependent sample t-test was used to compare the mean scores of the posttest and the pretest. It was found that, on the model experiment stage, the mean scores of the posttest were significantly higher than that of the pretest at the level of 0.01. On the model implementation stage, the mean scores of the posttest were significantly higher than that of the pretest at that significant level of 0.01. It could be concluded that the developed model was effective in helping students enhance critical reading ability. According to the students' attitudes towards the model, the students' questionnaire, the teacher's journals, and the students' journals were employed. It was revealed that students expressed positive opinions towards the developed model.

      Based on these findings, it could be concluded that the developed instructional model was found effective in increasing higher secondary school students' critical reading ability, and promoting students' positive attitudes. This study has implications for the pedagogical instruction through the combination of a variety of aspects such as the collaboration, social interaction, teacher's support, and students' self-respect.

Recommendation

      It is recommended that the study should be extended to other skills of critical reading, done in thinking and speaking, carried out in lower and higher levels of reading, and conducted in other foreign languages.

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