

# An Investigation of Metacognition in Second Language Reading: A Case Study of a Thai Graduate Student at an American College

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**Received:** November 30, 2022  
**Revised:** December 18, 2023  
**Accepted:** December 19, 2023  
**DOI:**

## Abstract

This case study examines the reading performance of a Thai college student who was studying English as a foreign language (EFL) in a U.S. institution. Through the use of think-aloud protocols and semi-structured interviews, an EFL Thai student's use of metacognitive strategies was documented while she was in the process of reading and comprehending two experimental English texts. The student's think-alouds were analyzed using the metacognitive reading strategies framework proposed by Jimenez, Garcia and Pearson (1996). The interview transcriptions were analyzed by the content analysis. The findings revealed that three broad themes emerge from the analysis: (a) the participant's reflections on the reading instruction in Thailand; (b) the reading strategies the participant employed at the beginning of the student's life in the U.S., and (c) the reading strategies the participant demonstrated from the think-aloud protocols. This study provided the insightful information of the metacognitive reading strategies and instructional implications, which has accounted for the reading behavior of an EFL reader that might allow EFL students an opportunity to take this case study as a lesson to improve their literacy

performance, and has called for teachers' fostering in the critical reading instruction to students.

**Keywords:** case study, metacognition in reading, second language reading, think-aloud protocols

## **Introduction**

One of the major challenges for international students is the ability to cope with the academic tasks in English. Reading English materials has become important for students who study English as a foreign language (EFL). Many of these students are likely to have difficulties adjusting to a new school at college level where they have to read more English texts, which are not their first language (Chapman, 2000). There are many technical terms and more complex sentences in reading academic texts, which largely provide information (Vaidya, 1999). There are multiple components for students to read successfully; for instance, motivation, learning opportunities, prior knowledge, study skills, cultural or language differences (Anderson & Armbruster, 1984). According to Anderson & Armbruster (1984), many college students, as a result, are challenged with their study and commonly undergo the congruent learning problem in case they are not well-equipped with effective strategies to help them learn and read strategically. In other words, less able readers will find it more difficult in the literacy situation where they have to cope with challenging texts consisting of complex and sophisticated concepts to remember and complicated and lengthy sentence structures to read. Thus, to be successful readers at this level, students need to have multiple effective reading strategies to help them make sense of the texts being processed. These strategies require higher level

thinking processes (Anderson & Armbruster, 1984). In brief, students require more awareness of the task demands. For example, they must know when to skip the trivia and when to pay special attention to the major details of the text. They must utilize the study strategies wisely and appropriately, and they must be able to monitor their comprehension while reading, and to apply alternative strategies when they realize that they fail to understand the text (Baker & Brown, 1984; Brown, 1980).

### **Metacognition in reading**

In the cognitive psychological literature, the concept of metacognition can be literally defined as the learners' knowledge about knowledge (Sternberg, 1984). Flavell (1979) elaborated the concept of metacognition as the learners' awareness of, or control, over cognitive processes. That is, the learners are aware of the use of the cognitive knowledge resources that they have. Metacognitive learners actively plan and manage to use the appropriate strategies and evaluate them whether they are effective and appropriate in carrying out a task (Brown, 1982; Jacobs & Paris, 1987). According to Nickerson (1988), metacognition engages the learners to be in the conscious control of their planning, selecting, regulating, and evaluating the problem-solving activities in a learning situation.

In reading comprehension, if readers are able to control and monitor the reading strategies they use while they are reading and processing the text, and they know when to apply alternative strategies or take remedial steps when confusion occurs, they are believed to be proficient readers (Romainville, 1994). This is because it means they have 'task awareness', 'strategic awareness', and 'performance awareness' (Reynolds, Wade, Trathen & Lapan, 1989). They are aware of what they have to do with a reading task, and they effectively select the strategies they will use

to attain the reading goal. They have in mind what strategies they plan to use or not to use during reading, such as they change the strategy they are using if they realize that the strategy in use is not effective and is not causing understanding (Hacker, 1998).

In the EFL classrooms in Thailand, there is still room for researchers to help English teachers to create better English classes to improve the students' performance. The research focus in this area might well fit into the current EFL context in Thailand. More research studies from different angles and perspectives should be supported to heal the reading problem. Nonetheless, there have been very few studies that have explored the importance and effectiveness of metacognition to enhance students' reading comprehension.

This study puts the focus on analyzing what a Thai graduate student who was studying at an American university knows about her reading and use of reading strategies, how she uses certain strategies, and when she uses them. This inquiry is different from past research in the EFL context in Thailand that has examined students' reading strategies.

### **Research Questions**

The main purpose of this study is to investigate metacognition in second language reading of a Thai EFL student at an American university. With the main objective in mind, the following sub-questions were developed.

1. How is the Thai student at an American college able to manage the course readings?
2. What is the student's perception of the metacognitive strategies she employs in the study of the course materials?

### 3. How does the student develop metacognitive reading strategies?

#### **Research methodology**

##### *Participants*

Creswell (1998) suggests that the purposeful selection of participants represents a key decision point in a qualitative study. Because the purpose of this qualitative inquiry was to understand the learning experience of an EFL student in an American institution and to tap the metacognitive reading strategies of the student in higher education, a case study was carried out and selected an interesting case for this study (Stake, 1995). Dao (pseudonym) was the participant in this study. She was in her late thirties. She came to the United States on the Thai government grant to pursue a degree in education. She had been teaching English for about 14 years to both Thai students and refugees in a school/university outside Bangkok. The criteria established for the participant selection included having no previous experience within a U.S. educational institution, being a current graduate student in the program for the first semester, and having at least 10 years of studying English.

#### **Research instruments**

##### *Reading passages*

In this inquiry, two reading passages were used. The first English text was an economic news article on “PM Marks Freedom from IMF” and had approximately 620 words in length; the other was a 520-word narrative text titled “The Pirates of Tarutao” (Adirek, 1994). These passages were selected because they well represented narrative and expository texts in that general students might read similar kinds of

issues in everyday lives, and these passages allow the student to use a variety of reading strategies when interacting with them.

### *Interview protocols*

The semi-structured interviews were used in this study. The interviews provided detailed explanations from the participant about the learning experiences and how her engagement in reading was related to issues such as metacognitive reading strategies. In this study, four interviews were conducted. During each interview which lasted about 40 minutes, the participant was asked to discuss the academic experiences. The interviews were audio-taped and transcribed. During the data analysis, several informal interviews over the telephone were conducted for more clarification and explanation to capture the essence of the participant's use of metacognitive experiences until no new themes emerged.

### *Think-aloud protocols*

A think aloud technique was used to analyze whether or not the participant understood the texts and what strategies she employed during the reading experiment. The think-aloud protocols were used to examine the reader's thinking and reading processes. During the think-aloud session, the student had to stop from time to time to comment on what was going on in the head while interacting with the text. Simply put, think aloud involves "the overt, verbal expression of the normally covert mental processes readers engage in when constructing meaning from text" (Afflerbach & Johnston, 1984, p.185). The reflections from the students' think-aloud are useful indicators or predictions that illustrate students' reading comprehension processing, and greatly benefit the teachers in evaluating the students' weaknesses and strengths

to help them develop their literacy skills (Oster, 2001). When the teachers know the level of their students' reading ability, they can plan their instruction more effectively (Schellings & Van Hout Walters, 1995).

Data from the think aloud protocols were coded initially and then recorded as the codes were modified recursively and iteratively (Patton, 1990). Analytic induction, referring to approaches that primarily use detailed readings of raw data to derive concepts, themes, or a model through interpretations made from the raw data by a researcher, was also used to analyze the data to examine themes in search of the recurring issues related to the metacognitive reading strategies (Paris & Winograd, 1990).

### **Data collection procedures**

Data collection through the multiple sources of information such as think-aloud protocols, reading questions, and interviews were used. The period of data collection for this research was two months.

First, the participant was scheduled to meet with the researcher for 4 one-hour sessions. In each meeting, the participant was informed about what she had to perform. In the think-aloud sessions, there were two main phases: a practice period and the actual study. During the 20-30-minute practice session, she was given prior exposure to the think-aloud procedure, and was given a pen and instructed to make any notes in the passage whenever she wanted.

After the practice session, the participant was given the two passages placed in their order for the actual study: "PM Marks Freedom from IMF" and "The Pirates of Tarutao." Then, she explained what strategies and process she went through while interacting with the texts to make sense of them. After reading each

text, the participant responded to prompting questions. The questions were very general and open to recall the major ideas of the reading passage.

Following the think-aloud sessions, the interviews were conducted to gain insights about student's learning experiences, the comments on the instruction of English, and, etc.

### **Data analysis**

In analyzing the think-aloud protocols, the three classifications of reading strategies proposed by Jimenez, Garcia and Pearson (1996) were employed as a framework to classify the strategies. The first classification is called text-initiated strategies, which includes using text structure, focusing on vocabulary, summarizing, restating the text, paraphrasing, using context, rereading, and decoding. The second classification is known as interactive strategies, which includes inferencing, questioning, predicting, and confirming/disconfirming. The last category can be classified as reader-initiated strategies such as invoking prior knowledge, monitoring, visualizing, evaluating, noticing novelty, demonstrating awareness, searching for cognates, translating, code-switching, and transferring.

In the analysis of the interviews, a content analysis, which is a data analysis technique used to determine the presence of certain words, themes, or concepts within data (Lincoln & Guba, 1985), was employed to determine the categories that emerged across the responses. The depth of these responses was helpful in providing a clearer picture of the participant's engagement in the reading process.

## Research findings

To answer the research questions, an analysis across the data provided information in four areas: (a) the participant's reflections on the reading instruction in Thailand; (b) the reading strategies she employed at the beginning of her student's life in the U.S.; and (c) the reading strategies she demonstrated from the think-aloud protocols.

### *Theme 1: The participant's reflections on the reading instruction received in Thailand*

Dao related her struggle with reading to the reading instruction she received in her country. The reading instruction Dao received in her previous student's life in her country, Thailand, did not promote and build up students' reading strategies. Dao noted that teachers invariably failed to provide adequate practice for students to become strategic readers. Dao felt that teachers often emphasized word meanings and content acquisition over building reading abilities.

In the interview, Dao was asked to talk about the reading skills she learnt in her country. She commented that when she was studying English in her country, most of the teachers did not teach students the study skills that could lead them to be independent readers. The common instruction that teachers practiced was mainly based on the translation method which teachers provided the meanings of every unfamiliar word to students and then translated the text into their own language. Teaching English in her country depended too much on rote learning (memorizing without understanding), which led to poor metacognitive awareness. Dao said, "I mostly, and I am sure my friends also learnt and listened to what the teachers translated to us. We hardly used reading strategies."

*Theme 2: The reading strategies the participant employed at the beginning of her student's life in the U.S.*

Inadequate practice of reading strategies was a major problem for Dao that affected her later when she first studied in the doctorate level in the US. Dao discussed her learning experience that she underwent in reading during her first year as a doctoral student. She said, "When the teacher assigned me to read from the books or from the articles, I struggled with my reading a lot for the first year."

Vocabulary knowledge seemed to be one of the major concerns for her as well. She expressed that she received little strategic instruction for helping her figure out the meanings of unknown words in reading besides referring to a dictionary and the translation provided by the teachers. When she came to a word she did not understand, she looked it up in a dictionary, and tried to remember it.

Through in-depth interviews with Dao, it indicated that the use of re-reading technique was of high frequency when she tried to make sense of what she was reading. She tended to focus on the reading at word or sentence level. Re-reading strategy was used to develop understanding by discovering new meaning. She tended to re-read texts to check that she had really remembered something.

It seemed that teachers did not promote reading development for the participant effectively. Thus, she was limited in her opportunities to learn how to read strategically and in the opportunities to go beyond the understanding of the text being read. Buehl (1996) comments that students tend to find it difficult to summarize what they are learning, in part because they have not had practice in reformulating what they learn into their own language. They become so immersed in the vocabulary and

factual detail of their classes and they lose sight of the need to translate all of this into their own personal understandings.

*Theme 3: The reading strategies she demonstrated from the think-aloud protocols*

From the analysis of the think-aloud protocols, I described the portrait of the participant as a reader across the two texts. Then the descriptions of the participant's think-aloud protocols in reading the texts were discussed.

**Table 1**

*Summary of Dao's Reading protocols*

	<b>Text 1</b>	<b>Text 2</b>
Number of pauses during reading	50	27
Number of miscues	1	1
Strategies used and frequencies	1. Reflecting on text (13) 2. Translation (8) 3. Re-reading (6) 4. Summarizing (5) 5. Questioning (3)	1. Reflecting on text (5) 2. Summarizing (3) 3. Guessing meanings (3) 4. Questioning (3)

**Table 1** (Continue)

<b>Text 1</b>	<b>Text 2</b>
6. Guessing meanings (2)	5. Re-reading (2)
7. demonstrating awareness (1)	6. Translation (1)
	7. Text structure (1)
	8. Reading ahead (1)

*Reading Text 1*

In reading the first English text, Dao paused 50 times, and misread 1 word, which was 'corporatization'. She employed 7 reading strategies in total. Reflecting on the text was her most frequently-used strategy with 13 occurrences. Translation and rereading were the second and third top strategies she utilized. In general, she read the text with a larger chunk of information in paragraphs, rather than in sentences. She tried to make sense of the text by paying attention to the gist of each chunk she read. She processed the comprehension while reading and made comments or reflected her thinking periodically. She mainly translated the text into her first language. If she had difficulties in understanding something, she reread it slowly, and underlined or put a circle/square on the key words she did not know, and used the context to guess the meaning.

*Reading Text 2*

The analysis from the think-aloud protocols when Dao read the second text revealed that she made 27 pauses during reading, and made 1 miscue. The word that she misread was 'stalactites.' Totally, she used an array of 8 reading strategies, with 5

occurrences of reflecting on the text, 3 occurrences of summarizing, guessing meanings from the context, and questioning.

Dao mainly selected to pay attention to the important details in order to understand the content of the story. She underlined the unfamiliar, but important words, and attempted to guess their meanings from the contextual cues if she could. She sometimes read ahead if she found some parts confusing. She reflected that with this strategy, it sometimes helped her understand what went on in the story more effectively.

Text: They were going to search for a suitable place to hide the loot that they had seized.

Dao: What did they seize? What does *loot* mean? I should put a circle on it first, and I will look it up later. Well, I'd better read ahead. I might find the answer.

When the author described the cave in the story, Dao commented that, "Umm ..., the author was describing the cave very well. I could see the clear image of how beautiful it must be. There were lots of falling and rising stones in the cave. Wow!"

The analysis from think-aloud protocols indicated that Dao employed the reflecting strategy the most. Overall, it appeared that Dao tried to memorize important details or key terms in order to be able to understand the text. She tried to understand the message that the passage was trying to impart by translating it into their first language. If comprehension failed, she reread it. She did not have much difficulty in processing the texts. In addition, she read the texts in larger chunks of words, and she made comments on the texts while reading. Her reflections on the

texts demonstrated that she truly understood the texts and had the insightful ideas to add to what was read. In Dao's case, it could be concluded that the reading strategies that she used the most in reading the two English texts were reflecting on the texts, summarizing, and translation. The abilities to reflect on the texts and summarize are the critical strategies that require the students to synthesize the ideas presented, which, in effect, means the readers possess the high-level thinking (Whimbey, 1975). Pressley (1998) stated that one qualification of skilled readers is that they are aware of what strategies they use. They consciously control and monitor their understanding, and they are able to report their thinking process (Grabe & Stoller, 2002).

In this study, the analysis revealed that Dao reported a great deal of knowledge, indicating as being an effective student. In other words, she had a wide range of strategies resources stored in her head as strategic readers did. Dao's reflections always included a lot of information about strategies for achieving the task demands during the think-aloud sessions. Moreover, she demonstrated the use of a set of powerful reading strategies, and adjusted the strategies each time when she tried to overcome the comprehension breakdown.

## **Discussion**

What is learned from this case about metacognitive reading strategies is that the student has developed metacognition in reading L2 by herself, with very little guidance from the teachers, through a long process of her academic experiences. Although Dao faced some difficulties in coping with challenging texts at the beginning of the graduate study, as a whole, the analysis revealed that she was capable of using appropriate strategies to regulate literacy events, when she had to

expose to tremendous readings as a graduate student. It was suggested that emergent metacognition and reading ability may be related (Flavell, 1976; Fang, 1999). To illustrate, after several years of exposure to reading L2 texts, the participant developed the reading skill through literacy tasks (Watkins, 2000). As a consequence, her reading potential skyrocketed and her metacognitive reading strategies gradually and increasingly developed through the long process. This self reading development assisted Dao in coping with new tasks and challenges. However, it seems that the EFL reading programs in the country where the participant came from depended too much on memorizing details, without vivid understanding. At the time when the participant attended schools in her country, the instruction and practice in reading classes mainly involved translation method used by the instructors. As a consequence of this passive participation, Dao developed a bottom-up view of reading. Her main purpose of reading was to know the meaning of every unknown word and understand the details. However, in the graduate level coursework, she was required to process independently an enormous amount of reading materials, and may even be expected by many of the professors to be critical and responsive constructors of meaning. Such contrastive circumstances have caused the difficulties that Dao experienced at the beginning of the study.

### **Implications**

Three implications may be drawn from this study for future research. First, it would be important to provide the student with extended opportunities to produce output in reading texts and receive necessary feedback to ensure maximal reflections from the think-aloud protocols treatment. Second, to learn the metacognitive strategies from the think-aloud protocols, appropriate reading tasks need to be

considered carefully. Third, care needs to be taken to make sure that the student's processing capacity is not overloaded during the think-aloud processing to allow for adequate allocation of attentional resources to reading strategies (Chamot & Kupper, 1989).

### **Recommendations**

The study attempted to shed some light on the metacognition in reading, especially on the facilitative role of awareness and its effects on L2 reading. Future research should take into account to include the reading tasks for project-related or academic purposes if the participants are college students because they will be able to define the goals and outcomes of their activity. Future studies should also look closely how to select successful EFL readers to take part in the study. They should know how to think aloud while interacting with the texts. Researchers should consider prompted think-aloud technique in case the participants are not very critical of their reading process (Baker & Brown, 1984).

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