

# Exploring Metacognitive Reading Strategies and their Effects on Academic Learning: Case Studies of ESL Students in Higher Education in the US.

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**Abstract.** *This qualitative study examined the use of metacognitive reading strategies of four doctoral ESL Thai students who were at the time conducting research whilst studying in the US. The main purpose seeks to describe the ways in which these ESL students created meanings when they were reading for academic or informative purposes. This investigation addressed two main research questions: (1) How are ESL students in the US college able to manage their reading strategies effectively? and (2) What are the students' perceptions of the metacognitive strategies they have employed in the study of their course materials? To answer the research questions, the analysis ranged across the data collection methods, including the interview transcriptions, observations, and think-aloud protocols, providing information in three areas: (a) the reading strategies of the participants before they came to the US; (b) the reading strategies they employed and their reflections on the reading tasks when they started their studies in the US; and (c) their emergent metacognitive reading strategies.*

## Introduction and Statement of the Research Problem

There are currently more than 180 different language groups represented by the students in American educational institutions (Shore, 2001). When it comes to students who speak English as a second language (ESL), and teachers must teach content-area curriculum, many of these newcomers are likely to have difficulties adjusting to a new school and a new culture. Learning is influenced by several factors, including inadequate prior knowledge, poor study skills, cultural or language differences. A common problem college students face is learning and remembering the vast amount of information they are required to read. The reading skills needed for success at this level are substantially different from those taught in the elementary school (Anderson & Armbruster, 1984). This type of reading, or studying, involves a number of complex activities, such as understanding and remembering task demands, identifying and selectively attending to important information, using appropriate study strategies for remembering that information, monitoring comprehension and learning, and taking corrective action when necessary (Baker & Brown, 1984; Brown, 1980). Many English language learners (ELL) are faced with great challenges, and they struggle when they have to engage in a discussion in class, write report papers, and especially when they have to read a lot of difficult text materials and make sense of them. Students who are successful learners have been able to realize by themselves the self-understanding that pertains to knowing what effective reading strategies for a given learning situation are. Students who struggle typically lack this self-knowledge and self-awareness (Vaidya, 1999).

Those study strategies involve metacognition—the ability to think about and control one's own learning (Baker & Brown, 1984; Brown, 1980), but before learners can actively control their learning, they must be aware of: (a) what to study in a particular situation, or task awareness; (b) how best to learn it, or strategy awareness; and (c) whether and to what extent they have learned it, or performance awareness (Reynolds, Wade, Trathen, & Lapan, 1989).

ESL students in the US are aware that the ability to read well and strategically is a key element to achieve their goals in higher education. Many ESL students struggle when they read course materials required in class, and it takes time for a lot of them to overcome the difficulties. Thus, the metacognitive reading strategies of successful ESL students need to be examined in order to better understand their use. This qualitative study seeks to describe the ways in which ESL students create meanings when they are reading for academic or informative purposes. I was also interested in the

extent to which the teaching of reading in the ESL context incorporates metacognitive approaches and, ultimately, in how ESL teachers can be supported in making their students more aware of the learning strategies they do use and could use in reading.

### **Significance of the Study**

This inquiry distinguishes from past research that has examined students' metacognitive strategies in a specific curriculum established by a teacher or a researcher. I wondered what we could learn from a case study of ESL students in higher education in American universities from an in-depth range of reading strategies employed by the participants. I was also interested in learning about additional practices that contribute to the student's academic accomplishment, the emergent metacognition. Furthermore, students' perspectives and reflections are better represented in literacy research. This means researchers are increasingly relying on students to help them understand a range of phenomena related to literacy learning and practices. In this research, I conducted a study of metacognitive reading strategies of ESL students. A common thread running through this research is the belief that, by using techniques such as prolonged engagement in the field with the participants and the triangulation of data of sources (Creswell, 1998), and looking at what is really happening when the participants interact with the text while reading, we will gain significant insight into the reading strategies they use. Because the purpose of the study is to tap the metacognitive reading strategies of the participants, the significance of the study focuses on two areas: the findings will help to understand how metacognition is related to academic performance, and to specify what metacognitive reading strategies foster and facilitate the ESL students' academic preparation.

### **Research Questions**

The purpose of this study was to investigate the metacognitive reading strategies of ESL students in the US higher education system. With the main objective in mind, I further developed the following sub-questions:

1. How are ESL students in a U.S. college able to manage their reading strategies effectively?
2. What are the students' perceptions of the metacognitive strategies they employ in the study of their course materials? For example, are they likely to question ideas presented in their study materials, and do they reflect more on the processes they use and the decisions made in reading?

### **Literature Review**

Language learners use many kinds of strategies to acquire a language. The principal strategies that have been discussed by researchers in affecting language learning include affective strategies, social strategies, memory strategies, compensation strategies, cognitive strategies, and metacognitive strategies (Oxford, 1990). In this study, the discussion will focus on cognitive and metacognitive strategies in learning.

### **Metacognition and Its Significance**

Flavell (1979) defined metacognition as knowledge that takes as its object or regulates any aspect of any cognitive endeavor. Metacognition refers to the process of active control over one's own cognition (Flavell, 1979). It encompasses two related, interactive aspects: self-appraisal and self-management (Brown, 1982; Jacobs & Paris, 1987). In the psychology literature, metacognition is referred to as one's "inner language", or as "thinking about one's own thinking", or more specifically refers to an individual's self-knowledge about their cognition and to the ability to be able to influence one's own cognition (Meichenbaum, 1985). Relative to literacy, self-management involves strategic planning, on-line monitoring, and regulating action during the construction of meaning in, or from, text (Baker & Brown, 1984). More specifically, planning involves setting goals, generating questions, analyzing how to attack a problem, and selecting and organizing information for one's text. Monitoring refers to

tracking of attention and evaluating comprehension or composing processes. Through regulating action, readers/writers modify their reading/writing behaviors in order to facilitate their construction of meaning (Ruddell & Speaker, 1985).

The term ‘metacognition’, as opposed to simply cognition, is not easy to vividly describe. It is hard to explain, because metacognition is believed to be a ‘fuzzy concept’ (Flavell, 1979, p. 37), and it is a relatively new concept (Reynolds & Wade, 1986). Metacognition is the term initially introduced and discussed at large for over twenty years by educational psychologists who agree that it is important for effective learning (Schraw, 2001). There are many educators attempting to posit and elaborate metacognition. However, one of the most well-known educators who has been most talked about in reference to metacognition is John Flavell, who precisely described it as ‘knowledge of cognition and monitoring and control of cognitive activities’ (1971, p. 273). The bottom line behind this is that learners are aware of the use of the cognitive knowledge resources that they are carrying out in performing a task. In another definition of the term, Hartman (2001) defined and illustrated the major elements of metacognition. In his explanation, he argued that metacognition plays a critical role in language learning, and he suggested the ways teachers can enhance metacognition of the students. We can understand the core concept of metacognition succinctly from his description that:

Metacognition is thinking about thinking or knowing about knowing. It enables *awareness* and *control* over how teachers/or students think about their thinking and therefore affects their teaching/or learning. It enables them to self-regulate their teaching/or learning activities, depending upon the specific individuals, goals and situation (p. 150).

It can be summarized that metacognition relates to the knowledge that the “learner uses to control cognitive processes, which includes the knowledge about how one learns and processes information (person variables), knowledge about the nature of the task as well as the type of processing demands that it will place upon the individual (task variables), and finally knowledge about both cognitive and metacognitive strategies, as well as conditional knowledge about when and where it is appropriate to use such strategies (strategy variables)” (Flavell, 1979, cited in Livingston, 1996, p. 13).

All in all, the above definitions and illustrations provide us with an illuminating picture to gain the sense of what metacognition is and what it is composed of. Nevertheless, we may raise a question in our mind and may still be unsure about the terms ‘cognition’ and ‘metacognition’ in that what exact aspects they distinguish from each other. In other words, how are they different? The subsequent section is devoted to this issue.

### **Cognition Vs. Metacognition: Are they the same or different?**

Flavell (1976, cited in Forrst-Pressley & Waller, 1984) demonstrated the interplay between metacognition and cognition:

For instance, we suddenly get the vague sensation (metacognitive experience) that we may not fully understand what we have just read, so we review (cognitive action) the material and our interpretation of it in order to find out exactly what, if anything, is amiss (another metacognitive experience). Or we may decide to read something for some purpose (establish a goal) and start by skimming parts of it (cognitive action) in order to get some initial sense of how hard the reading is likely to be (metacognitive experience) (pp. 1-2).

Despite the interrelatedness of the two terms, a number of educators and researchers offer varying standpoints on this issue. Some claim that they do not view cognitive and metacognitive totally different and separable from each other, as Flavell did (1979, cited in Livingston, 1996). He states that metacognitive knowledge may not be different from cognitive knowledge. Here is his comment:

Knowledge is considered to be metacognitive if it is actively used in a strategic manner to ensure that a goal is met. For example, a student may use knowledge in planning how to approach a math exam: “I know that I (person variable) have difficulty with word problems (task variable), so I will answer the computational problems first and save the word problems for last (strategy variable).” Simply possessing knowledge about one’s cognitive strengths or weaknesses and the nature of the task

without actively utilizing this information to oversee learning is not metacognitive, as metacognition is referred to as “thinking about thinking” and involves overseeing whether a cognitive goal has been met. Thus, this should be the defining criterion for determining what is metacognitive (pp. 13-14).

Flavell explained that it depends on how we define them. The distinction depends on how the information and definition of the two terms are used and defined. It is clearly seen that metacognition in his sense is similar to cognition. The significant feature that differentiates them is that metacognition includes the active evaluation in one’s using the cognitive strategies to reach the goal. Without monitoring the strategies in use, that learner is not considered to apply metacognitive strategies.

Flavell’s standpoint contrasts with some educators, such as Rivers (2001) who argued that more recent research makes a strong claim that metacognition is separated from cognition in that it also includes “self-assessment and self-management” (p. 279). According to Garner (1987), many researchers consider that metacognition and cognition are not the same. The analogy he made to polarize the two terms was that “cognitive strategies are necessary to perform a task, whereas metacognition is necessary to understand how the task was performed (cited in Schraw, 2001, p. 3). Other researchers have a similar comment to Garner’s. For example, Roberts & Erdos (1993) stated that, in performing a certain task successfully, students must make use of cognitive strategies, such as using prior knowledge in interpreting a text, and rereading the portion of the text when it is still unclear. However, students make use of metacognitive strategies when they want to be sure whether their performance has attained the set purpose (e.g., evaluating their comprehension of the reading material that they read). To clarify the idea, metacognitive strategies are normally brought into use to monitor cognitive strategies (i.e., when students realize that they fail to understand a text, they try to adjust their reading process by using other appropriate strategies).

Furthermore, the two examples below proposed by Forrest-Pressley & Waller (1984, pp. 21-22) clearly elaborate their position to juxtapose the characteristics between cognitive and metacognitive strategies in a more concrete fashion.

In learning to read, children need to learn how to decode written symbols. Without a doubt, there are many strategies to master the decoding skill. For example, students might develop the word recognition skill they have learned from the classroom, or they might learn to sound out words, ask someone, consult with a dictionary, guess, etc. Most students learn to decode words in many ways. In other words, they have many cognitive strategies to decode words. They might recognize a word immediately because they have seen it repeatedly when they read. They might use other strategies such as guessing the word by using the context, sounding it out loud or asking their teacher the meaning of the word. This means they have many decoding strategies available in their cognitive repertoire to use to decode words. Teacher can evaluate the students’ cognitive strategies by having them perform on decoding tasks.

To compare the decoding skill at a metacognitive level, the difference is that students realize that in some situations, one decoding strategy is more appropriate to use to accomplish a task than others. In addition, they are able to “evaluate the situation, assess the likelihood of dealing successfully with the situation in different ways, choose ways to approach the task, assess the adequacy of performance, and modify behavior if appropriate” (Reference ?). To measure the students’ use of metacognitive strategies of decoding, teachers may assess the performance of the decoding strategies that students bring to the assigned task, and also their ability to verbalize those strategies and the efficiency of the strategies in use.

To sum up, we may see that the two groups may not provide different explanations to claim that cognition and metacognition are distinguishable. It is only their dimension that is different to view these two terms. As I previously mentioned, metacognition and cognition are interrelated in the sense that metacognition is semantically built up on the other based on the same concept, with the expansion of more scope to include the active control, monitoring, and awareness to the original definition. Hence, on some occasions, it is possible that metacognitive and cognitive strategies may be overlapping in that the same strategy could be regarded as either a cognitive or a metacognitive

strategy, depending on what the purpose for using that strategy may be (Livingston, 1996). For example, Livingston (1996, p. 15) stated:

You may use a self-questioning strategy while reading as a means of obtaining knowledge (cognitive), or as a way of monitoring what you have read (metacognitive). Because cognitive and metacognitive strategies are closely intertwined and dependent upon each other, any attempt to examine one without acknowledging the other would not provide an adequate picture.

In many research studies regarding metacognitive strategies, it seems that the researchers end up with the discussion of simply cognitive strategies, not metacognitive strategies in isolation. The study conducted by Jimenez, Garcia Pearson (1996), who investigated the metacognitive reading strategies among Latina/o students is a good example. If we take a closer look at the findings and discussion sections, we might wonder how the two strategies differ. This is because we might feel that the metacognitive strategies that the researchers claim to be occasionally used by successful bilingual readers include code-mixing, code-switching, translating, and accessing cognates to figure out unknown words, which may be regarded as cognitive strategies. This possibly leads us to assume that cognitive and metacognitive strategies may be the same things. Basically they are. However, if we examine the research related to metacognition, we will clearly see that the target of the study is not only the learning strategies *per se* that researchers investigate. The researchers are, at a deeper level, looking at whether students possess the awareness, monitoring, and control of the cognitive strategies or not while they are using them to perform a task. Hence, the research instruments to measure or examine metacognitive strategies usually include the 'think-aloud technique' or other reflective or retrospective devices that are efficient to tap or trace the thinking process of the students, such as the questionnaires, the evaluation sheets and interviews.

To conclude, cognitive and metacognitive strategies are different in some degree even though there are overlapping components in them. Nonetheless, one cannot be said to be a metacognitive reader, and lack cognitive strategies.

## Methodology

### *Research Design and Epistemological Assumptions*

For this study, I employed a methodology anchored in a qualitative approach. Qualitative research is a broad term which encompasses a variety of strategies, including participant observation (Creswell, 1998) and in-depth interviewing. This type of research can be categorized by five traits: (1) the natural setting is the direct source of data and the researcher is a key instrument; (2) the written results are descriptive; (3) the focus is on process rather than simply outcomes; (4) data are analyzed inductively; and (5) meaning is of essential concern (Bogdan & Biklen, 1992; Creswell, 1994).

Consistent with these characteristics, I engaged in a qualitative study utilizing the tradition of a case study (Creswell, 1998), which is an exploration of a bounded system or multiple cases over time through detailed, in-depth data collection involving multiple sources of information rich in context. More specifically, I used a comparative, multi-participant, interpretive case study (Merriam, 1998), because my objective was to explore and garner in-depth reflections on reading strategies of ESL students studying in US higher education institutions. These descriptive data were used to develop conceptual categories or to illustrate, support, or challenge theoretical assumptions held prior to the data gathering with the underlying assumptions that were related to the relationship of the researcher to that being researched (Creswell, 1998).

### *Participants*

The design of this study suggests that a sample be intentionally selected that might best inform the purpose. Creswell (1998) suggested that the purposeful selection of participants represents a key decision point in a qualitative study. Because the purpose of this inquiry was to tap the metacognitive reading strategies of ESL students in higher education, I preferred to select unusual cases in collective case studies and to employ "maximum variation" (Miles & Huberman, 1994) as a strategy to represent

diverse cases to fully display multiple perspectives about the cases and to identify important common patterns.

Specifically, in my study there were four Thai participants who were, at the time of conducting the research, doctoral students attending research institutions in the US. Two of them were female students named, for the purposes of this study, Siri and Wana. Siri was at that time 45 years old, and Wana was in her mid-thirties. The other two students were male students—Mek, 35 years of age, and Dech, 38 years old. To study multiple cases, typically the researcher chooses no more than four cases; the more cases an individual studies, the greater the lack of depth in any single case (Glesne & Peshkin, 1992). The criteria established for selecting ESL doctoral students in this study were that they must have at least two years of educational experience in a US institution, a good academic record, be Thai nationals, and were willing to take part in the study. To make sure that my participants were academically successful, I contacted institutional liaison persons, such as department chairpersons, college deans, and student affairs professionals to identify appropriate participants.

### **Data Collection**

Data collection through the multiple sources of information, such as interviews, think aloud protocols, and participant observations, were used.

### **Interviews**

The open-ended interview format provides the flexibility to probe an informant's responses and illuminate individual perspectives. The primary purpose is to look for rich information. The interviews provided detailed explanations from the participants about how their engagement in reading was related to issues, such as metacognitive reading strategies. In this study, two formal interviews were conducted. During about an hour-long interview, the informants were asked to discuss their experiences and what they saw as the major reading strategies they used in studying in America. The interviews were audio-taped and transcribed. Transcriptions of the interviews served as the main data source. Data were reviewed, developed, and analyzed. During the data analysis, a couple of informal interviews over the telephone were conducted for more clarification and explanation to capture the essence of the informants' use of metacognitive experiences, until no new themes emerged.

### **Observations**

In addition, participant observations (Creswell, 1998) were carried out for this study. According to Patton (1990), observations have several strengths. Observations provide a picture of what is occurring in the context. What is being observed is occurring at that very point in time in that context. And observations allow first-hand experience for researchers to be more open and discovery-oriented; they can access unexpected information. In trying to observe how the informants interacted with the reading texts, I made the observations with the informants on five occasions, while they were preparing their readings for a class. I took observation notes through field notes and personal notes about the reading strategies the participants used and their reactions while reading. The notes were recorded and analyzed during or shortly after the observational periods. I also collected samples of their notes being made during the observational periods that reflected their reading strategies and behaviors.

### **Think-aloud technique**

Finally, I used a think-aloud technique to reflect on whether or not comprehension occurred and what strategies the participants employed, such as self-questioning, predicting, and verifying, retelling and rereading. Think aloud requires a reader to stop periodically, to reflect on how a text is being processed and understood, and to relate orally what reading strategies are being employed. In other words, think aloud involves the overt, verbal expression of the normally covert mental processes

readers engage in when constructing meaning from text (Afflerbach & Johnston, 1984; Garner, 1987). The think aloud is a technique in which students verbalize their thoughts as they read and, thus, bring into the open the strategies they are using to understand a text (Baumann, Johns, & Seifert-Kessell, 1993; Davey, 1983; Wade, 1990). Readers' thoughts might include commenting on or questioning the text, bringing their prior knowledge to bear, or making inferences or predictions. These comments reveal readers' weaknesses, as well as their strengths, as comprehenders and allow the teacher to assess their needs in order to plan more effective instruction (Oster, 2001).

In this study, the participants were asked to read three academic articles in their field, one at a time on different occasions, and then to explain what strategies and process they went through while interacting with the text to make sense of it. The selected articles were reviewed by two outsiders who were experts in the field to confirm that the articles to be used for the think-aloud purpose were suitable with the content and level of difficulty close to the general articles that most students in their fields had to read. Thus, they served as representative articles in the field that the participants studied.

To model the think-aloud strategy, I began by telling the participants that a reader should be thinking all the time while reading. I informed my participants that think aloud would help them to recognize how they worked with the text to make meaning in their own minds. Then I demonstrated by thinking aloud using a short article. After the demonstration, I asked my participants if they fully understood the steps of thinking out loud while reading, and let them practice until they clearly knew what they had to do.

## Data Analysis

Each interview was audio-recorded for the purpose of capturing all of the comments of the participants, along with the specific questions, follow-up, and probing questions. Following each interview, I engaged in reflection and memo-writing about the interview, attempting to reconstruct a written picture of the interview, including my reactions and any unique aspects. This written reflection was used along with the transcribed tape recordings and any other available documents to analyze the interview.

To be specific, in the analysis of the interview protocols, the vast arrays of words were reduced to what was of most importance and interest. Most important was that reducing data be done inductively rather than deductively. The researcher must come to the transcripts with an open attitude, seeking what emerges as important and of interest from the text (Seideman, 1998). In this piece, codes were formulated from the interviews and think-aloud protocols, and modified as the data collection proceeded, according to the constant-comparative method (Glasser & Strauss, 1967; Lincoln & Guba, 1985). Data were coded initially and then recorded as the codes were modified, recursively and iteratively (Patton, 1990). Codes were reflective of the cognitive and metacognitive strategies employed by the participants in reading the texts. The analytic induction was also used to analyze the data. I read the transcripts of the interview and think-aloud protocols and examined themes in search of the recurring issues related to the metacognitive reading strategies. Additionally, I conducted an individual content analysis (Lincoln & Guba, 1985) of each open-ended item to determine the categories that emerged across the responses. The depth of these responses was helpful in providing a clearer picture of the informants' engagement in the reading process and their reading strategies. When I completed this analysis, I compared the interview results to the findings from the think-aloud protocols and observations. For example, if the data from the informants' responses on the interview to what a particular type of metacognitive reading strategy worked best for them were not evident, the data from the think-aloud protocols and observation would be used to extend the information given in the interviews.

The data from the observation transcripts and think aloud protocols were used as additional or secondary sources of information on the reading strategies the informants exhibited in the academic

learning environment. The observations and the think-aloud protocols were particularly helpful in learning about the personal reading characteristics of the informants, thus providing a better understanding of the specific approaches they employed when coping with reading challenges.

I kept a research log that documented the data analysis procedures undertaken: categories created, decisions made, subcategories that emerged, and the eventual saturation of data. With multiple data sources, the findings were also triangulated in the sense that all the data were analyzed by the researcher, particular themes were discussed with each participant, and overall themes were shared with all participants.

### **Establishing Trustworthiness**

Besides the extensive and relevant literature review that establishes a strong rationale to build up the significance of my study, the validity and trustworthiness of the data collection and analysis were addressed through a variety of methods. Primarily, I used member checks, both formal and informal, to determine the accuracy of my analysis, including my categories and themes that I identified as emerging. In this step of the project, I asked each participant to respond to the accuracy, fairness, and “fit” of the summary (Ferguson, Ferguson, & Jones, 1988). In addition, triangulation was employed by using multiple sources of data.

### **Findings**

To answer the research questions, an analysis across the data provided information in three areas: (a) the reading strategies of the participants before they came to the US; (b) the reading strategies they employed and their reflections on the reading tasks when they started their studies in the US; and (c) their emergent metacognitive reading strategies. Under each category, major themes emerged related to their personal reading techniques, the problems they faced in academic reading tasks and the solutions they implemented to solve them. The analysis of the participants’ reading strategies followed the definitions discussed earlier in this section to reduce confusion.

#### **Theme 1: The previous reading strategies of the participants**

The theme presented in this section emerged when the participants related their struggle with reading to the reading instruction they received in their home country. My analysis from the talks revealed that the reading instruction they received in their previous students’ lives in their country did not promote and build up students’ reading strategies. All of the informants noted that teachers invariably failed to provide adequate practice for students to become strategic readers. In other words, they felt that teachers often emphasized word meanings and content acquisition over building reading abilities.

In the interview, participants were asked to talk about the reading skills they learnt in their country. Siri 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, in which teachers provided the meanings of every unfamiliar word to students and then translated the text into their own language. Wana noted that there was no doubt that memorizing without understanding could lead at best to very limited learning outcomes. Teaching English in her country depended too much on rote learning (i.e., memorizing without understanding), which led to poor metacognitive awareness.

Long time ago, when I was an undergraduate student, I didn’t have good study skills. We just learnt from and listened to the instructors to explain to us in Thai. But we didn’t learn the real study skills in how to read, how to help us read effectively. We didn’t learn those kinds of stuff. Teachers translated in Thai a lot. But in my undergraduate level, I studied with some native speakers. We read on your own and then came to class. But when we read on your own, we ended up with learning new

words almost every page. Sometimes we looked up all the new words, but we still couldn't understand the story. We just learned whatever the teacher taught us. If we didn't know the meanings of new words, we looked them up in a dictionary.

"Comprehension difficulties are often related to readers' failure to participate actively in the reading process. Teaching students to become more strategic when they read increases their understanding of important textual information, as well as their motivation," Siri responded to me when asked what she thought as a teacher to make students read better. She also made more thoughtful comments that she would go back to Thailand, after her degree's completion, and would relate her difficulties to her colleagues and students about these challenges, so that teachers would put more emphasis on teaching reading strategies to the students.

Similarly, Mek expressed his view on the same issue that, "In my country, in the reading or English class, I don't think we learnt a lot about how to read effectively, and we didn't read a lot, either. I meant we were not trained to read a lot of different kinds of articles."

Dech expressed his view on the same issue, as follows: "I am sure my friends also learnt from and listened to what the teachers translated to us. We hardly used reading strategies." He made further encouraging comments after he had explored by himself the usefulness of a metacognitive strategy during reading:

I feel good and find it very useful to be able to analyze a lot of information that I have to read for my class. The knowledge and application of reading strategies helps me to find important facts in the book. I feel I am more in charge of what I am doing when I use a strategy during reading. When I studied in my country, I never realized the importance of the reading strategies. What I perceived was to finish what I had to read and answer the questions. If I did not understand anything, what I had to do was to ask someone. I hardly figured it out by myself what to do to understand it. But when I study in America, I really had a difficult time finishing all my readings for classes, especially in the first semester. My English was ok, not very good. It took a long time before I could adapt myself to the study here.

## **Theme 2: The reading strategies the participants employed at the beginning of their students' lives in the US**

Inadequate practice of reading strategies was a major problem for these participants that affected them later when they first studied at the doctorate level in the US. The participants discussed their experience and focused on their difficult time that they underwent in reading in the early phase of their studies.

Siri explained how things were going or what she thought about reading the course materials during her first year as a doctoral student.

As a doctoral student, I had to do tremendous reading. The first year that I came here, I didn't get used to it because I had stopped studying for years. When I came to study here in the US, I struggled with my reading a lot. When the teacher assigned me to read the books or the articles, I struggled a lot during the first year.

Vocabulary knowledge seemed to be one of the major concerns for the participants. For example, Wana stated that vocabulary played a lot of influence on her reading strategies that she thought affected her comprehension. She expressed her view 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. Thus, effective independent word learning strategies became more critical as she encountered new words in more complex literacy tasks across a variety of academic readings required at the doctorate level.

I couldn't make sense of the reading materials for class even though I tried very hard. During the first reading, I couldn't get what the author tried to present or talked about. I just understood some parts of it after reading and re-reading it. I had to use a bilingual dictionary to check the meanings of the words.

The major problem highlighted in discussions of being a student in the US was reflected by Mek, in that he did not know how to read efficiently. And when he came to a word he did not understand, he looked it up in a dictionary, and tried to remember it.

I read slowly. I did not know how to read well or efficiently. It took me a long time to read something. I usually had to read many times before I understood it. I just did not know what I could do to read well. I didn't know good reading strategies that could help me read well. And when I came across new words, I didn't understand what I read. I most of the time looked them up in a dictionary, and tried to remember them. I had no idea what a good reader was like. I thought that a good reader must know many words to understand what they read so I tried to memorize words I didn't know.

Through the in-depth interviews with Wana, it was indicated that the use of the 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 the word or sentence level. The re-reading strategy was used to develop understanding by discovering new meanings. She tended to re-read texts to check that she had really remembered something.

You know, doctoral students have to read a lot for every class because we have to prepare the lessons to discuss them in class. We need to read for information to complete each assignment. I had to read the materials several times, trying to catch the main ideas. If I still can't understand, I will go back to the same article or ask someone the parts I don't know.

It seemed that teachers did not promote reading development for the participants effectively. Thus, they were limited in their opportunities to learn how to read strategically and in their 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 emergent metacognitive reading strategies

The analysis from the interviews and think-aloud technique indicated that the participants were developing emergent metacognition in reading. Specifically, they exhibited similar evidence of emergent metacognition while engaging in a challenging literacy task. The examples of pedagogical practices indicative of a metacognitive emphasis included: previewing material, activating prior knowledge, determining a purpose for reading, generating questions, predicting, verifying predictions, recognizing a comprehension breakdown, rereading, skimming, summarizing, looking for important ideas, rereading ahead for clarification, and relating new information to prior knowledge.

*Emergent metacognition of the participants*

1. Text-initiated strategies
  - previewing materials
  - rereading /rereading ahead for clarification
  - skimming
  - summarizing
  - looking for important ideas
  - using advance organizers
2. Interactive strategies
  - questioning
  - predicting
  - confirming/verifying predictions
3. Reader-initiated strategies
  - invoking prior knowledge/relating new information to prior knowledge
  - determining a purpose for reading
  - recognizing a comprehension breakdown/demonstrating awareness

The transcript excerpts from the participants' interview responses and think-aloud protocols supported this finding. It seemed that text-initiated strategies were used the most among the three strategies described above. Overall, the excerpts showed that the participants employed similar reading strategies during the think-aloud session. There were two main ways for the participants to read academic articles. It appeared that they tried to memorize important details or key terms in order to be able to understand the text. They tended to focus on the reading at word or sentence level, and they tried to understand the message that the passage was trying to impart.

Text: Pitfalls of Experience in Teacher Preparation.

Siri: Umm... Pitfalls of Experience in Teacher Preparation. Pitfalls... I don't understand this word. I just guess that might be something that have an impact with the teacher preparation. I'll look it up later, but at the meantime, I'll guess that pitfalls should mean something that might give an impact to the teacher preparation. Let's see.

Text: "... practice makes perfect," "experience is the best teacher," and "let experience be your guide." Common sense casts experience as both the means and content of important learning.

Siri: Cast... I used to hear this word from the film makers that cast... cast... a movie. But here... let me look it up in the dictionary. ... Oh, it means to give a vote... caused to appear and shape, but in this sentence, it should mean....

“Common sense casts experience”, it should mean common sense shapes experience.

All the participants tended to focus on the themes and main ideas, and generally tried to process the reading for meaning. These intentions and their associated reading strategies have been called ‘surface’ and ‘deep’ approaches, respectively (Watkins, 2000). Adopting a deep approach was able to provide a more sophisticated overview of the authors’ intentions and frequently used extracts from the reading to support their reasoning. However, students who had adopted a surface approach typically could not explain the authors’ message and could only recall isolated factual fragments of the passage. The following demonstrated Dech’s and Wana’s employment of reading ahead for clarification, generating questions and re-reading strategies in order to understand the central issue of a challenging paragraph when they tried to understand it:

Text: Defective regulation of inflammatory responses and disordered immune mechanisms are central to the pathological processes encountered in rheumatic diseases such as rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE). RA is an autoimmune disease characterized by progressive joint destruction and immobility.

Dech: What is rheumatic disease? Do I have to know? Well, I don’t think so, maybe I will come back if it is important. I’d better read on. What are these ... what diseases are they, RA and SLE? I don’t know. Anyway they are kind of diseases.

Text: Prevention of cartilage erosion would be of great therapeutic benefit to RA patients. Among other factors, imbalances in pro- and anti-inflammatory cytokines have been observed in RA and SLE.

Dech: Why is ‘cartilage erosion’ related in here? The author should have explained a bit more what anti-inflammatory cytokines are.

Text: In autoimmune disease, an abnormal production of pro-inflammatory cytokines or a reduced inhibition of their action occurs and leads to an imbalance in the cytokine network. Some of the cytokines have been linked to cartilage destruction in RA patients.

Wana: What is the difference between ... autoimmune diseases and ...? I need to re-read. This sentence is a bit complicated. “... reduced inhibition ... reduced inhibition of their action occurs and leads to an imbalance in the cytokine network,” ok, I got it.

The following excerpts from students’ responses to interview questions which probed into their metacognitive strategies revealed that all of them used their reflections as opportunities for self-assessment, and tried to use new strategies to accomplish the reading tasks. Wana evaluated herself and reflected on her reading practice that:

I think I am a moderate English reader, but one thing I know is that I have improved my reading a lot since I study here. As I told you, I have to read a lot at this level. I need to improve more. I want to be a more efficient reader. Well, because I am not a native speaker so I usually read many times. First, I just scan though the article or whatever reading it is. Second, I will highlight the main ideas or any important ideas, and take notes of the unknown words that I think they are important, and the words that I see often in the text. And for the third time, I will read more carefully to fully understand the text, and also I will try to remember the main ideas.

Siri reported on the same issues that:

I think I am a moderate, not a good reader. When I read something new, I ask what I am reading, what they are telling me, what I want to know or what they are not telling me. I will read the abstract first to get the general ideas from the authors, and then I will continue to read through the article without looking up words at all to get the general ideas what they are talking about. When I read the second time, I try to read each paragraph, and then I stop and ask myself what this paragraph is talking about. If I don't get the answer, I have to re-read it. When I understand it, I go back for the fourth time ... looking up some key words that are important in that paragraph.

As a whole, the analysis revealed that these four ESL students, after having been in the doctoral program for some time in American institutions, where they had been exposed to a great deal of reading, did use executive control over their reading processes and they were capable of using appropriate strategies to coordinate or regulate literacy events. The emergent reading level effect on metacognition suggested that metacognition and emergent reading ability may be related. That is, higher emergent reading leveled more closely approximate independent or conventional reading. It was possible that their literacy experience fostered their awareness of their own thought processes and developed their ability to regulate their cognition (Vogt & Shearer, 2003). On the other hand, it was also plausible that, as they became more metalinguistically aware and task conscious, their ability to read developed simultaneously (Vogt & Shearer, 2003). As their reading potential continued to expand as a result of their literacy experiences, their coordination of metacognitive reading strategies with the reading tasks became increasingly refined, which, in turn, contributed to the expansion of their regulatory capacities. This reading development assisted them in coping with new tasks and challeng

## Discussion and Conclusions

It seems that the reading programs in Thailand where these students came from depended too much on rote learning. There is no doubt that memorizing without understanding can lead, at best, to very limited learning outcomes (Watkins, 2000). At the time when the participants attended schools in their country, the instruction and practice in reading classes mainly involved the translation method used by their instructors. As a consequence of the experiences, they developed a bottom-up view of reading, interacting passively with text with the ingrained purpose of knowing every unknown word and mastering the details the writer had set forth. However, in the doctorate level coursework, they were required to process independently an enormous amount of reading material, and may even be expected by many of the professors to be critical and responsive constructors of meaning. Such conflicting conditions have caused the difficulties that these students experienced at the beginning of their doctoral studies.

This research reflects the nature of reading and the outcomes of the reading instruction in particular. For students, reading is more than a solitary, cognitive process. Reading is something one does in groups, led by a teacher. It is a social, interactional activity. As Cazden (2001) pointed out, learning to read is deeply embedded in the interaction that takes place between teachers and peers in the reading group. How the teacher organizes that reading group, how s/he assigns turns, gives praise, asks questions, and so on, can have a profound effect on whether students learn to read. Similarly, how students conduct themselves in the group in bidding for turns, reading aloud, answering questions, and responding to other students can in a very real sense determine whether they learn to read. This claim can be supported by the participants in this study when they responded that they had hardly been trained to use the study skills and the reading strategies in their earlier educational levels in their country. That is, the translation method was mainly used to teach them the meanings of every unfamiliar word by the teachers.

Hence, the findings showed that the informants in this study used far fewer metacognitive strategies at the beginning of their studies in the US, and their emergent metacognitive strategies were, for example, identifying important aspects of a paragraph, focusing attention on the major content rather than trivia, using advance organizers, and taking corrective actions when failures in comprehension occurred. The foreign language literature emphasizes cognitive strategies over

metacognitive or social/affective strategies. To help people view the language learners as something more complex than a cognitive machine, future efforts should focus on metacognition that influences the learners. Brown (1982) recommended that teachers provide instruction and practice in metacognition (especially in comprehension monitoring), a distinguishable characteristic of successful learners. Brown (1982) stated that successful learners used learning strategies more often, more appropriately, and with greater variety, whereas less successful learners had fewer strategies in their repertoires and used them inappropriately for the task at hand. This study also revealed that different types of language tasks called for different types of strategies and that students used fewer metacognitive than cognitive strategies.

## Implications

The participants in this study reflected that the teachers did not teach them the study skills in the reading class in their country, so that they were not highly metacognitive and struggled with readings when they first arrived in the US. To promote and build up metacognition, research on language learning strategies suggests that all language teachers, no matter what their level, possess cognitive control over their learning efforts and can talk about their own mental processes (Sternberg, 1984). What that means for teachers is that they can profit from the students' awareness and guide them to use appropriate strategies. It is important for teachers to explain why the strategy is important, model the strategy, have students practice it immediately in class and again in homework assignments, and have a class discussion about the strategy they use after students have practiced it (Romainville, 1994). Acquiring new strategies takes time, thus teachers need to continue with strategy instruction until students are using the new strategy independently. Having students reflect on their learning is another way of helping them develop metacognitive strategies.

In the final statement from the students' reflections, it is important that schools and teachers strive to provide students with ample opportunities to interact with the texts in meaningful and practical contexts, while, at the same time, encouraging them to reflect upon and explore what reading strategies work to accomplish particular tasks. In addition, teachers should regularly read with them using texts of diverse genres and inviting their active participation in textual interaction. Such techniques will enhance students' sense of how readers communicate with writers. With conscious awareness of textual features, students are more likely to develop as strategic and self-regulated readers. Siri reflected her comments in her final remarks with me that, "I think education in Thailand should emphasize the study and metacognitive skills in the school curriculum, so that we can learn these kinds of skills since we are very young."

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### **Bio-data**

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