

A Case Study on a Passive Taiwanese University Student's Metacognition Changes in the Process of English Academic Reading

Jeng-Jia Luo*

Interest in exploring English-as-a-Foreign-Language (EFL) learners' English academic reading has been growing due to increased use of course materials printed in English in Taiwan. In higher education settings, there are numerous passive students who use excuses to discontinue reading their English textbooks when they encounter reading difficulties. However, learning to read is a self-regulated process. To date, longitudinal research targeting this student population is scant. Therefore, this study aimed to explore what a passive EFL undergraduate student's story of reading English academic materials suggests about an EFL learner's metacognition changes of English reading for academic purposes over time. The researcher adopted the notion of metacognition as the core framework and employed a case study method, involving a university student who initially considered himself a passive reader of academic English materials, for an entire school year. The data were gathered via questionnaires, follow-up interviews, on-site observations and textual documents. The collected data were then conducted through open coding to document emergent themes and construct meaningful categories. The research findings indicate the dynamics of EFL reading for academic purposes. Based on the results, research implications and pedagogical suggestions are provided.

Keywords: *English as a Foreign Language (EFL), English for Academic Purposes (EAP), metacognition-based research, passive readers, reading strategy*

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臺灣大學生閱讀學術英文後設認知變化之個案研究：以被動閱讀英文教科書者為例

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因應國際化的浪潮，臺灣越來越多的大學課程採用英文教材，也帶動學術英語閱讀研究。對閱讀原文書抱持被動態度，遇到閱讀困難時，就找藉口停止閱讀，而不思索解決方法的大學生大有人在。然而，學習是一個自我調節的過程，目前尚未有學者以這個族群做為長期研究的對象。因此，本研究探討這類學生對本身閱讀英文教科書策略之覺察歷程與調節過程。一名自認對閱讀原文書抱持被動態度的大學生表達參與本研究的意願。為了深入理解該生對學術英語閱讀的看法和閱讀行為是否隨著時間的推移而改變，本人以後設認知理論為基礎，採用案例研究方法，在一整個學年中，透過紙本問卷，後續訪談，現場觀察和文件收集詳實記錄他對英語學術閱讀的所知所感和實際閱讀行為。蒐集的數據和語料再通過開放式編碼進行分析，以建構具有意義的主題，同時將偵測到的改變做系統化詮釋。研究結果顯示學術英語閱讀具變異性，透過持續對話，觀察和省思，該生的閱讀態度及行為改被動為積極。本研究除了採用獨特的研究方法，也提供具體的教學建議。

關鍵詞：以英語為外國語（EFL）、後設認知研究、被動讀者、閱讀策略、學術英語（EAP）

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1. Introduction

Metacognition refers to a person's understanding beyond or above his or her own thinking processes and products. Metacognition-based studies have been a major component in second language (L2) reading research and have contributed important insights to L2 reading theory and pedagogy. This line of research has shown that metacognition plays a central role in the reading process. In most of the studies along this research line, English has been the language being investigated. More specifically, the research has taken place in English as a second language (ESL) settings, that is, in settings where learners are surrounded by the language, thus increasing their opportunities to encounter and use the language on a daily basis. There has been much less research on reading in English as a Foreign Language (EFL) settings, that is, in places where learners have few opportunities to use or encounter the target language outside the context of the language classroom (e.g., China, Taiwan, Japan, Korea). This lack of EFL-oriented metacognition research is surprising given the large number of individuals who learn English in these circumstances and the importance accorded to metacognitive knowledge. The dominance of the ESL oriented research results in a limited view of reading where English is the target language. As such, there is a need for more metacognition-focused research in these settings.

Besides the limited number of publications of metacognition-based reading research in the EFL context, current L2 reading research is primarily quantitative in nature (Henry-Vega, 2004). As a result, there are few accounts of individual experiences with reading, the kinds of accounts that take researchers deep into the world of reading as it is

actually engaged. Furthermore, despite the widely accepted notion that learning to read is a self-regulated process (Schunk, 1989; Souvignier & Mokhlesgerami, 2006), the majority of the existing studies were designed to examine the informants' perceptions of their reading performance (Hosenfeld, 1977; Malcolm, 2009) or process (Ikeda & Takeuchi, 2006) at a certain point in time, rather than over an extended period of time. Thus, the findings may yield limited insights, leaving a gap in the understanding of reading in English as it is experienced by students in EFL settings. There is a need for EFL-oriented research which examines metacognition qualitatively, and over a long period of time, in order to gain a deeper understanding of how learners experience this aspect of reading in the target language. This requires qualitative studies situated in the kinds of high profile EFL sites mentioned previously, where large numbers of EFL students are expected to learn how to read in English for academic purposes.

In response to this gap, the purpose of this study was to explore, qualitatively, reading experiences in an EFL college setting, with a particular focus on students' use of metacognition while reading in English for academic purposes. A university in Taiwan was chosen as the research site. Specifically, this study closely examined the English reading-related experiences of an undergraduate, who initially viewed himself as a passive reader that used excuses to discontinue reading when encountering difficulties in reading the course material printed in English. To explore how this student participant navigated various academic reading experiences, I raised this research question: How does a passive EFL university repeater regulate metacognition while reading English texts for academic purposes over time?

2. Literature review

L2 reading researchers realized that cognition-oriented research cannot generate much insight into what takes place inside L2 learners' minds (Casanave, 1988). Their recognition of need for a broader view of cognition gave rise to metacognition-based research. Starting from the mid 80s, more and more L2 reading researchers have been interested in describing learners' mental processing while reading, including their own perceptions of reading,

themselves as L2 readers, and their behaviors in a situated context (Garner, 1987). This section starts with a description of L2 reading scholars' discussion on L2 text-processing. Next, it zooms into a review of metacognition-based studies of L2 reading for academic purposes. Finally it pinpoints the deficits found in the existing literature and proposes the research question in the hope of addressing these deficits.

(1) L2 text-processing

In the Second Language Acquisition (SLA) field, three text-processing models are widely recognized - Bottom-up, Top-down, and Interactive (Grabe & Stoller, 2002). Descriptions of every model and scholarly comments are documented below.

Bottom-up Processing Model, coined by Gough (1972) and embraced by LaBerge and Samuels (1974), operates in a linear manner - decoding and/or restating individual words and/or phrases in sentences, using grammatical knowledge to construct meanings of sentences, and ultimately grasping comprehension of the entire text. This model features attention to such lower-level textual components as word-recognition, parsing/collocations, semantic propositions, and syntactical properties and is thus also called lower-level processing. The reading strategies relevant to this model are known as bottom-up strategies. These strategies, according to L2 specialists, are frequently reported and practiced by beginning or less skilled readers (Anderson, 1991; Carrell, 1989; Grabe & Stoller, 2002).

Top-down Processing Model is interchangeably identified as Higher-level Model. Goodman (1967), who introduced this model as Psycholinguistic Guessing Game, considered L2 reading as a process of forming and testing a hypothesis of the overall meaning conveyed by the author. In practice, L2 readers start with attention to the title of the reading material, use their schemata about it to form a hypothesis of the content, sample textual components as they proceed through text to confirm their hypothesis. Despite the directional indication of the title, Coady (1979) cautioned, Top-down Model does not refer reading as a linear process but one in which readers constantly form, test, evaluate (confirm/reject) hypotheses. Subsequently, top-down strategies include predicting, making inferences, associating background knowledge with the information in the text, self-questioning, and making evaluative comments (Nassaji, 2003). Studies have shown

these active hypothesis-testing strategies are often used by proficient or fluent L2 readers (Carrell, 1989).

Another L2 researcher who rejected the concept of L2 reading as a linear process is Rumelhart (1977). He proposed Interactive Processing Model - integration of higher-level and lower-level knowledge sources (Hellekjær, 2009; Nassaji, 2003). Later, this model evolved as Interactive Compensatory Model (Bernhardt, 2005), which depicts L2 reading as a decision-making process - L2 readers use their knowledge sources at one level of processing to compensate for reading breakdown at other levels of processing. This updated model, Grabe and Stoller (2002) commented, demonstrates readers' flexible adjustment of their strategies in particular contexts.

(2) Metacognition-based studies of L2 reading for academic purposes

Metacognition is “thinking about thinking” (Anderson, 2001, p.1). The operational definition of metacognition in the field of education consists of metacognitive knowledge (awareness of self, task, strategy) and metacognitive regulation (conscious control of cognitive and affective processing) (Flavell, 1979). According to Huang (2006), most of metacognition-based studies of L2 reading for academic purposes (EAP) have focused on L2 readers' motivation, anxiety, and reading strategies.

A. Motivation

Motivation, a key factor of success in L2 learning (Saville-Troike, 2006), is interconnected with L2 learners' perceived self-efficacy, confidence and reading (Tremblay & Gardner, 1995; Zhang, 2016). Research relevant to self-efficacy has shed light on L2 reading research. Hosenfeld (1977) held that those labeled as non-successful ESL learners by their teachers had a negative self-concept as English readers. Later, Carrell (1989) reported that the more ESL readers felt confident in recognizing the difference between the main idea and the supporting sentences in a paragraph, the better reading scores they gained. Schunk (1989) held that L2 learners' belief in learning a useful strategy increased their confidence in language learning. Sheorey and Mokhtari (2001) and Mónos (2005) found a positive relationship between L2 learners' L2 self-rated reading ability and their awareness of reading strategy.

In addition, it has been reported that L2 learners' reading motivation partially at least, accounts for their goal setting (Dörnyei & Ottó, 1998). In the field of L2 academic reading, researchers are concerned with two types of L2 reading goals - master goal (to master English reading ability) and performance/achievement goal (to meet academic demands). Some efforts have been made to explore exactly how these reading goals influence L2 readers' reading strategy use and reading performance. Ames and Archer (1988) compared the students with these two different goals and found that the students with master goal reported using more effective strategies and preferred challenging tasks. By contrast, the students with performance goal evaluated their ability negatively and attributed failure to their weak reading ability. By contrast, Oxford and Nyikos (1989) claimed that L2 students' performance goal is a key predictor of frequency and type of their strategy use. He (2008) argued that degree of master goal and degree of performance goals influence university students' frequency of strategies use and reading comprehension. Taraban, Rynearson and Kerr (2000) found that university students adjusted their reading strategies after they reset their reading goals. Due to different research results, how EFL readers' reading goals influence their reading strategy use remains to be explored (He). Noticing L2 readers have different individual motivations for and varying underlying attitudes toward L2 reading, Grabe and Stoller (2002) considered affective factors of L2 reading as a potential research direction. They encouraged L2 reading instructors to conduct action research by guiding their students to reflect on the driving forces of their L2 reading and to identify possible ways to enhance their positive attitudes toward L2 reading.

B. Anxiety

Another affection factor involved in L2 reading research is L2 anxiety. Relevant studies suggest that high levels of anxiety exist in learners of diverse L1 backgrounds (Aida, 1994; Saito, Garza, & Horwitz, 1999; Truitt, 1995). Reading, Saito et al. emphasized, is extremely anxiety provoking. Saito et al. recruited 383 students enrolled in 1st year French, Japanese, and Russian courses to compare and contrast their general foreign language (FL) learning anxiety and their FL reading anxiety levels. They reported that these learners' reported reading anxiety was distinguishable from their reported general FL anxiety, in that the formers matched their perceived difficulty levels of the target languages, in particular

the writing systems. Thus, the researchers suggested that class discussions of the FL reading processes would reduce the learners' reading anxiety. Although they reported correlation between L2 learners' degrees of reading anxiety and their perceived difficulty of reading, they cautioned researchers that the causes of L2 reading is still "an open question" (Saito et al., p.217) and encouraged them to conduct interviews to examine when and how anxiety intervenes in the reading process. Potential anxiety-related research directions they recommended are targeting at advanced L2 learners, examining causes of anxiety about L2 reading, exploring the relationship of reading anxiety and specific target languages, and detecting the role of L2 learners' background and cultural knowledge in reading anxiety.

C. Reading strategies

Reading is an active process in which readers use their resources to construct meanings from written materials (Bernhardt, 1991; He, 2008). Strategies are refined skills to solve problems. In the domain of SLA, strategies are viewed as refined skills to manage learning. Cognitive, metacognitive, and social strategies, proposed by Oxford (1990) and O'Malley and Chamot (1990), are recurrently adopted to conduct L2 reading research. Cognitive strategies are also called direct strategies because the operations directly involve the target language (Taylor, Stevens, & Asher, 2006). L2 reader analyze, synthesize, transform the reading materials to enhance their reading. According to O'Malley and Chamot, specific reading behaviors under this category include translation, practice, grouping, notetaking, deduction, recombination, use of visual images, contextualization, elaboration, transfer, inferencing. Oxford (2013, p.46) summarized cognitive strategies as those that "aid the learner in putting together, consolidating, elaborating, and transforming knowledge." Metacognitive strategies, interchangeably named indirect strategies (Taylor et al., 2006), refer to those strategies that provide indirect support for L2 readers to manage their interactions with reading materials (O'Malley & Chamot; Oxford, 2002; Taylor et al.). Specifically, metacognitive strategies involve readers' applying their thoughts about L2 reading to plan, monitor, and evaluate their activities in the reading process (Li & Munby, 1996). As portrayed by Oxford (2002), exemplary behaviors include using advanced organizers, directing/selecting attention, self-monitoring, and self-evaluation. Metacognitive reading strategies have been viewed essential for foreign language reading

(Anderson, 1999; Baker & Brown, 1984; Oxford, 1990; Oxford, 2001). For example, Baker & Brown noted that competent readers frequently ask themselves whether they have achieved their reading goals or not. The third strategy category, social strategies, denotes the ways learners select to interact with others, such as cooperation with peers, request clarification (O'Malley & Chamot). One of the notable studies adopting this strategy taxonomy was conducted by Sheorey and Mokhtari (2001), who examined metacognitive awareness of reading strategies between ESL college students studying in US and local American college students while reading academic materials. They found both groups reported moderate-to-high degrees of perceived strategy use and those who self-rated high reading abilities reported frequent uses of cognitive and metacognitive reading strategies.

To date, the majority of L2 reading research on reading strategies compared more proficient and less proficient readers (Malcolm, 2009) and has suggested a strong relationship between L2 readers' strategy use and their reading performance. Numerous scholars who take interest in what proficient L2 readers typically do have found they frequently employ reading strategies in ESL (Carrell, Pharis & Liberto, 1989) and EFL contexts (Zhang, 2002; Zhang & Wu, 2009). Moreover, it is evident that metacognitive awareness is a critical element of their strategy employment (Sheorey & Mokhtari, 2001). In the field EAP, successful readers of academic texts also appear aware of their reading goals, select and employ effective reading strategies based on the specific goals, monitor their reading process, and repair emergent reading problems. (Grabe & Stoller, 2002; Li & Munby, 1996; Minguella, Solé, & Pieschl, 2015; Sheorey & Mokhtari). Therefore, Sheorey and Mokhtari emphasized the importance of increasing students' awareness of reading strategies.

(3) Deficits of L2 reading for academic purposes

Up to the present, three major deficits have been found in the field of EAP reading - dominance of quantitative research, static view of L2 reading, and scarce metacognition reading research in EFL academic contexts. Details and consequences are provided below.

A. Dominance of quantitative research

To date, metacognition research has been primarily conducted using quantitative

methods to investigate how metacognition influences reading performance. Numerous researchers are interested in English learners' metacognitive knowledge because they detect a strong relationship between L2 learners' metacognitive knowledge and their reading performance (Carrell, 1989; Saito et al, 1999; Zhang, 1999). For example, Zhang recruited 312 Chinese (PRC) university students to investigate their metacognitive knowledge and employed reading strategies. He concluded that these students were usually aware of their roles as readers of English texts, the demands of different reading tasks, and the effectiveness of certain reading strategies. Ten years later, he and another researcher examined the correlations between senior high school students' English proficiencies and their employed reading strategies via a questionnaire, including three types of reading strategies - global, problem-solving, and support. The responses from 270 subjects reveal whereas all the students ranked problem-solving, global and support in the order of importance, the high-proficiency group reported more frequent use of global and problem-solving strategies than intermediate-and low-proficiency groups. Such quantitative studies can be easily found. Henry-Vega (2004, p.47) stated, "The exception is Li and Munby's study, which reflects the tenets of qualitative research." Thus, there is an important gap in the research concerning metacognition, as quantitative studies provide only a partial picture of how metacognition operates.

B. Static view of L2 reading

L2 learners' reading behaviors have been treated as static. This view fails to take into account the dynamic nature of each individual's reading process, which may change along with his or her beliefs (Nyikos & Oxford, 1993; Zhang, 2010, 2016; Zhang & Zhang, 2013). Souvignier and Mokhesgerami (2006, p.69) noted that "becoming a strategic reader seems to be a long-term process that may last some years." How this process of change occurs remains unclear and thus there is a need to better understand L2 reading, especially the creation and application of metacognition, as a developmental process, not as an artifact fixed in time.

C. Rare metacognition reading research in EFL academic contexts

Several reading researchers, such as O'Malley & Chamot (1990) and Reid (1987), have noted the amount and value of strategy research conducted in ESL settings. One line

of research is comparing strategy employment among readers from different backgrounds. It has been found that ESL students from varied academic backgrounds adopted a wide range of strategies (Adamson, 1993) and employed similar reading strategies used by native speakers of English (Block, 1986). The other line of research is influential factors of ESL learners' reading performance. Reported factors include ESL learners' background knowledge of the reading materials (Adamson, 1991) and strategy monitoring (Carrell, 1989). However, are the findings of the research conducted in ESL settings applicable to EFL contexts? EFL contexts, where learners have less access to English and tend to be more conscious of how they process English texts, is an ideal environment for researchers to explore the use of metacognitive knowledge (Hosenfeld, 1977; Takeuchi, 2003). To date, few attempts have been made in the EFL context. In particular, as Mann (2000), Zhang (1999), and Zuo (2000) pointed out, the reading research on EFL readers' metacognition was inadequate.

To summarize, few studies have been conducted to investigate L2 learners' actual reading process for academic purposes (Henry-Vega, 2004) and metacognition best serves the reading researchers who intend to find out whether and what the participants are aware of and how they perform each reading task (Zhang, 2001). In EFL universities, such as those in Taiwan, undergraduate students usually have an enormous academic English reading load. Therefore, documenting their ongoing metacognitive knowledge and regulation, as Mónos (2005) argued, can help direct English instructors adjust their curriculum and instruction, which in turn will help those students better cope with the heavy demands of the English reading load in their fields of study. In the hope of filling the above-mentioned research deficits, this study was conducted to answer the question: How does a passive EFL university repeater regulate metacognition while reading English texts for academic purposes over time?

3. Methodology

The research participant, Tim, was enrolled in my Freshman English for Non-English Majors (FENM) class and completed this course one year prior to this study. I utilized

multiple research methods, including questionnaire, interview, on-site observation, and textual document. In order to effectively document his account of his academic English reading experiences, I selected as my primary lens of investigation the notion of metacognition, that is, the participant's perceptions of himself and his reading task.

(1) Background information about Tim

Tim comes from southern Taiwan. He viewed himself as a lazy reader, who sought excuses, instead of solutions, whenever he encountered difficult course materials printed in English. In the quote below, he described the negative effects of his laziness:

I think laziness influences my English reading ability greatly. When the requirement is above my ability, I feel frustrated and then my laziness emerges. I feel that my laziness overrides everything. Once my laziness comes up, I look for excuses and then my plans fail. One excuse is reading problems. Another excuse is the weather. (Interview on Nov. 10)

As stated earlier, Tim was enrolled in a mandatory FENM course, which ran the entire academic year and aimed to improve students' English proficiency for general purposes. The reading portion of the course focused on building reading comprehension through a combined focus on intensive and extensive reading. The specific reading skills and strategies taught included skimming, scanning, using contexts and inferencing. I incorporated these skills/strategies into class activities, assignments and assessment. It was these skills/strategies that formed a backdrop to this study.

Tim's first contact with English textbooks in his academic discipline took place when he was enrolled in the semester-long required course, World Civilization, during his freshman year in college. This required course was offered in the spring semester only. The teacher of the course required all the students to read the English textbook titled World Civilizations: The Global Experience (Stearns, 2004). The assessment included three components: a midterm exam, a final exam, and in-class participation. Each exam tested students' knowledge of the history-specific terms from the taught chapters of the textbook and understanding of each historical event. Tim failed this course in his freshman year. Tim

attributed his failure to his making few efforts on English vocabulary and English grammar (Interview on Nov. 10). Tim decided to register for this course with the same teacher in the following spring semester. The contents of the course descriptions were updated during the research year. The teacher assigned a more recently published book, *The Heritage of World Civilizations* (Craig, Graham, Kagan, Ozment & Turner, 2008), which was also printed in English. Tim decided to keep reading the textbook that he had used in his freshman year because he had not closely read it. In the following year, the assessment included a midterm exam and a term paper. The exam was still designed to test the students' lexical knowledge and content knowledge, as in the previous year. The term paper, however, aimed to test the students' ability to synthesize the historical events taught in class and extra readings outside the class.

(2) Data collection

At the end of the final exam in the spring semester, I announced to my FENM students that I would need at least one participant for my study. After I made the announcement, Tim, who majored in history, volunteered to participate in this study. I met him in my office twice a month (see Appendix A for the meeting schedule). The first monthly meetings aimed to detect Tim's metacognitive knowledge of English academic reading. Every meeting involved a questionnaire, followed by a semi-structured interview. The questionnaire included knowledge of himself as a reader of English academic texts and his knowledge of the recurring reading tasks required in his major course. Every interview was conducted in Tim's native language immediately after he completed the questionnaire. I reconfirmed Tim's responses, elicited explanatory remarks, and requested clarification. Every interview was videotaped for later documentation.

The purpose of the second monthly meetings was to document Tim's metacognitive regulation of his academic English reading. In order to help Tim get familiar with the operations for future second monthly meetings, I prepared a passage for him to read during the second meeting in November. This passage, which depicts correlations between birth order and personality, was selected due to its clear structure and inclusion of research studies. While he was reading the passage, I videotaped, observed and took notes of his

reading behaviors. After Tim and I completed our tasks, I conducted an interview, based on my observations, his marks on the text and his writing on the notepad, to document his comments on his reading processing. From December to April, we went through the same procedures during the second monthly meeting. Tim brought his textbook to the meeting, read the English text, and I interviewed him immediately afterwards. In May, I showed him the documentation I have gathered regarding his metacognition of English reading for this history course and asked him to share with me his thoughts about participating in this study.

(3) Data analysis

Because the study aimed at a broad and deep understanding of EFL university undergraduate students' thoughts and strategy employment in actual academic English reading experiences, which were unpredictable, an inductive approach (Strauss & Corbin, 1990) was adopted, in the form of follow-up interview, to confirm or further explore the participant's responses and reading behaviors. Tim's reported accounts were then made into graphs to detect the development patterns. As to his extensive accounts elicited from the follow-up interviews, I adopted open coding (Strauss & Corbin). During the open coding, such organizational devices as computerized files and color coding were used to generate emergent themes and to construct meaningful categories.

The prime feature of the case study method is clearly identifying a case with concrete boundaries in time, space, and practice (Creswell, 1998). This study has clear boundaries - a year-long study on an individual university student's experiences of processing English academic texts in a private university in Taiwan. Since the participant was treated as a case, *within-case analysis* (Creswell) was conducted.

4. Results and discussion

As mentioned earlier, Tim decided to read his old textbook again during his sophomore year. The task that Tim chose for the study was reviewing recently taught material. This section documents Tim's perceptions of himself and this specific reading task during the research year. The data were collected from monthly questionnaires and

interviews to explore Tim's metacognitive knowledge and regulation over time.

(1) Tim's metacognitive knowledge

This section documents Tim's affections and perceptions of self-selected reading task. Tim's remarks are presented to assure trustworthiness and are linked to relevant studies reviewed in the previous section.

A. Tim's perceived motivation

To Tim, motivation "is prerequisite to actions carrying out some thoughts" (Interview on November 21). As mentioned in the literature review section, L2 learners are motivated to achieve two goals - master and performance. In the fall semester, Tim mentioned his master goal was rooted in his interest in English.

I am interested in English. It is a practical language. I can use it for school work and to read the articles on the Internet. Therefore, I must improve my English reading ability. (Interview on November 21)

Tim was motivated not only to improve his reading ability but also to meet his course requirement. As the research year proceeded, Tim's performance goal seemed to carry increasing weight, especially when he repeated the course and felt immediate pressure. His levels of motivation were closely related to his performance goal.

I need to learn to read English texts fast so as to read the English books that'll be on the references for my written report. (Interview on March 20)

My motivation is stronger because of the demand for English in class and for outside readings for the assignments. (Interview on April 24)

My motivation is weaker because I do not need to get extra information to work on the project. (Interview on May 22)

Besides Tim's perceived pressure from the course work, his observation of and collaboration with his classmates appeared to be contributable to his performance goal.

Seeing my classmates engaged in reading the English textbook stimulated me to read it. This drive improved my English reading ability. When I took this course, I generally read the textbook first and then discussed my reading with my classmates. Besides me, quite a few of my classmates failed in this course. Next semester I plan to use the same way to read this textbook. (Interview on November 10)

Tim's recollection of discussing the course material with his classmates supports the essence of Piaget's sociocognitive theory (Piaget, 1977), which asserts that an individual's cognition development is a process of reconstruction, generated from interactions with others who share an intellectual level or a common language. Tim's statements regarding his and his classmates' shared awareness of and affections of the course requirement seemingly directed him to examine his perceptions of reading goal.

During our last meeting in May, he elaborated on his prior comments on the importance of motivation: "When my motivation arose, I made more efforts to tackle problems." This finding supports the previous studies that concluded that L2 learners' motives and goals for learning the target language at least partially account for their strategy use and development (Garner, 1991; Oxford, 1989; Oxford, 2003; Oxford & Nyikos, 1989).

B. Tim's perceived anxiety

Tim repeatedly expressed his anxiety about reading difficulties and his responses to anxiety changed over time. At the beginning of the study, he simply reported the source of anxiety and the consequence of inaction.

When I encounter reading difficulties, I feel frustrated and do not have the motive to find extra information. It is a vicious cycle: The less I read, the less I understand; the less I understand, the less I want to read the text. (Interview on November 10)

In the next two months, he tackled his anxiety by making efforts in advancing his grammatical and lexical knowledge. He even planned to further improve them in the winter vacation. As he returned from the break to retake the course, his high level of anxiety recurred because he realized that his synthesis objective required comprehension of terms

and content knowledge in other fields of study, but he was overwhelmed by his reading load. Despite elevated anxiety, Tim did not give up, he considered anxiety as a driving force pushing him to seek solutions to improve his reading:

My motivation is connected with my anxiety. When I feel anxious, I have the motivation to improve my reading. (Interview on May 18)

Tim remained highly anxious about his course work until May, when he failed in his final project. His anxiety dropped not only because he could spare more time on his other subjects, but he also advanced his strategies to read English texts.

The findings regarding Tim's anxiety over time are evidence to endorse that L2 reading indeed provokes intense anxiety, as Saito et al (1999) maintained. Besides, they portrayed a clear picture of the causes of difficulty in an EAP context - L2 readers' limited grammar knowledge, insufficient lexical knowledge (general and field-related vocabulary), inadequate inter-disciplinary content knowledge across, and overwhelming reading load. More noticeably, the documentation of Tim's self-reported anxiety suggests the dynamic nature of affection. Tim's attitudes toward his anxiety changed, and so did his responses to it. This finding has not been addressed in the current literature.

C. Tim's perceived reading task

In the first month, Tim's reading objective was comprehending 50% of an English text. This objective was based on his self-perceived English reading ability, as he explained below:

I'll be satisfied if I am able to achieve 50% of comprehension. The reason for this objective is that I may give up reading again if I set my objective beyond my current ability or if I insist that I understand every word in the text. Setting this objective, I would understand half of what I read without exhausting myself. I can achieve a balance. (Interview on Nov. 10).

In the meanwhile, Tim exhibited reservations about this reading objective. He stated that his strong motivation to pass this course might drive him to replace his reading objective with a more challenging one (Interview on Nov. 10). In the following month, Tim

reported a higher-level reading objective - synthesizing a historical event under study with previously learned event(s). Tim explained that he changed his reading objective primarily because he was not taking many courses in the fall semester and thus could spend much more time preparing himself well before repeating this course. This updated reading objective remained the same until the end of the research year. When Tim took this course again in spring, he repeatedly justified this objective: "I think synthesizing historical events is crucial and basic. This is why we study history" (Interviews on Mar. 16, Apr. 20, and May 18).

Tim's initial reading objective reflects his knowledge of the test constructs in previous exams and his self-rated English reading ability (5 on a 10-point scale). A month later, Tim changed his reading objective to a more demanding one. This notable change of reading objective signals Tim's strong motivation to be well prepared so as to read better than the previous year. Tim's resetting his reading objective and later maintaining his new reading objective reveal that Tim was an active reader. He stepped out of his comfort zone toward a challenge and later continued embracing this challenge.

Figure 1 documents Tim's perceptions of his reading objectives during the academic year. According to the quantitative data, Tim seemed highly aware of what he needed to do to attain his reading objective every month.

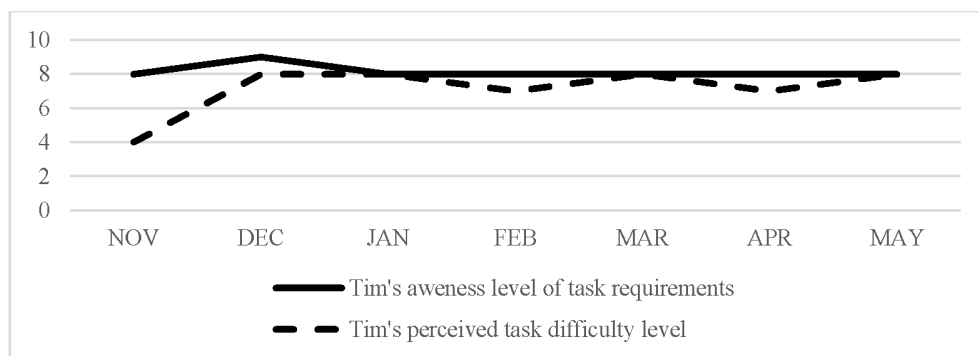


Figure 1. Tim's perceived reading objectives and difficulty levels over time

However, the qualitative data in Table 1 show that Tim's knowledge of the task requirements changed over time. After Tim changed his reading objective, he reported at least one additional task requirement every month. This knowledge-reshaping process came to a halt in April, when he considered it unlikely for him to pass this course.

Table 1. Tim's reported task requirements over the academic year

Semester	Month	Objective	Requirement
Fall	Nov	To comprehend 50% of a text	Average level of English vocabulary and grammatical knowledge
	Dec	To synthesize a recently taught historical event and previously learned historical events	+ Ample text-processing time
	Jan		+ Cross-disciplinary knowledge
Spring	Feb		+ Strong reasoning ability
	Mar	historical events	+ His own interpretation of each historical event
	Apr		+ A solid understanding of learned historical events
	May		No additional reported task requirement

Note. The "+" symbol indicates an additional task requirement Tim wrote on the questionnaire.

In a nutshell, the quantitative results alone would fail to present a complete picture of Tim's knowledge of task requirements over the academic year. Tim's self-reported additions of task requirements during the monthly meetings reveal his accumulated knowledge of task requirement, which occurred after Tim changed his reading objective and when he was enrolled in the same course again. The data above imply a strong link between Tim's strong motivation to pass this course and his refined knowledge of task requirements. Tim's accounts imply that L2 students' motivation to meet the academic demands is not only a key predictor of their strategy use (Oxford & Nyikos, 1989) but also plays a prominent role in their knowledge of task requirements.

As shown in Figure 1, Tim obviously considered 50% comprehension fairly easy. After he replaced this objective with synthesis, he consistently considered this new objective highly challenging. This is in alignment with the qualitative data collected by the monthly questionnaires and follow-up interviews. As shown in Table 2, Tim attributed his

reading difficulty to his language deficiencies in the first month. As the study proceeded, Tim reported more reasons, which were not directly related to his language deficiency.

Table 2. Tim's reported reasons for task difficulty during the academic year

Semester	Month	Objective	Reason for Difficulty
Fall	Nov	To Comprehend 50% of a text	Limited English vocabulary and grammatical knowledge
	Dec	To synthesize a recently taught	+ Limited time to process the text + Background knowledge of the text
	Jan	historical event and previously learned historical events	+ Limited cross-disciplinary knowledge + Weak reasoning ability
Spring	Feb		Lack of additional reported reasons
	Mar		
	Apr		+ Incapability of interpreting each historical event on his own
	May		Lack of additional reported reasons

Note. The “+” symbol indicates an additional reason for the difficulty.

The notable leap of Tim's rated difficulty and the additional reported reasons for the difficulty after he changed his reading objective indicate that Tim considered synthesizing an academic text in English much more challenging than comprehending it. In addition, Tim's self-reported task requirements were exactly his constraints. That Tim's perceived sense of difficulty remained high until the end of the academic year implies that Tim hardly felt ready to achieve his changed reading objective. In one of the meeting Tim expressed his anxiety as he became aware of his constraints:

It's like playing chess. If you know nothing about chess, you can't tell whether your rival is good or poor at chess. On the contrary, if you're good at chess, you immediately know that. The longer I stay in this research project, more new problems (unclear grammatical points, terminology that cannot be found in any dictionary, insufficient content knowledge) come up and thus my anxiety increases. (Interview on April 20)

Tim knew what constraints kept him from reaching his new reading objective, but he did not seem to consider himself capable of overcoming all those constraints. What was actually holding him back was probably his full attention to his weaknesses and neglect of his strengths in using his reading strategies.

(2) Tim's metacognitive regulation

Tim's text-processing actions presented in this section were gathered from three sources to achieve data triangulation: my observations of Tim's reading process, textual documents used in the reading process, and Tim's written report as well as oral accounts of his reading behaviors (see Appendix B for a sample log keeping).

A. Tim's reading behaviors

Tim's observed reading behaviors illustrate that the textual length and the number of unknown words determined Tim's text-processing sequences. To review a long text that contained many unknown words, Tim adopted the Top-down Processing Model. During each of the first four months, each text Tim reviewed was long and contained a lot of unknown words. After skimming the text to grasp the main idea, Tim located key words and important concepts to build an outline on his notepad. Next, he decoded the unknown words. Finally, he edited his notes. Tim exhibited a good command of his knowledge of the reading task. Aware of the task requirements and his constraints regarding those requirements, Tim chose the reading strategies that he thought could compensate for those limitations. For example, he knew that making a synthesis would require considerable text-processing time unless he read strategically. To efficiently read long texts, Tim paid attention to key words, skimmed for main ideas, and paid attention to topic sentences. By contrast, Tim adopted the Bottom-up Processing Model when the text was short and included few unknown words. He started reading by decoding unknown words, proceeded to gather the information relevant to the key points, and finally searched for the relationships between the historical event under study and those he had read before. The correlation between textual length and text processing types that Tim demonstrated has not been found in current literature of L2 academic reading.

The observed data also demonstrate that Tim used his perceptions of the reading task

to regulate (plan, monitor, and evaluate) his reading. First, he knew that academic English reading would take processing time, and so he always skimmed through the text under study to estimate the amount of unknown words and the length of the text. The estimates would be helpful for him to arrange his time for each following reading move. Second, Tim regarded an adequate knowledge English vocabulary vital to achieve his reading objective, and therefore he marked unfamiliar words and looked them up in dictionaries. Similarly, Tim used Wikipedia to find the limited cross-disciplinary knowledge that the task required. Besides, Tim was aware synthesis requires much reasoning and thus he paid attention to key words and headings to construct an outline. Finally, Tim used his perception of the reading task to evaluate his reading process and outcome. He used this knowledge to edit his preliminary outline, graph, and timeline.

B. Tim's reported strategy employment

After presenting Tim's metacognitive knowledge, I'll turn to Tim's strategy employment and evaluation of those employed strategies.

As shown in Table 3, Tim's reported reading strategies reveal his employment of a fairly wide array of reading strategies. Tim reported his employment of cognitive and metacognitive strategies listed on the questionnaire. As mentioned previously, cognitive strategies are those involved in the analysis, synthesis, or transformation of learning materials (O'Malley & Chamot, 1990). He always used translation, rereading, guessing at words from the contexts, visualizing, and taking notes. He also paraphrased sentences and paid attention to transition words during the first three months. As to metacognitive strategies, which involve planning, monitoring, and evaluating, Tim picked key words, used his background knowledge, and skimmed for main ideas all the time. Besides, he sometimes made predictions, scanned the reading material for specific details, paid attention to topic sentences and asked himself questions. Only one social reading strategy - seeking or clarifying information online - was documented from the questionnaire. Tim reported his occasional use of encyclopedia websites to access content knowledge in history and other fields. During follow-up interviews, Tim mentioned he often discussed the text materials with his classmates in his freshman year. When he repeated the course, he turned to his teacher instead because he found he was

the only student using the old textbook. Tim's employment of cognitive/metacognitive reading strategies and self-reported social reading strategies resonated with the findings reported by Li and Munby(1996) and Zhang and Wu (2009).

Table 3. Tim's reported reading strategy use and evaluation over time

Reading Strategy	Fall	Spring			
	Dec	Jan	Feb	Mar	Apr
Translation	✓(P)	✓(P)	✓(P)	✓(P)	✓(P)
Paraphrasing	✓(P)	✓(P)	✓(P)		
Rereading	✓(P)	✓(P)	✓(P)	✓(P)	✓(P)
Guessing at words from the contexts	✓(P)	✓(P)	✓(P)	✓(P)	✓(P)
Visualizing	✓(P)	✓(P)	✓(P)	✓(P)	✓(P)
Paying attention to transition words	✓(N)	✓(P)	✓(P)		
Picking key words	✓(P)	✓(P)	✓(P)	✓(P)	✓(P)
Making predictions	✓(P)	✓(N)	✓(P)	✓(P)	
Using your background knowledge	✓(P)	✓(P)	✓(P)	✓(P)	✓(P)
Skimming for main ideas	✓(P)	✓(P)	✓(P)	✓(P)	✓(P)
Scanning for specific details	✓(P)	✓(P)	✓(P)		
Paying attention to topic sentences	✓(P)	✓(P)	✓(P)		
Taking notes	✓(P)	✓(P)	✓(P)	✓(P)	✓(P)
Self-questioning	✓(P)	✓(P)	✓(P)		
+ Using the Internet to find information	✓(P)	✓(P)	✓(P)		
Number of employed strategies	14	11	12	12	13
Number of perceived helpful strategies	13	10	12	12	13

Note. "✓" indicates the strategy which Tim employs. "P" and "N" indicate Tim's positive and negative responses to strategies, respectively. "+" indicates a new reported reading strategy.

It is also noticeable that Tim's strategy employment changed over time. He used almost all the reading strategies when he read to synthesize texts for the first time, and then he repeatedly used old and new strategies. During the last meeting, Tim used the image of playing tennis to exemplify his intention to refine his employment of reading strategies:

Reading the English course book is like playing tennis. If you do not know how to play tennis, you may not even be able to serve the ball, and thus you'll not enjoy this sport. Once you know how to play tennis, you'll find it fun... Both take a lot of time to practice. A new tennis player needs to spend much time practicing hitting a tennis ball against the wall with the same posture. There are various postures for practice. Practicing the same posture is like practicing the same grammar point. (Interview on May 18)

Tim was uncertain of how to achieve synthesis and thus experimented as many reading strategies as he could in the first month. Afterwards he made consistent efforts to detect which reading strategies were suitable to him and which ones were not. To Tim, each posture was a reading strategy, which required repeated practice before it became ingrained in an individual's strategy repertoire. The increasing knowledge of reading strategies in turn made Tim a more diligent reader. In the last month, Tim said, "My increasing knowledge of reading strategies overcame my laziness" (May 18). The numbers of his employed reading strategies fluctuated, suggesting dynamic nature of EFL reading.

It is also found that Tim's employment of reading strategies differed during the two semesters. Tim used 11 reading strategies at the end of the fall semester, but he later used more strategies when he was enrolled in the course again. The increase in the number of employed reading strategies might have resulted from his repeated enrollment in the course. Tim's remarks about his teacher and classmates below imply his repeated enrollment in the course generated the increase in his self-reported mounting task requirements and difficulty, which in turn pushed Tim to seek and experiment more reading strategies.

My teacher once told me and my classmates that he did not want us to be lazy or to ask him questions without making efforts on our own first...All the boys in my class are afraid of English, and so everyone panicked when the teacher wanted us to read English articles and books to write the report. We all share the same anxiety and motivation to improve our English reading ability. (Interview on April 20)

Tim's anxiety drove him to become an active reader. He started observing how his

classmates read the English text (Interview on May 18) and asked himself more frequently to what extent he could connect the historical event under study to his previously learned events. Tim used increasing top-down reading strategies (scanning for specific details, and paying attention to topic sentences) and used fewer bottom-up reading strategies. As mentioned in the literature review section, proficient ESL readers preferred top-down strategies (Block, 1986; Carrell, 1989; Zhang, 2001). Tim's consistent employment of top-down strategies imply that in the EFL context, he attempted to become a more proficient reader of English texts. Besides, he used the Internet to find the information more frequently than the fall semester to augment his limited content knowledge. Tim's enrollment in the course generated the mounting task requirements and difficulty, which in turn pushed Tim to seek and employ more reading strategies.

C. Tim's evaluations of his reading strategy use

As revealed in Table 3, Tim consistently made positive comments on eight strategies he always used translating, rereading, using contextual clues, visualizing, picking key words, using his background knowledge, skimming for main ideas, and taking notes. Half of them are cognitive and the other half metacognitive. Tim was aware these eight strategies helped him tackle his three deficiencies - English vocabulary, reading time, and reasoning ability. Besides, Tim considered the additional employed social reading strategy helpful. Tim was also able to justify his negative evaluation on paying attention to transitions. His limited English vocabulary prohibited him from locating transition words and his weak logic occasionally resulted in wrong predictions of the text. Tim's evaluative and explanatory remarks suggest that Tim was highly aware of his strategy repertoire.

Table 3 also displays the differences of Tim's self-evaluated strategy uses between two semesters. Tim reported fewer helpful reading strategies at the end of fall semester, but he reported more strategies in the spring semester. Repeating the course seemed to make Tim reexamine the reading strategies that he had perceived negative and evaluate new employed strategies. His efforts appeared to pay off because he found more and more reading strategies that helped him cope with the new reading objective. Furthermore, Tim occasionally reported negative comments on his strategy employment in the fall semester. However, in the spring semester, Tim considered all the strategies he employed helpful.

This disparity suggests that Tim's strategy repertoire expanded. That is, he found additional strategies that suited him. During the first meeting, Tim was dissatisfied with his knowledge of reading strategy, but he was hopeful to advance through routine reading practice.

My current 'tool kit' is not good enough. There should be some other reading strategies that I am not aware of. Through reading practices I should be able to find more. I probably did not notice that some tools are not suitable to me. If I use another tool, I may read better and more efficiently...Discovery more reading strategies and then using them will improve my English reading ability in no time. (Interview on Nov 10)

When Tim was told to comment on his knowledge of reading strategies, he sounded more satisfied.

At first I had insufficient knowledge of reading strategies. Now, I am more sure these are all the reading strategies I can think of. Over the past months, I came to realize that my knowledge may not be perfect, but should be good enough. Despite they cannot solve my current problems, such as poor time management, I think these strategies are sufficient to me. I think my knowledge of reading strategies will keep going up. (Interview on May 18)

To sum up, this case study fulfills Hu's call for research endeavors on L2 learners' lived experiences (Hu, 2016) by portraying how a passive EFL university student strived to become active. This student frequently (re)visited his current knowledge of his self-selected task and modified his reading objectives, perceptions of task requirements, and perceptions of task difficulty. As his metacognitive knowledge evolved, his metacognitive regulation developed over time. He used his refined knowledge of his reading task (reading objective, task requirements, and difficulty) as the foundation to plan, monitor and evaluate his strategy use in the hope of finding the reading strategies that suited himself. Through repeated trials of reading strategies, and immediate self-evaluations of those employed strategies, he advanced his knowledge of reading strategies in quality. He managed to

identify which reading strategies suited himself and which ones did not. His strategy-searching endeavors consequently generated his increased satisfaction with his strategy employment.

5. Conclusion and implications

This case study has both research and pedagogical values. From a research perspective, this study provided a particular story of EFL reading in which a passive second-year undergraduate student demonstrated the ability to develop, over one academic year, his metacognitive regulation of academic English reading. This finding suggests that learner autonomy may develop through practice. The portrayal of his ability to adjust both his reading objectives and strategy use in response to his changing beliefs of himself and his reading context adds to our understanding of reading in the university level EFL context. Of particular note is his adoption of the complex reading skill of synthesizing. That he was able, on his own, to perceive the need for synthesizing across texts is an intriguing finding with respect to our emerging understanding of the role of metacognition in foreign language reading. The difficulties he had in actually creating such syntheses are likewise a valuable finding in the EFL reading field. More qualitative and longitudinal research is still needed to shed insight on L2 academic reading research. Future studies can be conducted to examine metacognitive strategy change over time in EFL students with different English proficiency levels, students in other disciplines, and students with other cultural and L1 backgrounds.

The findings generated from this qualitative longitudinal investigation also provide important pedagogical insights, especially as related to higher education and English language instruction in the Taiwanese context. First, it is imperative to encourage EFL undergraduate students to read their academic English course books as often as they can, and more importantly, as Taillefer (1996) asserted, to specify their reading objectives so as to facilitate apt strategy selection and use. It is evident in the study that the EFL university undergraduate's developmental metacognition, fueled by his growing sense of purpose in reading, was a driving force in his better management of his learning. Therefore, EFL

reading teachers should foreground the importance of setting a purpose in reading in their instructional practice.

In addition, the participant's developmental metacognitive knowledge signifies the dynamic nature of L2 reading in EFL university settings, as asserted by Zhang (2016). Thus, reading teachers are advised to create a reflection sheet to guide their students to regularly revisit their current metacognitive knowledge. This sheet should be designed to encourage students to contemplate their reading objectives, the requirements, and the difficulty to achieve those objectives. Another suggestion is related to assessment. L2 learners have been traditionally labeled as successful or less successful on the basis on their reading performance. A significant finding generated from this study is that the participant felt the sense of accomplishment after making continuous efforts to become effective readers of academic English texts. This positive perception of his reading practices would be unexpressed if his testing grades had been the only criterion used to define success. Not taking into account students' efforts to improve their reading skills may lead to a vicious cycle - reduced interest in reading English texts and then poor performance in major courses. If education means provoking changes in students, it would be unwise to only value students' reading outcomes and neglect their metacognitive endeavors in the course of striving to become better readers. Therefore, L2 reading educators need to revisit their definitions of success while designing and administering assessment. In this regard, portfolio assessment is a feasible way to accommodate students' ongoing metacognitive endeavors and reading performances. All the evidence that signifies effort - (re)set reading objectives, (re)locate their task requirements and difficulties, constant search for solutions (not excuses) should be valued.

Acknowledgement

This study would not have been completed without the research participant's trust in me and engagement in the study for the entire academic year. I would also like to give my sincere appreciation to the anonymous reviewers and the editorial team for their valuable

comments on this research paper.

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投稿收件日：2018 年 11 月 10 日

接受日：2019 年 11 月 18 日

APPENDIX A**Data-Collection Procedures**

Meeting	First	Second
Fall Semester		
NOV	Questionnaire & interview to document Tim's initial metacognitive knowledge	Reading practice and interview to prepare Tim for my data collection of his metacognitive regulation
	Monday 17:00-18:45	Thursday 10:00-12:00
	Midterm Exam	
	Questionnaire & interview to document Tim's developmental metacognitive knowledge (DEC-MAY)	Reading practice and interview to document Tim's developmental metacognitive regulation (DEC-APR)
DEC	Monday 17:00-18:50	Thursday 14:00-16:10
JAN	Monday 17:00-18:40	Thursday 14:10-16:10
	Final Exam	
Spring Semester		
FEB	Monday 16:30-18:10	Friday 10:40-12:40
MAR	Monday 16:30-18:25	Friday 10:30-13:30
APR	Midterm Exam	
	Monday 16:30-19:00	Friday 10:30-13:15
MAY	Monday 16:30-19:20	nterview to document Tim's reflections on his participation in this study
		Friday 10:30-11:30
JUN	Final Exam	

APPENDIX B

A Sample of Log Keeping of Tim's Reading Behaviors

The 2nd Reading

Duration of reading: 55 Minutes

Task objective: Synthesis

Observation of Tim's Reading Behaviors	Tim's Descriptions/Explanations/Evaluation
<p>Read 1st and last paragraphs. Traced each line. Put proper nouns in boxes and underlined new vocabulary. Wrote an outline on a notepad. Returned to the page 1. Used Gmail, Google Dictionary and Frengly.com. After using the Internet, he read the text for a while and wrote key words and the paraphrased sentences on the notepad. After checking up the words, he wrote the translation on the textbook. Turned to page 1 again and read the chapter again. Took more notes on the notepad.</p>	<p>Locating the title, composing the outline on the notepad, skimming the pages to locate new words and key words, looking up the words and wrote down the Chinese translation, reading the same pages again, writing interpretation of the text on the notepad, organizing notes, and composing timeline are all helpful to me.</p>
Document during Tim's Reading	Tim's Descriptions/Explanations
<p>(On the textbook) Proper nouns were boxed; new words were underlined. (On the notepad) The chapter and subtitle were on the notes, under each of them were translated words or sentences in Chinese.</p>	<p>I put proper nouns in boxes and underlined new vocabulary so that I wouldn't need to look up the boxed words again when I reread the chapter. I returned to the 1st page because I didn't finish reading it. I used Gmail to find Google Dictionary and Frengly.com, which I often use to read English textbooks. Both are search engines to help me with translation. If I do not understand a whole paragraph, I will type the whole paragraph on the dictionary to get the translation of the whole paragraph.</p>