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An Investigation of the Effects of Discourse Types on Taiwanese College Students' Reading Strategy Use

Jiun-Iung Lei
Indiana University of Pennsylvania

AN INVESTIGATION OF THE EFFECTS OF DISCOURSE TYPES ON TAIWANESE COLLEGE STUDENTS' READING STRATEGY USE

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Jiun-Iung Lei

Indiana University of Pennsylvania

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Indian University of Pennsylvania
The School of Graduate Studies and Research
Department of English

We hereby approve the dissertation of

Jiun-Iung Lei

Candidate for the degree of Doctor of Philosophy

07/30/09	Signatures on File
	Dr. Jeannine Fontaine, Ph.D. Associate Professor of English, Advisor
07/30/09	Signatures on File
	Dr. Nancy Hayward, Ph.D. Associate Professor of English
07/30/09	Signatures on File
	Dr. Gary Dean, Ph.D. Professor of Adult Education

ACCEPTED

Signatures on File	
Timothy P. Mack, Ph. D. Dean The School of Graduate Studies and Research	

Title: An Investigation of the Effects of Discourse Types on Taiwanese College Students' Reading Strategy Use

Author: Jiun-Iung Lei

Dissertation Chair: Dr. Jeannine Fontaine

Dissertation Committee Members: Dr. Nancy Hayward
Dr. Gary Dean

The purpose of the study is to investigate the influence of two different expository structures, collection and problem/solution, on Taiwanese L2 readers' strategy use during their L2 English reading. The impact of two expository structures, collection and problem/solution, on Taiwanese L2 readers' strategy use during real-time reading is the main focus of the study.

In Phase I, the administration of an English reading proficiency test to a sample of 479 students allowed me to identify 280 intermediate Taiwanese L2 English readers. After completing this reading proficiency test, one hundred and sixty-seven participants read a passage written in the 'collection' structure, and one hundred and thirteen participants read a passage containing the same information, but organized in the 'problem/solution' structure. After their reading, they filled in a reading strategy survey based on their reading of the passage, and took a reading comprehension test based on the passage they had read.

In Phase II, a smaller group of 15 intermediate-level L2 English readers were selected from the participants at one institution. The 15 participants were asked to

read a longer expository text organized in the collection mode. After they read the text, through an interview, they explained their reading processes. Later, the same procedure was followed, except the same group was given a different longer text, this one written in the problem solving mode.

In Phase I of the study, the *t*-test results showed that there were significant differences between the two discourse types, problem-solving and collection, in the participants' use of global reading strategies ($p<.01$). According to the data analyzed from the participants' think-aloud verbal reports in Phase II, within the three categories of reading strategies proposed by Mokhtari and Sheorey (2002), the participants employed the reading strategies more frequently when reading collection texts than when reading problem-solving texts. The three categories included global, problem-solving, and support strategies. The results do seem to suggest that there is a link between the Taiwanese college students' choice of reading strategies and discourse types.

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Many analogies have been applied to the process of dissertation writing. Mine was like a lone trek in a strange land which most of the time was an isolated and lonely experience. Fortunately, with guidance and support from others, I did not lose my way in the terrain and was able to complete my journey with rewarding experiences. Thus, I would like to express my deep gratitude to a group of people who made the journey, my dissertation writing, possible.

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CHAPTER 1

INTRODUCTION

The Conceptual Background of the Study

As a L2 English learner, I have realized that the effective use of reading strategies is beneficial to my own English reading; given this, I have gradually come to recognize the importance of reading strategies in reading comprehension generally. Employing reading strategies, such as guessing meaning from the context and noting the characteristics and organizational pattern of a text, makes reading English an easier task for me; and I assume this must be true for other readers as well. However, from my past English reading experiences, I have found my application of reading strategies to differ across various discourse types. For instance, I tend to use a wider variety of reading strategies when reading fiction than when reading expository texts. Similarly, as a language teacher, by asking some of my college students in Taiwan how they comprehended English texts during reading tasks, I noticed that they seemed to utilize different strategies in response to various discourse types. This perplexing phenomenon compelled me to speculate that there exists a link between discourse types and learners' reading strategies.

The research literature tends to support the experiences I have had, both as a reader and as a teacher. For instance, Kintsch (1998) pointed out that text

comprehension requires special strategies and knowledge. In particular, Kintsch stated that “all text genres require domain-specific strategies and knowledge” (p. 167). In line with Kintsch’s assumption, this dissertation aims to explore the relationship between discourse types and L2 English learners’ strategy usage. While Kucan and Beck (1996) indicated that psychological inquiry into the reader’s cognitive process has started to examine the influence of discourse types, only a small number of studies have included L2 English readers in Taiwan as their participants. In order to better understand Taiwanese English L2 learners’ application of reading strategies in response to discourse types, this study includes this specific population as its participants. Additionally, few studies have focused on the link between discourse types and learners’ reading strategies. Thus, this study is intended as an investigation of the influence of two western expository structures, namely collection and problem/solution, on the reading strategies used by Taiwanese English L2 speakers during real-time reading.

Sun (2003) claimed that Meyer and Freedle’s (1984) framework for classifying texts has been the most influential and generally accepted. While Sun’s claim might be questionable, it is a fact that Meyer and Freedle’s (1984) model has been used to classify western texts. Meyer and Freedle (1984) identified five basic types of discourse organization: collection, description, causation, problem/solution, and

comparison. In thinking of these types, I was curious to see whether, and if so, how the overall organization of a western discourse type would impact L2 English learners' strategic processing. Regarding overall discourse organization, the collection structure and the problem/solution occupy the two opposite ends of a continuum. From a western perspective, Meyer and Freedle (1984) claim that problem/solution is tightly structured, while collection is loosely structured. In collection texts, as the name implies, information is simply presented in a list format, with the items following one another in order. Description texts represent a quite different type of organization, in which one element of a text is subordinate to another. Presenting a number of attributes, specifics, and setting, the description type offers more information about a topic than does the collection text. In causation texts, ideas are not only grouped by time, but are also causally related. In problem/solution texts, information is presented in a linked fashion, and reasoning proceeds in an organized way toward a conclusion. On a different scale, comparison texts are organized on the basis of similarities and differences, instead of being organized on the basis of time and causality.

A passage written in the collection discourse organization is nothing but a list of ideas associated together in some way (Meyer and Freedle, 1984). A collection text is loosely structured, since each idea is independent of the others. The listing is

more organized only when it is sequenced (e.g., by time of occurrence). As to the discourse arrangement in the problem/solution structure, Meyer and Freedle (1984) indicated that "it has all the organizational components of causation with the addition of overlapping content between propositions" (p. 123). For the overall discourse organization, the problem/solution and the collection mode are organized differently. Given these strong differences, I wondered whether the overall organization of a western discourse would influence the L2 English learners' strategies use. It is worth keeping in mind that the discourse types, as well as the strategy classifications, used in the present study have been developed in a western framework. I have not tried to study in depth the presentation of the traditional Chinese discourse types in classrooms, and it was not possible to ascertain whether the participants had formal training in strategy use in their Chinese reading, though Chinese reading classes normally do not involve explicit training in strategy use. It is difficult to speculate on what effect the learners' previous reading experiences in Chinese might have had on the ways in which they approach texts in English.

In offering a definition of *genre* or *discourse type*, Swales (1990) indicated that the elements of a genre are a set of communicative events in which the participating members share communicative purposes. These shared communicative purposes are recognized by the expert members of a discourse community and influence features of

a genre. As a result, the schematic structure of the discourse and the participating members' choice of content and style are under the influence of the rationale embedded in a genre.

By the same token, Dudley-Evans (2005) noted that " genre is a means of achieving a communicative goal that has evolved in response to particular rhetorical needs and . . . will change and evolve in response to changes in those needs" (p. 219). In an earlier work, Brooks and Warren (1950) identified four basic kinds of discourse: exposition, argument, description and narration. According to Brooks and Warren, these basic types are a manifestation of the writer's intentions to inform or communicate with the reader. That is, the four basic types of discourse correspond to the different types of intention that a writer has in communicating with the assumed reader. Considering the taxonomy of discourse organization as proposed by Meyer and Freedle (1984), in this study I am looking at texts classified as expository text in the Brooks and Warren (1950) framework.

If discourse type or genre is an indication of the author's intention toward the assumed reader, it is possible that the reader may not have the ability to recognize the type if the reader does not have a familiarity with different types of discourse. For instance, a reader from a non-western culture might not be able to identify the discourse organization of a problem-solving text. Johnson and Mandler (1980)

pointed out that a reader develops knowledge about a given type of text structure through gradual generalization of repeated experience. In other words, without a long-term experience with a given discourse structure, a reader will not have proper knowledge about it. In reality, the number of discourse types is so large, and the realization of such types so diverse, that some researchers feel that the number of texts encountered by any given reader is not capable of representing the full range of discourse types (Urquhart and Weir, 1998). Such an observation is in agreement with Hoey's (1983) comment that ". . . it would of course be a fool's errand to attempt to describe all discourse patterns, even if the field were narrowed primarily to the discourse patterns of written monologues only" (p. 34). Therefore, it seems unlikely that even experienced readers have all the experiences relevant to the large number of discourse patterns.

From a reader's perspective, De Beaugrande (1981) stated that "[many] text types are vague, intuitive heuristics used by readers to tailor their processing to individual examples" (p. 307). The implication is that readers utilize the discourse types they are aware of to decode a text regardless of the text structures the writers used to encode their messages. Thus, while discourse type or genre is considered to be a means of reaching communicative goals by the writer, the success of the communication in part depends on the "conventional schematic structures of

discourse" (Kintsch & van Dijk, 1978) stored in the comprehender's memory. Carrell and Eisterhold (1983) commented that "[efficient] comprehension requires the ability to relate the textual material to one's own knowledge" (p. 557). It can be inferred that the readers' performance of texts is governed both by the various textual and communicative demands of different discourse types and by the limitations of the innate schematic structures present in the readers' minds.

Because the comprehension of a text depends on the reader's knowledge, defining the phrase *discourse type* or *text structure* is a thorny issue (Roller, 1990). According to Roller (1990), who actually uses the phrase *text structure*, the reality of these structures "lie[s] somewhere in the interaction between reader and text" (p. 81).

In this study, I use the term *discourse type* as an umbrella term referring to the characteristics of a text which the writer uses as a means to achieve communicative goals and to contain similar expressions such as text types, text structures, rhetorical structures, and genres. Naturally, as an umbrella term, *discourse type* includes the kind of text structure being considered here, which specifies the interrelationships among items of information (Meyer & Freedle, 1984). The term also covers specific features of the text such as topic sentences, pointer words, signals (i.e., first, second, third) and so on, which serve as signals to the reader regarding the relationships of ideas to each other in a given text.

General Purpose of the Study

Meyer (1984) considered the communication process between writer and reader as a dual problem-solution task. At one end of the communication process, employing knowledge about topics, audiences and writing plans, a writer tries to satisfy the goal of a particular writing task, creating a written discourse which corresponds to a subset of the cognitive representation in her mind. Likewise, at the other end of the communication process, a reader is engaged in a problem-solving task in which she is expected to create a cognitive representation similar to that of the writer.

Considering discourse types or genres as a means for writers to achieve communicative goals (Dudley-Evans, 2005), I am interested in learning whether and in what ways L2 English readers adjust their strategy use to comprehend expository texts according to different discourse organization used by western writers. Thus, this study is intended as an investigation of the influence of two expository structures, collection and problem/solution, on Taiwanese L2 readers' strategy use during real-time reading.

Hypotheses

The main hypothesis to be considered in this study is the following: there are significant differences between the two discourse types, problem-solving and collection, in the participants' use of global reading strategies.

Research Questions

In the light of the scant research conducted on the influence of discourse types on the learner's choice of strategies, I developed the following set of research questions to be addressed in this study.

1. What reading strategies are used by intermediate L2 English readers at Taiwanese colleges when they read English texts written in the discourse types of collection and problem/solution?
    a. How do the students' reading strategies differ when reading English texts written in the two discourse types?
    b. Is there a link between the choices made by these students and the text organization?
    c. What signals in the texts seem to serve as signs of organizational intent for these readers?
2. Which of the two discourse types, collection or problem/solution, seems to create more difficulties for intermediate-level L2 English readers at

Taiwanese colleges? Given the testimony of these readers, what are the reasons for the difficulty?

Study Design

I addressed these questions by using three data collection instruments: self-report surveys, comprehension questions based on a short passage, and think-aloud verbal reports conducted with Taiwanese English L2 learners who were asked to read two reading passages written in the discourse types of collection and problem/solution. In Phase I of the study, I selected a passage and rearranged the information it contains into the two chosen discourse types, collection and problem/solution. In Phase II, I utilized a longer second expository text written in the problem/solution mode and an additional one composed in the collection mode for the participants to read. As participants read, they responded to questions in a modified version of think aloud protocol. Details about the research site, participants, data collection and data analysis methods are presented in Chapter 3.

Significance of the Study

Anderson (1991) noted that "[recently] there has been a shift in attention from a focus on the product of reading (such as a score on a reading comprehension test) to an emphasis on determining the strategies that readers use in various reading contexts" (p. 460). Thus, the relatively new research area focusing on the effects of

discourse types on the ESL/EFL learner's use of the second language reading strategies holds promise for future study.

Singer and Leon (2007) noted that typically, "a coherently organized text facilitates the reader's comprehension and [her] subsequent task performance" (p. 20), but the effects of 'well-organized' texts on the L2 English reader's strategic use still remains to be answered. Because few studies have focused on the link between western discourse types and L2 English learners' reading strategies, in this study I scrutinize two types of expository texts which had different discourse organization. Thus, this dissertation will be beneficial to language teachers since it fills in a gap in our knowledge about learners' choices and use of reading strategies. While L2 English learners' application of reading strategies and their reading comprehension are two different things, once language teachers have a clearer understanding of the relationship between L2 readers' strategic use and written texts, they can adjust their teaching accordingly to help students become more aware of important features related to text organization.

Definitions of Terms

The following are the definitions of the key terms used in the dissertation.

Language Strategies: "specific actions taken by the leaner to make learning easier, faster, more enjoyable, more self-directed, more effective, and

more transferable to new situations" (Oxford 1990, p. 8). The learner is either conscious or partially conscious of the strategies he/she employs (Cohen, 1998).

Discourse type: an umbrella term which includes similar expressions such as text types, text structures, rhetorical structures and genres.

Content schema: the background knowledge a reader brings to a text (Carrell 1987).

Formal schema: the formal or rhetorical organizational structures of different types of discourse (Carrell 1987).

CHAPTER 2

REVIEW OF THE RELATED LITERATURE

Introduction

The first section of this chapter focuses on the definition of the term *strategies* in a general sense, particularly with respect to language learning. In the remaining sections in this chapter, I will do the following: (1) discuss the importance of reading strategies; (2) cover research on some of the factors influencing a learner's choice of strategies; (3) examine Chinese expository text types (4) focus on discourse types as a factor influencing a learner's choice of reading strategies; and finally (5) discuss research on reading behaviors.

Language Learning Strategies

Cohen (1998) offered a more recent view on the issue of defining *strategies.* Cohen commented that the definition of the term *strategies* includes those actions that are clearly aimed at language learning, as well as those that may lead to learning but do not ostensibly have learning as their main goal. As indicated by Cohen (1996), language-learning strategies are clearly aimed at language learning, while language-use strategies are "those that may well lead to learning but which do not ostensibly have learning as their primary goal" (p. 11).

According to Cohen (1998), the term *strategies* is generally used to refer to general approaches and to specific activities undertaken in the course of learning and using a second language. In addition, Cohen (1998) divided the category of specific strategies into sub-strategies such as checking whether a text is coherent or not during a reading task. In this way, these specific strategies can be divided ad infinitum.

Cohen (1998) pointed out that the role of consciousness is closely related to the concept of strategies. Based on Schmidt's (1994) studies, Cohen (1998) stated that "language learning strategies are either within the focal attention of the learners or within their peripheral attention" (p. 11). In other words, Cohen thought that language learners are either conscious of or partially conscious of their use of language strategies. According to Cohen, there is a difference between a strategy and a process. If the use of a strategy becomes so automatic that the learners are not conscious of it, this kind of behavior cannot be referred to as a *strategy*, but rather as a *process*.

Cohen (1998) indicated that language learners can improve their language performance if instructors can help them reinforce strategies that enable them to speak the target language more effectively. If the language teachers explicitly describe, discuss and reinforce strategies in the language classrooms, their instruction can raise

the learner's conscious awareness of these strategies and this increased awareness will in turn have positive impacts on the learner's performance on language tasks.

According to Zhang (2003), early researchers in second language acquisition (SLA) searched for the strategies used by successful and unsuccessful learners. This research trend was driven by the notion that giving less successful learners access to a large repertoire of effective learning strategies would enhance their language-learning efficiency. Reiss (1981) noted that establishing what constitutes a successful learner and determining what strategies and techniques the successful learners use are steps we can take toward finding ways that the unsuccessful learner might be helped by the successful learner. Rubin (1975) indicated that ". . . by considering how [the good language learner] is successful, what strategies, what cognitive processes he uses to learn a language, we may be led to well-developed theories of the processing of linguistic information which can be taught to others" (p. 49).

Zhang (2003) further noted that, in this early body of language learning strategy research, the terms *strategies* and *tactics* tended to be used interchangeably. As Zhang noted, different terms such as *techniques*, *tactics* and *moves* were in fact used interchangeably with the term *strategies* in the early LLS (language learning strategy) studies (Zhang, 2003). In fact, a range of terms available in the literature seem to refer to roughly the same, or overlapping concepts; these include the terms *techniques*

(Stern, 1975), *tactics* (Seliger, 1984), and *moves* (Sarig, 1987)—to name a few. Given this, it is somewhat problematic to refer to the various cognitive or metacognitive processes that this set of terms refer to.

Schemeck (1988) made a distinction between the two mostly commonly used terms. For Shemeck, the term *tactics* refers to the learners' specific activities, while *strategies* refers to their more general approach or plan. Shemeck observed that in this sense the meanings of the two terms are in accordance with the dictionary definition and the military usage. That is, tactics are the observable activities by which certain strategies are being carried out.

In actual usage, the terms *strategies* and *tactics* tend to co-exist in a hierarchical structure. As an umbrella term, the term *strategies* is generally used to refer to a higher level cluster of learning activities that function to produce a unified learning outcome (Shemeck, 1988). The learners' strategies determine their choice of tactics. Schemeck (1988) further suggested that the tactics can be divided into two sub-groups: those that are memory-directed and those that are comprehension-directed.

Likewise, Anderson (2003b) considered strategies as conscious actions which language learners employed to improve their learning. In addition, he indicated that strategies can be either "observable" or "mental" as follows:

Strategies may be observable, such as observing someone take notes during an

> academic lecture and then comparing the lectures notes with a chapter in a textbook in order to understand and remember information better, or they may be mental, such as thinking about what one already knows on a topic before reading a passage in a textbook. (p. 3)

Oxford and Crookall (1989) stated that if the researchers could come to some consensus on the definitions of various strategies, this endeavor would help the field greatly. However, since there are no agreements on an overall, hierarchically organized LLS taxonomy and on the way of defining a given strategy or clusters of strategies, this issue is far from being settled.

Zhang (2003) noted that, even though Cohen's proposal regarding the distinction between strategy and process is feasible, it does not solve all of the definitional problems involved. The task of defining and categorizing strategies is still compounded by the various operations that any given strategy entails. For instance, a cognitive strategy such as language learners' checking a difficult sentence several times can also be considered as a metacognitive strategy because the readers here are purposely checking for accuracy (Phakiti, 2003). Moreover, different researchers still tend to give various names to identical strategies. For this reason, Zhang suggested that LLS researches need to standardize the names to be given to the strategies based on the available research findings.

As a working definition for this study, I drew on Oxford's (1990) definition of strategies. That is, I viewed strategies as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford 1990, p. 8). In addition, in terms of the level of learners' consciousness, I tend to agree with Cohen's view (1998) that the learner is either conscious of or potentially conscious of the strategies he/she employs. Strategies are deliberate and conscious actions taken by language learners. This factor was important to the present study, as I depended on learners' conscious reports to explore their use of language learning strategies.

Reading Strategies

While the importance of reading strategies can not be overestimated for L1 English readers, Sarig (1987) noted that an individual learner's reading moves are unique and that instructing the learner to make the right move is a complicated matter. For the role reading strategies play in the general reader's comprehension, Salmeron, Canas, Kintsch and Fajordo (2005) indicated that reading strategies may be an important variable in reading comprehension, because reading strategies not only affect the amount of information a reader reads a particular text, but also the order in which she reads it. For instance, when reading a text, a reader may follow a reading

strategy which guides her to read the paragraphs that interest her and overlook the other information she feels is uninteresting.

As indicated by Block (1986), knowledge of the components and management of the reading process is extremely important because without it L2 English educators must resort to designing reading programs based on intuitions and guesses about students' problems. Commenting on the importance of reading strategy research, Carrell (1991) noted that studies of this nature can reveal how L2 English readers manage interactions with written texts and how strategies are related to reading comprehension. Addressing another important area of caution, Anderson (1991) reminded us that "[it] is not sufficient to know about strategies; a reader must also be able to apply them strategically" (p. 469). Additionally, his study indicated that poor readers cannot determine whether they apply the strategies successfully, even though they may be aware of the right kinds of strategies to use.

According to Jimenez, Garcia and Pearson's study (1996), investigating the reading knowledge and strategic processes of bilingual Latina/o students, educators can enhance reading instruction by providing alternative models of proficient reading for learners. As indicated by Anderson (1999), reading, one of the essential language skills, is an active, fluent process in which the readers build meaning out of the reading material. Meaning is not located in the printed page, nor is it in the

reader's head. Rather, meaning is constructed by a synergy which integrates the words on the printed page with the reader's background knowledge and experiences. However, as illustrated by Anderson (1999), ESL/EFL learners' reading tends not to be fluent because they are not actively engaged with the text in a meaningful way. Addressing this challenge in the EFL/ESL classroom, Anderson suggested that language teachers teach L2 readers how to successfully orchestrate the use of strategies and how to monitor their own improvement.

In the same vein, Sheorey and Mokhtari (2001) believed that metacognitive reading strategy instruction should be integrated with the overall reading curriculum because "[such] instruction can help promote an increased awareness of the mental processes involved in reading and the development of thoughtful and constructively responsive reading" (p. 446).

Factors Influencing a Language Learner's Choice of Strategies

Oxford and Nyikos (1989) pointed out that various factors are related to L2 English learners' choices of language learning strategies. Although the authors' claim refers to strategies in general, it is relevant here, as this category includes reading strategies. As indicated by Oxford (1989), these factors include—to simply name a few—target language, level of language proficiency, degree of metacognitive awareness, gender, affective variables, and learning styles. In the following sections,

I focus on two of these factors—language competence and culture. In this study, I utilized a reading proficiency test to identify the intermediate-level participants of the present study according to their level of competence. In addition, since the participants had the same ethnic background, it was important for me to be aware of any places where I might be able to understand their responses in terms of their shared culture. I have reviewed studies related to learners' language competence and culture here, as I believed this research could provide valuable background for my own study.

Language Competence as a Factor Influencing a Language Learner's Choice of Strategies

L2 English learners' English proficiency level has been considered to be a variable affecting their choice of strategies, which in turn leads to different levels of success in second language learning. The following paragraphs discuss evidence showing the relationship between language proficiency and the L2 English learner's choice of strategies.

Oxford and Nyikos (1989) explored two research questions: (1) What kind of strategies did university foreign language students report using? (2) What factors influenced the use of the language strategies? At a mid-western university in the U.S.A. 1200 foreign students were asked to complete a questionnaire called the

Strategy Inventory for Language Learning (Oxford, 1990). The authors claimed that the results of the study showed a relationship between proficiency self-ratings and strategy use. The higher the learners' perceived level on their three language skills—speaking, reading and writing—the more frequently they utilized language learning strategies.

Green and Oxford (1995) identified the language learning strategies which learners applied equally or infrequently across proficiency levels. Based on a second language achievement test, the learners were tracked into three different course levels. The major instrument in the study was the Strategy Inventory for Language Learning (SILL) (Oxford, 1990). After an analysis of the use of individual strategies on the SILL, the study reported that the successful learners utilized a number of strategies more often than did the less successful learners. However, the strategies that were used frequently or moderately frequently by the successful and unsuccessful learners alike were not necessarily unproductive. The research called the strategies shared by both the successful and unsuccessful learners "bedrock strategies." The "bedrock strategies" included ten metacognitive strategies, seven cognitive strategies, four social strategies and two affective strategies. According to the researchers, these strategies contributed significantly to the learning process of the more successful

learners, but were not powerful enough to move the less successful ones to higher proficiency levels.

Jimenez, Garcia and Pearson's study (1996) focused on the metacognitive knowledge and strategies of bilingual Latina/o children in the upper elementary grades who were successful English readers. Two criteria were applied to determine which students were succeeding and not succeeding in the study: the teachers' categorization of learners as successful and less successful, and the learners' reading comprehension performance on a standardized reading test in English. One of the results indicated that while the two groups of learners were similar in their frequent identification of unknown vocabulary items, in many other ways, they were different.

First of all, the less successful Latina/o learners viewed finishing the task as more important than comprehension as the goal for reading. In contrast, the successful Latina/o readers kept questioning their comprehension after their first pass through a text. The successful Latina/o readers were determined to comprehend their reading, while their counterparts could identify their problems but were lacking in ability to resolve them. What is more, unlike the successful Latina/o readers who were thoughtful in their inferences, the less successful Latina/o readers tended to adopt one interpretation of a text or part of it. And on a few occasions the less successful learners evoked irrelevant prior knowledge to comprehend the texts.

One final point was of particular relevance to the present study: the less successful Latina/o readers used similar strategies across text types and languages because they were concerned more with their goal of finishing than with their comprehension. The data of the study conformed to Stern's (1975) earlier observation that "[in] order to understand and develop the second language as a reference system, the good language learner constantly probes the language and forms hypotheses about it in order to discover rules and relationships and to organize the discrete elements into an ordered whole or system" (p. 313).

While many studies have been conducted to examine ESL/EFL learners' use of strategies, comparing these findings is difficult because the studies were done with mixed groups of learners with different cultural backgrounds and experiences (Goh and Foong, 1997). Focusing on the growing population of ESL learners in China, Goh and Foong (1997) aimed to examine the learning strategies of 175 ESL learners from the People's Republic of China. The authors used a standardized test called the Secondary Level English Proficiency as well as Oxford's SILL.

One of the findings drawn from this study showed that the learners' proficiency level had influenced their use of two categories of learning strategies—cognitive and compensatory. That is, the Chinese learners having a higher English proficiency

level used cognitive and compensation strategies more frequently than did those having a lower level of English proficiency.

Research done on first language reading can also inform work in second language reading strategies. In a study which explored the use of reading strategies by middle school English-speaking children, Kavale and Schreiner (1979) aimed to identify and compare the reasoning strategies used by good and poor readers in their responses to standardized measures of reading comprehension. Based on the scores from the Comprehension section of the Gates-MacGinitie Reading Test, the learners with average and above-average reading levels were selected from an entire sixth grade population of a suburban public elementary school. The participants were asked to read a passage and then answer a series of questions following the passage. Then they were asked about their reasons for accepting or rejecting the possible answers following those questions. As indicated by the results of the study, while both groups utilized similar strategies, above-average readers not only applied the strategies significantly more often than the average readers, but they also produced a greater number of correct responses than those of their counterparts. In addition, above-average readers showed greater flexibility when asked to read for different purposes. In other words, although average readers used similar strategies, they applied them less frequently and less successfully.

Based on the verbal section of an IQ test and on the reading comprehension portion of the California Test of Basic Skills, Kletzien (1991) selected 24 good comprehenders and 24 poor comprehenders who were 10th and 11th-grade English-speaking students at a suburban high school in the U.S.; the goal of this grouping was to control for the effect of verbal ability on either the learners' use of strategies or their ability to provide oral explanations of their strategies. The participants were asked to read three expository passages of increasing difficulty. The study indicated that while both good and poor comprehenders knew and used the same basic strategies, good comprehenders were more capable of trying different strategies to construct the meaning of the text even when the task was difficult, whereas poor comprehenders experienced a drastic decline both in the variety and number of times strategies were used.

Anderson (1991) conducted a study to investigate individual differences in adult L2 English learners' use of strategies when they performed two reading tasks: taking a standardized reading comprehension test and reading academic texts. 28 learners participated in the study and were categorized according to their level of English language proficiency. As indicated by the researcher, the good and the poor readers appeared to use the same kinds of reading strategies when reading and answering the comprehension questions. However, what was important was whether

the readers knew how to use and orchestrate the strategies. The data showed that poorer readers did not know how to apply the strategies successfully even though they were aware of the right kinds of strategies use.

Culture as a Factor Influencing a Language Learner's Choice of Strategies

Defining what culture is, Scovel (1991) spoke of culture as the social cement of all human relationship. Brooks (1968) noted that "[culture] refers to the individual's role in the unending kaleidoscope of life situations of every kind and the rules or models for attitudes and conduct in them…" (pp. 218-221). In this sense, the factor of culture can be understood as related to the different roles the learner has to play in the unending patterns of living.

Showing culture as a factor influencing a language learner's choice of strategies, Abbott (2006) collected verbal report data from seven Arabic- and eight Mandarin-speaking intermediate ESL learners as they completed a reading assessment task which contained 32 questions. The differential item functioning method (DIF) was applied to determine whether the examinees from the two different populations performed the same on individual items or groups of items. The results showed that the Mandarin-speaking examinees favored items involving breaking lexical items into smaller parts, scanning for details, identifying synonyms or paraphrases, and

matching key vocabulary in the text to key vocabulary in the item. In contrast, the Arabic-speaking examinees favored a different set of activities: skimming for gist, connecting or relating information presented in different parts of the text and drawing an inferences based on information in the text. In other words, the Mandarin-speaking ESL learners preferred to use local, detail-oriented linguistic cues and strategies, whereas the Arabic-speaking ESL learners preferred to integrate semantic cues by relying on big-picture-oriented strategies and the global structure of text. The results showed that the learners from different cultures favored different types of reading strategies.

In Oxford's 1996 edited collection entitled, *Language Learning Strategies around the World: Cross-Cultural Perspective*s, two chapters are directly related to the issue of culture as a factor influencing the learner's choice of strategies. In Chapter 3 entitled "Relationship between Language Learning Strategies and Israeli Versus Russian Cultural-Educational Factors", Levine, Reves and Leaver (1996) posed a question: To what extent are language learning strategies related to the learners' educational and cultural background? The learners were 117 students in the ESL courses at Bar-Ilan University (Israel). The learners were divided into two groups; 63 students who were new immigrants from the former Soviet Union and 54 learners who had lived in Israel for over five years. Using both quantitative and

qualitative methods, the researchers showed the differences between these two groups. On the one hand, immigrant students tended to utilize traditional strategies such as memorizing grammar rules and rote learning. On the other hand, the learners who had lived in Israel for over five years showed a preference for communicative approaches such as asking native speakers for frequent use of relevant vocabulary items and taking risks in the use of new structures and words. As indicated by the study, the learners' cultural background seemed to influence their choice of learning strategies, even though there was presumably a level difference here.

In Chapter 4 of the same collection, entitled "Cross-Cultural Comparison of Language Learning Strategies in the People's Republic of China and Other Countries", Bedell and Oxford (1996) examined 14 SILL and 22 non-SILL studies from different cultural backgrounds. The authors detected a general pattern that the learners' behaviors were often culturally and socially approved. When the learners diverged from these norms of strategic behavior, they felt uncomfortable or strange; as a result, most participants tended to use strategies within the boundaries of their cultural norms. For example, as indicated by Red (1989), making notes and summaries, recopying notes and memorizing texts were frequent strategies employed by the Nepalese language learners. However, because in the Nepalese culture textbooks were considered to be too valuable to write notes in, the Nepalese learners did not take

notes in book margins, as compared with the Sudanese learners. This was a piece of evidence showing the relationship between the learners' cultural background and their application of strategies.

In 1990, Pritchard conducted a study to identify the learner's reading strategies and to investigate the relationship between the learners' choice of strategies and their background knowledge. There were sixty participants in the study: 30 from the U.S. and 30 from the Pacific Island nation of Palau. In Pritchard's study, when reading culturally familiar passages, the learners' background knowledge about the material was found to facilitate the integration of local understanding, enabling them to develop unified meaning in the text. However, when reading culturally unfamiliar materials, because of a lack of the relevant schemata, the L2 readers made few connections and resolved fewer ambiguities. Regarding the effects of culture on the learner's choice of reading strategies, the American participants used a wider range of strategies than the Palauan participants.

As indicated by the above studies, the influence of culture and culturally mediated schemata on the choice of strategies cannot be denied. All the studies reviewed showed that significant differences in strategy use were found among learners from different cultures or ethnicities. Since the learner's cultural background or ethnicity is a factor related to a language learner's choice of strategies,

the results of the present study focusing on the Taiwanese college students' use of reading strategies may yield results quite specific to the Taiwanese situation.

Other Factors Influencing a Language Learner's Choice of Strategies

Addressing what factors affected the learner's choice of language learning strategies, Oxford (1989) provided a list of variables which included the following: (a) the language being learned; (b) the level of language learning; (c) the degree of awareness (d) age; (e) sex; (f) affective variables including attitudes, motivation level/intensity, language learning goals, motivational orientation, personality characteristics as well as general personality type; (g) learning style; (h) aptitude; (i) career orientation; (j) national origin; (k) language teaching methods; (l) task requirements. As indicated by Oxford and Nyikos (1989), although some of the factors, such as language learning level, national origin, field of specialization and language teaching methods were strongly related to language learners' choice of strategies, other factors, such as motivation and sex, did not receive the same amount of attention. Surprisingly, in the article in which Oxford (1989) synthesized the previous studies, discourse types were not recognized as variables influencing the learner's reading strategies, even though it cannot be denied that reading is one of the basic language skills and discourse type is one of the components contributing to a reader's mental representation of a text.

The Interaction between Reader and Text

From a transactional perspective on reading, Rosenblatt (1994) indicated that without an evocation from a reader, a text is simply paper and ink, not a functioning text. She noted that a text contains stimuli, the verbal symbols embedded in the text that shift readers' attention to the elements of their past experiences. From their store of memories, readers draw appropriate elements to structure a new experience, the work of art. As commented by Lewis (1999), Rosenblatt's work is often situated in the reader-response camp and her transactional theory "argues for viewing reader and text in a dialogic rather than a dichotomous relationship" (p. 115).

In the book which offered a transactional perspective on reading, *The Reader, the Text, the Poem*, Rosenblatt (1994) pointed out that during the reading process, instead of being passive recipients of information, readers are actively involved in building meaning for themselves out of their responses to the stimuli in a text. Based on their past experiences with the verbal symbols, readers select the various referents that are meaningful to them. In addition, readers not only focus their attention on the referents that the verbal signs point to in their external world, but they also pay attention to the images, feelings, attitudes, associations, and ideas that the words and their referents evoke in them. In this process, when readers are in search

of a hypothesis that will help them to select, reject and order what is being evoked, the text itself will help them regulate the stimuli to be held in their attention.

Rosenblatt noted that the relationship between a reader and a text is by no means linear. Borrowing the terminology of transaction (Dewey & Bentley, 1949), Rosenblatt claimed that when a reader encounters a text, she is engaged in a two-way transactional relationship with the text. The term 'transaction' denotes an ongoing process in which the each of the elements/factors of a total situation is conditioned by and conditions others.

In a transactional reading process, both of the essential elements, a reader and a text, are conditioned by each other. A person becomes a reader by the very act of reorganizing a text as a set of verbal symbols. A physical text turns into the text of a poem or into the text of a scientific article by being involved in a relationship with a reader who can interpret it and reach into her literary world.

Based on the transactional view of the relationship between a reader and a text, a text is located not only in the mind of the reader, but also in the outer world beyond his/her inner world. Rosenblatt commented that "the transaction is basically between the reader and what he senses the words as pointing to" (p. 21). The stimuli or the physical signs of the text will eventually enable readers to link their past experiences and the verbal symbols to something which they sense is located outside

their own personal worlds. The literary work will lead them to a new world when the binary division between the inner world and the outer world ceases to exist.

The new world a reader evokes from the written text is a mental representation which Van Dijk and Kintsch (1983) called a *situation model*. Commenting on the situation model proposed by Van Dijk and Kintsch (1983), Tapiero (2007) indicated that the understanding of a text depends on a coherent mental representation built by the reader. The coherence a reader establishes from a text or discourse relies on a coherent textbase (i.e., the microstructure), a more global kind of coherence in discourse (i.e., the macrostructure) as well as strategies related to the establishment of an information hierarchy, and relationships between these two levels of the text representation.

According to Van Dijk and Kintsch (1983), discourse or text understanding involves not only the representation of a textbase in episodic memory, but also "the cognitive representation of the events, actions, persons, and in general the situation, a text is about" (pp. 11-12). In addition, they pointed out that a situation model involves a large amount of knowledge stored in semantic memory; they further point out that the use of this knowledge is strategic in the process of text comprehension (Van Dijk & Kintsch, 1983).

Meyer (1984) pointed out that different discourse types would affect readers' expectations during reading and influence their search plans during retrieval. Commenting on the interaction among types of organizational structures, reader expertise and reader strategies, she stated that "[their] interaction affects the mechanisms of cognitive processing that form a representation in the reader's mind of the text" (p. 45).

As noted by Urquhart and Weir (1998), there are three conditions listed in Kintsch and Van Dijk's model that relate to discourse type (1978). First, when readers' goals are vague and the discourse structures of the texts are not in the form of conventional structures, the macrostructures are unpredictable, even though the schemata are retrieved by readers. Next, when the discourse type has a highly conventional structure, this specific condition will cause readers to have clear goals. Furthermore, when they have special purposes in mind, the readers' determinations may make them overlook the discourse structures in the specific condition. According to these three conditions, one can infer an interaction between readers' schema (i.e., the highly conventional text types) and readers' goals in their reading of a text. Due to the assumption that propositions are deleted, generated and integrated in terms of a reader's goals, knowledge, and interests (Williams, Taylor & de Cani, 1984), the impacts of discourse types on the general reading process is predictable.

It can not be denied that the amount of knowledge available to a reader is essential to the construction of meaning. Drawing from schema theory, we can see that a written text only provides directions for readers to construct meaning which is crucially dependent on their previously acquired knowledge (Carrell & Eisterhold, 1983). In terms of the type of schema, Carrell (1987) indicated that there are two kinds—content and formal schemata. Content schema is the background knowledge a reader brings to a text, and formal schema refers to the formal or rhetorical organizational structures of different types of discourse (Carrell, 1987).

Fitzgerald (1995) suggested that schemata affect comprehension and recall for ESL readers in the United States. In most of the studies reviewed by Fitzgerald, it was also found that participants were better able to comprehend or remember passages if they were more consonant with their native cultures or were deemed more familiar. In an earlier review article, Carrell (1985) claimed that, due to the interaction between the rhetorical organization of a text (discourse types) and the reader's formal schema, the impact of discourse types on reading comprehension has been demonstrated by various measurements—written recall protocols, summaries, and retellings as well as question-answering.

While a number of studies (e.g. Carrell, 1984a, 1984b) investigated the impact of discourse types or text structures on L2 English reading, I have found the research

linking discourse types and L2 English learners' reading strategies to be limited. This personal observation of mine resonated with Urquhart and Weir's (1998) comment that "[there] appeared to be little work done on the possible differential effects of text types on readers" (p. 84).

Discourse Types

Reviewing the literature, I found that the term *discourse type* has been used interchangeably with others such as *genre*, *text structure*, *text type* and *rhetorical structure*. While these similar terms all refer to the discourse patterns in text, different researchers tend to use the terms which they deem appropriate to denote the same concept. Without a standardized term, the line of research which explores the relationship between discourse patterns and reading strategies has been perplexing from the beginning of its development.

Meyer and Freedle (1984) used the term *discourse type* to refer to the five basic discourse organizations: collection, description, causation, problem/solution and comparison. As employed by Meyer and Freedle, the term refers to the overall organizing principle of the text, such as causality, problem/solution and so on. Roller (1990) used the term *text structure* to include the overall organizing principles referred to by Meyer and Freedle (1984). In addition, Roller (1990) specified that her concept of *text structure* also covers specific "pointer words or signals, such as

first, second, and *third,* which identify chronological relations, and *because, therefore,* and *however,* which indicate logical relations" (p. 81). In other words, Roller used the term *text structure* to refer to the discourse patterns in the text that can be identified, as well as to the overall text organization.

Vacca and Vacca (1999) noted that exposition is the primary mode of discourse in academic texts because content area textbooks are aimed to inform their readers. Authors of academic texts use two text structures to inform their readers: external and internal text structures (Vacca and Vacca, 1999). External text structures refer to the text's format features, including a preface, a table of contents, appendixes, a bibliography, indexes and so on. As to the text's internal text structures, Vacca and Vacca (1999) indicated that "[its] internal text structure is reflected by the interrelationships among ideas in the text as well as by the subordination of some ideas to others" (p. 394). Using a similar framework proposed by Meyer (1975), Vacca and Vacca (1999) identified five predominant internal text patterns in informational writing: description, sequence, comparison and contrast, cause and effect, and problem and solution.

Urquhart and Weir (1998) also used the term *text type* to refer to such rather generalized written discourse patterns as narrative, descriptive, and argumentative types, based largely on the writer's purpose, rather than on the internal or external

features of the text. Urquhart and Weir (1998) reserved the term *text structure* to refer to both the components in models of text representation (such as the macrostructure in Kintsch and Van Dijk's model) and discourse patterns detected by various analysis frameworks. It seems to me that when Urquhart and Weir employed the term *text type*, they had in mind something like what Kintsch and Van Dijk (1978) would have called *highly conventionalized text types*.

Swales (1990) commented on the term *genre*, indicating that the elements of a genre are a set of communicative events in which the participating members share commutative purposes. These shared communicative purposes are recognized by the expert members of a discourse community and turn out to be the rationale for a genre. As a result, the schematic structure of the discourse and the participating members' choice of content and style are under the influence of the rationale embedded in a genre. Urquhart and Weir (1998) pointed out the two terms *text type* and *genre* are very similar. Urquhart and Weir did not specify that *text type* solely refers to written texts, even though they mentioned that the term *genre* is more useful in accounts of writing. Since the terms *text type* and *genre* are difficult to distinguish, these two terms are sometimes used interchangeably. For instance, Kucan and Beck (1996) used the term *genre* to refer to the narratives and expository texts in their study, which Urquhart and Weir would have labeled as *text type*.

Compounding the perplexities embedded in terminology, Lee (2006) employed the term *rhetorical text structure* to refer to the expository texts she rearranged in different discourse patterns. It seems that regardless of which term the researchers used for their studies, the terms such as *discourse type*, *text structure*, *text type* and *rhetorical text structure* all refer to the discourse patterns at different levels of the author's content structure. In order to reduce the confusion regarding the terms used by the researchers, I have used *discourse type* as an umbrella term referring to the characteristics of a text which assign a label to it based on the writer's communicative goals; thus, this term contains the referents of similar expressions such as *text types*, *text structure, rhetorical structure*, and *genre*. Naturally, since I view *discourse type* as an umbrella term, I treat the term as relating to a number of features of a text: these include the interrelationships among items of information (Meyer & Freedle, 1984), intertextual references such as topic sentences, pointer words, signals (i.e., first, second, third), and other features identified under these other terms in the literature.

Admitting that the number of discourse patterns that can be identified at any given level of text is very large, Meyer and Rice (1984) acknowledge that each researcher may need to establish his or her own definitions: "[what] is necessary is to determine which distinctions are salient and useful, and again, this determination will depend to a large extent on the purpose of the investigator" (p. 343). In this study, I

have chosen to rearrange my selected passages into two discourse types, collection and problem/solution because the collection structure and the problem/solution represent the two opposite ends of a continuum. Meyer and Freedle (1984) pointed out that problem/solution is the most organized type of their five basic discourse types, while collection is the least organized. It was easier for me to examine the effects of the overall discourse organization on the participants' use of reading strategies when an expository text is rearranged into these two discourse types, because I aimed to find out whether the overall discourse organization would have an impact on the participants' strategic processing,. I have drawn these terms from Meyer and Freedle's framework for classifying texts, as this framework is generally accepted in classifying western texts.

Chinese Expository Text Type

As indicated by Chu, Swaffar, and Charney (2002), in the past, before entering college, Taiwanese high school students were instructed to focus their attention on the lexical and syntactic features of English. They spent a lot of time memorizing vocabulary items and doing grammatical drills. More importantly, many traditional English textbooks did not call the learners' attention to common western discourse types. On the other hand, in Chinese classes, the students were led by their Chinese teachers to read classical Chinese texts intensively and were exposed to Chinese

discourse organization. Thus, Chu, Swaffar and Charney (2002) claimed that the Chinese traditional expository structure, *qui-cheng-zhuan-he,* still has significant impact on the Taiwanese L2 English learners' schemata.

The traditional four part *qi-cheng-zhuan-he* mode is one of the most commonly cited Chinese discourse types (Kirkpatrick, 1997). This traditional rhetorical organization is based on classical Chinese poetry and has been considered to be an appropriate style to follow (Lee, 2006). Although it can be applied to poetry, narrative, and public speech, it is a model which is more frequently used to analyze Chinese expository texts (Chu, Swaffar, & Charney, 2002). In literary sense, *qi* means "beginning," *cheng* means "continuing," zhuang means "transition," and *he* means "summary" (Kirkpatrick, 1997). If a writer follows this Chinese mode, he will first open his topic, move to elaborate the opening, continue to express another point of view, and finally make the final conclusion. This designated sequence of presentation is the key feature of *qi-cheng-zhuan-he*. While *qi* literally means "beginning," it is not equal to a topic sentence in English, and is only related to a general theme in a relatively broadly defined manner (Tsao, 1983).

Qi-cheng-zhuan-he is only one model used for analyzing Chinese expository text. There are other general features of Chinese expository texts as well. For instance, comparing Western and Chinese rhetoric, Lee (2006) stated that western

expository texts tend to follow a deductive line of reasoning in which main statements precede supporting statements. In contrast, Chinese expository texts tend to organize concepts inductively by putting supporting ideas before the main statement. Hinds (1990) claimed that "the typical deductive style favored in the West, in which topic is made clear at the beginning, is not favored in Chinese writing" (p. 95). Matalene (1985) noted that Chinese discourse values imitation, inculcation, and indirection. It appeals to history, to tradition, and to authority, but not to the western notion of logic, which argues from a premise to a conclusion. As suggested by Kirkpatrick (1995), in Chinese culture where hierarchical relationships have been very important at a family and political level, argument and persuasion have often been conducted in a bottom-up and indirect way. Given these differences, Chu, Swaffar and Charney (2002) predicted that, when comprehending a passage written in a western discourse type, Chinese L2 English learners could have a mismatch between their expectations and the discourse organization of English texts.

Evidence That Discourse Types Affect Reading

It must be noted that very few of the studies reviewed in this section specified whether their participants were L1 or L2 English users. The possible reason for this phenomenon was that the assumed audiences of these studies were L1 English educators, researchers, or learners. Meyer, Haring, Brandt and Walker (1980)

reported the findings of a few studies using a ‘prose analysis technique,’ which aims to yield a hierarchically arranged tree structure for any given passage. Based on this technique, a passage is considered a combination of sub-propositions that bear certain relations to one another. The output of the analysis is expressed as one or more tree structures, which show how some ideas in the passage are subordinate to other ideas.

Examining the relationship between text structures and learners’ recall from their reading, the researchers generated four basic findings. To begin with, the learners recalled and retained propositions from the top levels of the content structures better than the ones at the lower levels. Next, the learners’ selection and retention of ideas at the top level in the structures was under strong influence from the pattern relations at the top level of the content structure. In contrast, the pattern relations at the lower levels were found not to have such an impact on recall. Furthermore, the learners’ recall and retention of the passage was influenced by manipulating the extreme top-level structure in the text alone. Finally, by learning how to identify different top-level structures, learners could increase the amount of information from the texts they could remember.

In one of the experiments conducted by Kintsch and Yarbrough (1982), 32 learners joined in groups containing three to five people. Two different versions of reading texts about two different definitions were utilized, using good and bad

rhetorical forms. That is, four passages were included in this experiment. The article in ‘good’ form featured paragraphs arranged to reflect the logical order of ideas in each definition, and this text was provided with rhetorical cues. In contrast, the order of paragraphs in the text with ‘bad’ form failed to reflect the content, and this type of text was devoid of all rhetorical cues.

After their reading, the learners were given two different tests. In the question-answer test, the participants were asked what the main ideas of the passage were. They were then required to do a cloze-test. The results showed that the learners were more capable of answering topic and main-idea questions for the passages written in good rhetorical form. The researchers explained that the rhetorical forms and cues which distinguished the good forms of the texts from the bad ones contributed to the macroprocessing in the learners’ comprehension/production.

Taylor and Samuels (1983) were concerned with whether a learner’s recall of a text was caused at least in part by the structure of the text. Fourteen fifth-grade students and thirty-six sixth-grade students from an urban U.S. elementary school participated in the study. They were asked to read and recall two sets of passages. In each of the test sets one passage was written in a well-formed structure and the other in a scrambled-form structure.

In this study's results, if two out of three of the participants' written recalls for the three normal passages followed the organization of the well-written version of the passage, they were considered to be aware of text structures. In fact, fourteen learners were identified as being aware of the text structures and thirty-six learners as not aware of them. The data analyses showed that for those who were aware of the structures, their recall scores for well-written passages were better than on the scrambled versions.

However, for those who were considered to be unaware of the structures, their recall scores on the normal versions of the tests were similar to their scores on the scrambled ones. As explained by the researchers, the learners identified as unaware of text structures did not use the organization of ideas in the texts as a retrieval aid and treated the well-written passages as a series of unconnected concepts.

One of the specific purposes in a study by Birkmire (1985) was to investigate how learners' recall was influenced by the structure of information in a text, the reader's background knowledge, and the goal of the reader. Ninety learners were assigned to two experimental groups based on a test of background knowledge. The reading materials in the study were three experimental texts from published journals or books which were parsed for hierarchical content structures by three raters. The raters arranged the sentences in the passages based on the assigned content structure

rating. Then, the reading passages were displayed on computer monitors and the learners were instructed to read them. The information about the learners' reading time and recognition memory test responses was recorded by the computers.

According to the data, the rate at which the learners read the passages depended on the logical position of the information in the text structures and on the readers' background knowledge. In particular, the learners in both groups read high content structure information at a faster rate than the intermediate and low content structure information. What is more, the learners recognized the information high in the content structure better than the information lower in the content structure. Also, when the learners had background knowledge relevant to the text topic, they read the sentences containing information high in the content structure faster than those containing information low in the content structure. When the learners did not have specialized knowledge relevant to the content of the text, the differentiation of reading rate caused by the location of information in the content structure was not apparent.

The study by Richgels, McGee, Lomax and Sheard (1987) was partially based on the hypothesis that awareness of text structures fosters recall of text. The researchers asked the participants to recall both unstructured and well-structured passages. Their prediction was that the learners with an awareness of different text structures a writer may use are more likely to understand and remember

well-structured texts. The expected result was that main ideas would be better recalled by the learners than less important details in the well-structured passages. This hypothesis was confirmed in both the comparison/contrast and problem/solution passages. Results were mixed for the causation type, presumably because learners may have been less familiar with this organizational type.

However, the result from a fourth type of text was particularly relevant to my current concerns. When asked to read a text having a collection text structure, presumably because this structure is less dependent upon ordering, the learners recalled main ideas better than details in both the well-structured and unstructured passages.

Richgels, McGee, Lomax and Sheard (1987) also used a set of awareness tasks which led them to conclude that the learners had greater competence with the comparison/contrast structure than with the other discourse types. The results corresponded with the authors' assumption that, when readers are aware of expository text structures and when their comprehension strategies include the identification of the text structures the writer used, readers would comprehend expository texts better.

Dee-Lucas and Larkin (1990) conducted a study to examine whether a specialized text structure mainly used in science and mathematics had an impact on the reading processes. In science and mathematics, it is very common to present the

proof before the statement of the principle. Contrary to this conventional proof-first format was a principle-first organization, where the principle was presented prior to its proof. Propelled by the purpose of the study, the researchers reported three experiments which contrasted the effects of the principle-first and proof-first organizations on readers who were not familiar with this proof-first structure.

The learners selected for Dee-Lucas and Larkin's study were undergraduate students who had not studied college-level physics for more than one year. Because of their limited knowledge of physics, it was guaranteed that they would not have extensive exposure to proof-first texts. The focus of the first experiment was the text structure effects on reading times and on the organization of text summaries. In the second experiment, the learners' perceived importance of the information and their ability to foresee what was important in their reading were investigated. Finally, the third experiment aimed at examining whether there were differences in the learners' immediate and long-term recall of text content with the two types of text. As expected, the proof-first structure increased processing difficulties, leading to a less complete text representation or comprehension.

According to Roller's view (1990), signals which identify chronological relations in a text are considered to be one aspect of text structure. Lorch and Lorch (1996) conducted three experiments to examine how the reader's text memory was

influenced by organizational signaling devices. The phrase ‘organizational signals’ was defined as referring to overviews, topical summaries and other devices. To begin with, 139 learners participated in the two experiments. Half of these were assigned to the signaling condition and the other half to the non-signals condition. In the first two experiments, the reading passages either did or did not contain organizational signals.

The first two experiments differed in terms of the structure and content of the experimental text. The participants were asked to read each of the reading passages only once prior to a memory test. In the memory tests, they were instructed to recall as much as they could from the passages, but not to memorize every word in the texts. The results of the two experiments showed that signaling effects appeared, but only when the topic was difficult to encode and remember.

Furthermore, in the third experiment conducted by Lorch and Lorch (1996), the researchers created a no-signal, a full-signal and a half-signal version of the text. As shown by the results, content was recalled at the same rate both in the half-signaled and the full-signaled conditions. Nevertheless, the participants recalled the un-signaled content more poorly in the half-signaled condition than in the no-signaled condition. These findings illustrated the effects of organizational signals on the learners’ recall of expository texts.

Among the studies reviewed for this section, I found only one which specified having recruited ESL learners as its participants. Carrell (1984b) hypothesized that when learners read stories which violate their expected story schema, their quantity of recall and temporal sequencing of recall will be impaired. To verify the hypothesis, Carrell compared the participants' recall of two versions of stories—one well-structured and the other rearranged to violate the expected sequences of stories. Forty ESL intermediate-level learners participated in the experiment. Three simple two-episode stories were written in the standard version and the other three in the rearranged versions. After their reading of each story, the participants were asked to write down what they could remember from their reading, but told not to be concerned too much with grammar of form in their writing.

As indicated by the results, the quality of the participants' recall was better when they read the story with a rhetorical structure conforming to their schema for simple stories than when they read the story structured with a non-conventional rhetorical form. In terms of the temporal sequencing, it is noteworthy that after reading the modified versions of the stories, the participants tended to reflect the conventional order of a story rather than that of the input story in their recreated versions of the story. Such results provide limited evidence of the effects of limited schema on reading comprehension.

In 1990, Roller wrote a commentary based on her review of the studies which had addressed the three issues—world knowledge, text structures, and the interaction between world knowledge and text structures. The author's definition of text structures was quite restricted. Admitting that it is a thorny issue to distinguish between text structure and world knowledge, she defined text structure as the features embedded in a text since such features can be readily identified. However, according to her, these features, which included perordinate references, pointer words, signals, and expressions indicating logical relations, were more than just signals for the reader.

Based on her review of the relevant studies, Roller noted that when the topic of the text was very familiar to readers, structural cues became redundant and their effects on reading processing diminished. At the other extreme, when the topics of the texts were very unfamiliar to readers, text structures did not contribute to reading processing because it was very difficult for comprehenders to sort out the relationship between the concepts in the texts. Therefore, as highlighted by Roller, we must carefully consider both world knowledge and text structure prior to conducting text research. However, regardless of the results listed for the two extremes citied here, text structures are of value in the reading process since most reading topics are moderately difficult in reading (Roller, 1990).

While Roller (1990) identified five lines of text structure research, a closer look at her review reveals that none of the studies involved the manipulation of texts to examine the effects of different discourse types on learner's reading strategies. In addition, even though she specified the effects of world knowledge on comprehension, the effects of prior knowledge on strategic text processing were unaddressed in her review and still remain a controversial issue (Samuelstuen & Braten, 2005).

Fortunately, studies on the effects of discourse types on readers' strategic processing have begun to draw some attention, as Kucan and Beck (1996) pointed out, in an era in which psychological inquiry into the reader's cognitive process has begun to focus on the influence of the text structure or the genre.

Evidence That Discourse Types Affect Reading Strategies

The major research questions posed in Kletzein's (1991) research were the following: (1) Did good and poor comprehenders differ in their use of strategies when they were reading passages of the same relative difficulty? (2) Did good comprehenders use different strategies for passages of differing difficulty? (3) Did poor comprehenders use different strategies for passages of differing difficulty? The participants in the study were tenth and eleventh graders in the U.S. who were divided into proficient and less proficient readers based on the results of standardized comprehension tests. While the foci of the study did not include the effects of

discourse types on readers' strategic processing, the analysis of the data showed that the learners used more strategy types on the causation passages than on the collection passages presented to them.

Kucan and Beck (1996) explored what reading strategies or categories of processing a group of learners used when they read five narratives and five expository texts. The learners were selected from two fourth-grade classrooms in an elementary school. The learners were asked to read excerpts from ten children's trade books. Using think aloud protocols for analysis, the results showed that the learners made more inferences, predictions and interpretations while reading narratives than other types of text. When reading expository texts, the learners used personal knowledge and experiences more often, responding more to details and local text information.

Using L2 English learners as participants, Sun (2003) explored the influence of two expository text structures, collection and comparison/contrast, on EFL learners' strategy use. The learners were 4 proficient and 4 less proficient third year junior high school students in Taiwan who were asked to read two passages written in two different structures. In terms of the effects of the text structures on the learners' choice of strategies, the structure of collection posed more difficulties to both groups. However, when reading the passage in the collection structure, proficient readers still were able to use a variety of reading strategies. In contrast, less proficient readers

tended to skip unknown words and ignored problems, and were incapable of utilizing the strategies of which they were aware.

In the same vein, including L2 English learners as the participants, Chomphuchart (2006) investigated whether different English text types had an impact on the reading strategies used by Thai graduate students enrolled in U.S. universities. Using survey research methodology, the author asked what reading strategies are used by 253 Thai graduate students enrolled in U.S. universities in their interactions with different English texts.

The learners were randomly assigned to two different groups where two different English texts were utilized. In the first week of the study, one group received a reading strategy questionnaire with an academic text, whereas the other group received the same questionnaire with a literature text. One week later, the learners in both groups received a text of a different type from what they had received in the previous week.

As indicated by the data analysis, the two task conditions resulted in a significant difference among the mean frequency of strategy use for only three strategy items. When reading the academic text, the learners used titles to help predict the content, guessed the meaning of unknown words by using context clues and checked what each pronoun referred to significantly more often. This study

showed limited effects for text genres (an academic text versus a literary text) on the L2 English learners' use of reading strategies.

Motivated by the differences in Chinese and English rhetorical structures, Lee (2006) investigated whether Taiwanese EFL learners' reading performance was under the influence of rhetorical text structures, this time focusing on inductive versus deductive organization. As participants, Lee randomly selected 160 freshmen who were not English majors from a public college in Taiwan. Based on their English test scores on the Taiwanese Joint College Entrance Exam, they were assigned to four different proficiency groups. Two different English texts were selected from a Taiwanese bilingual supplementary reading textbook. Both passages were rewritten, so that each text had one version in the Chinese inductive structure and another in the English deductive rhetorical structure. This process resulted in four different readings for the study.

The data collection procedure included two sessions. In the first session, one fourth of the participants from each English reading proficiency level read one of the two expository texts which were rearranged either into the inductive or deductive rhetorical structures. They were then asked to take a reading comprehension test and to fill in a reading strategy questionnaire. The procedure for the second session was the same as the first. Accordingly, in the second session, one fourth of the

participants from each English reading proficiency level read the other expository text either in the inductive or in deductive rhetorical structures prior to taking a reading comprehension test and answering a questionnaire.

The results of the study showed that the learners' proficiency level contributed to their strategic processing. The learners at the higher level used more types of reading strategies than those at the lower level. In addition, a higher reported use of metacognitive strategies was found among the learners at the higher proficiency level than among those from the lower proficiency level. Nevertheless, the learners' use of reading strategies and their comprehension performance were not significantly different in the conditions where they read the English texts written in the two different rhetorical structures (inductive and deductive).

Discussion about Research in Reading Behaviors

Think Aloud Protocol

In reviewing the reading strategy research, I found that researchers have either used survey research or employed think aloud protocols to carry out their studies. In fact, neither self-report surveys nor think aloud protocols are free of shortcomings. As indicated by Poole (2005), self-report surveys do not report what the learners really do, but what they claim to do.

Considering the disadvantages of using think aloud protocols, Nisbett and Wilson (1977) noted that when the learners are asked to report their inner thoughts in response to a particular stimulus, they sometimes construct a causal theory as their answer. Drawing from the pre-existing explicit rules in their cultures or subcultures and from their causal hypotheses, the learners generated plausible responses to the stimulus. Rather than reporting their genuine responses to a particular response, they gave the researchers pre-determined answers based on their priori causal theories.

Tomlinson (1984) also indicated that learners' retrospective accounts of their cognitive processes are problematic. In the first place, it cannot be denied that there may be a disparity between learners' verbal reports and what happens in their inner processes. For one thing, the learners may not have reported the steps in their real-time thinking processes before they lost track of them. Moreover, since much of a reader's or learner's thought process is not conscious, learners are not able to accurately report it.

In an attempt to avoid this problem, researchers may inadvertently introduce yet another difficulty. That is, the researchers may remind learners to keep track of their inner thoughts with the aid of some general questions. However, learners given such guiding questions are often not able to link the general questions to a single or recent reading event. Instead of verbalizing their inner thoughts, the learners are misled

into making inferences about their cognitive processes (Tomlinson, 1984). Furthermore, as noted by Tomlinson (1984), when the learners relied on their inferences and generalizations to verbalize their inner thoughts, their descriptions of the cognitive processes were often mistaken. Using their prior knowledge as the primary resources to reconstruct their inner thoughts of which they had lost track, they usually produced accounts of the cognitive processes provided by other people, rather than the true reflections of their own thoughts.

Dobrin (1986) offered yet another critique, involving the concept of *trace*; a term he used to refer to the learners' verbalization of the information in their focal attention. Dobrin pointed out that, if mental processes must be represented by such traces, think aloud protocols are not capable of providing enough traces to fully represent the cognitive processes in question. Yet another problem regarding the use of verbal protocols was that many traces the learners produced were considered by the researchers to be irrelevant. In dismissing some statements, the researchers in fact discouraged the learners from producing them. What is more, in the protocol-gathering situation where the researchers were present, the learners may have produced traces which they would not have verbalized otherwise. That is to say, using think aloud protocols may itself predispose the learner to produce inaccurate traces.

Further criticisms of this technique involve cognitive overload on the participants. Branch (2000) indicated that "[some] participants . . . may find it difficult to generate Think Alouds while carrying out a new task or a task that involves a lot of cognitive processing" (p. 389). Likewise, Nielsen, Clemmensen and Yssing (2002) claimed that using think aloud protocols imposed a double cognitive load on the learners. To begin with, the task of thinking aloud diverted the learners' attention from the task they were asked to do. Next, they had to keep track of their inner thoughts and transform them into verbal words simultaneously. Furthermore, the learners might not have the ability to verbalize their thoughts while interacting with the text and with the researcher at the same time. In short, think aloud protocols are by no means without limitations.

The Survey of Reading Strategies (SORS)

Based on the Metacognitive–Awareness-of-Reading-Strategies Inventory (MARSI) created by Mokhtari and Reichard (2002) for native English speakers, Mokhtari and Sheorey (2002) developed the Survey of Reading Strategies (SORS) to measure adolescent and adult ESL learners' perceived use of reading strategies. Poole (2005) noted that the SORS is a thirty-item survey containing three kinds of strategies: global reading strategies (13 items), problem-solving strategies (8 items) and support strategies (9 items). As explained by Poole, global reading strategies are

used to plan, monitor and direct the learner's reading; these include strategies such as checking to see whether one's guesses are correct, and deciding what material to pay close attention to, and what to ignore. This type of strategy also includes visualizing information to help one remember it and guessing the meaning of unknown words. Problem-solving strategies refer to the procedures used by the learners when they read a text in order to clear up misunderstandings or difficulties in text comprehension. Supportive strategies are auxiliary materials and resources which are used to increase text comprehension. Instances of such strategies include note taking and highlighting important information.

Nevertheless, as specified by Mokhtari and Sheorey (2002), the purpose of the SORS was to collect information about the various techniques an ESL learner used when he/she read academic materials in English; in other words, the SORS was designed to investigate ESL learners' use of reading strategies in their reading of a general academic article.

The original version of the SORS which was composed of 30 reading strategy items was not a suitable instrument to use in Phase I of this study, because it was not sensible to provide the participants with a relatively great range of reading strategy items on a survey, some of which they probably did not use at all during their reading of a short passage containing only 258 words. For instance, in my study, it was

impossible for the participants to use tables, figures, and pictures in text as a strategy to increase their reading comprehension, since there were no such things in the short passages they read. Based on Kintsch and Van Dijk's theory that discourse types would influence the learner's goal of reading (1978), I examined the possible impact of these two discourse types on the reader's employment of the global reading strategies, which focus on setting the purpose for the reading act (Wu, 2005). As a result, the reading strategy survey used in my own study mainly covered the category of global reading strategies listed in Mokhtari and Sheorey's strategy classification scheme (2002). Using a five point Likert Scale (1=strongly disagree, 5=strongly agree), participants judged eleven statements about global reading strategies in English (see Appendix D-1) as they felt they had used them in reading these short passages.

Conclusion

My review of the studies on language learners' use of strategies has confirmed Van Dijk's (1995) critique that studies of typical text structures beyond the sentence level either receive little attention or are still treated in more or less informal terms. This phenomenon is more visible among the studies which include L2 English learners as their participants. In the present study, I view discourse types/text structures as a means of reaching communicative goals by the writer (Dudley-Evans,

2005). With this in mind, I questioned whether readers adjusted their use of strategy according to different discourse organization used by authors.

Research suggests that discourse types are not always effective in facilitating the desired interaction between the reader and the text. Still, much further research needs to be conducted in order to understand in what ways discourse types affect readers' use of reading strategies. In addition, only a small number of studies have included L2 English readers, particularly those in Taiwan, as their participants. In order to better understand Taiwanese English L2 learners' application of reading strategies in response to discourse types, this study includes this specific population as its participants. Thus, it is my hope that by investigating the influence of two expository structures, collection, and problem/solution, on Taiwanese L2 readers' strategy use during real-time reading, this study will help Taiwanese L2 English teachers have a clearer understanding of the relationship between their students' reading strategies and the written text.

CHAPTER 3

METHODOLOGY

Introduction

This chapter explains the methods I used to carry out the study, giving special emphasis to the reason why I employed a mixed method for the dissertation. Additionally, the chapter covers the details of my research design, participants, setting, instruments, and data collection procedures, as well as data analysis.

Research Questions

Specific research questions to be addressed in the study are as follow.

1. What reading strategies are used by intermediate L2 English readers at Taiwanese colleges when they read English texts written in the discourse types of collection and problem/solution?
    a. How do the students' reading strategies differ when reading English texts written in the two discourse types?
    b. Is there a link between the choices made by these students and the text organization?
    c. What signals in the texts seem to serve as signs of organizational intent for these readers?

2. Which of the two discourse types, collection or problem/solution, seems to create more difficulties for intermediate-level L2 English readers at Taiwanese colleges? Given the testimony of these readers, what are the reasons for the difficulty?

Rationale for Mixed Methods

My choice of a mixed method for the study was guided by the research questions above. I have used both quantitative and qualitative methods, including surveys, comprehension questions, and think-aloud verbal reports, in order to address to these questions.

Research Design

I divided my study into two phases. In Phase I, after the administration of an intermediate-level GEPT reading proficiency test to a sample of 479 students, 280 intermediate L2 English readers were selected from four colleges in Taiwan. This fifteen-item test allowed me to identify a group of intermediate Taiwanese L2 English readers, on the basis of their test scores (scored at least five out of a possible 15), for the sake of looking at strategy use results for a relatively homogeneous group when they read the expository texts chosen for the study.

After completing the reading proficiency test, the 280 intermediate-level participants selected were given a passage to read. The participants were grouped by

the two discourse types. The participants at two of the Taiwanese colleges read a passage written in the ‘collection‘ structure, and those at the other two colleges were instructed to read a passage containing the same information, but organized in the ‘problem/solution’ structure. After reading, the participants filled in a reading strategy survey based on their reading of the passage. They also took a reading comprehension test based on the passage they had read. The highest test score was four, measured as one point for each correct response; there were four items in the comprehension test. It was possible for me to see which of the texts were more difficult for the participants based on their test scores.

Both descriptive and inferential statistical analyses such as *t*-tests were applied to the results, to examine whether there were significant differences in the participants’ choice of reading strategies when they read the two types of reading passage. In Phase I, my goal was to examine whether there were quantitative differences in the participants’ use of reading strategies when they read the two passages. I looked at differences between the statistical results of two discourse types.

In Phase II, a smaller group of 15 intermediate-level L2 English readers were selected from the participants at one college based on their willingness (expressed in an item near the end of the survey questionnaire) for further participation in the study.

In this selected group of 15, the participants were asked to read a longer expository text organized in the collection mode. After they read the text, through an interview, they reported their reading processes by thinking aloud. This revised version of think-aloud technique was chosen for the present study since it had been found to overcome some of the drawbacks with the more direct think aloud protocol instrument, in which participants were asked to provide reports of their cognitive processes while engaging in a particular task.

A few days later, the same procedure was followed, except the same group was given a different longer text, this one written in the problem solving mode. Longer texts were chosen for this activity, since these were more likely to reflect real-life reading situations for these learners. After they read the passage, I again conducted a think-aloud interview in which I asked questions designed to elicit information about their use of reading strategies when approaching this text. Phase II of the study was designed to explore the qualitative differences regarding the participants' choice of reading strategies in the two reading tasks, as these could be seen through the perceived experience of the participants.

Setting

In Phase I of the study, I collected data at four institutions of technology in Taiwan. All four schools were universities or institutes of science and technology.

While it was my intention to include as many Taiwanese college students as possible to reflect the overall population, these schools were the only institutions where I was able to collect data during this study. Data collection was conducted in two phases with participants from undergraduate-level English classes during fall term 2008. Phase I took place in the classrooms of the four institutions. Phase II of the study was set in one of the four institutions where the participants were interviewed individually at locations on campus that were convenient to participants.

Description of Participants

Demographics

Two hundred and eighty intermediate-level participants completed all the data collection procedures in the second part of Phase I in the study. One hundred and sixty-seven participants read a passage written in the ‘collection‘ structure, and one hundred and thirteen participants were instructed to read a passage containing the same information, but organized in the ‘problem/solution’ structure. The two groups were unequal in size because the numbers of students in the four colleges who took the GEPT were different. This sample, totaling 280 students, included 121 freshmen, 58 sophomores, 99 juniors and 2 seniors from the four colleges in Taiwan. The following description of participants is mainly based on the background information sheet filled in by the 280 participants in Phase I.

School

Table 1 shows the number and the percentage of the participants from each of the four colleges in Taiwan.

Table 1

Participants by School Category

Institution	Number	Percent of the Participants
Private University of Science and Technology	91	32.50%
Private Institute of Science and Technology	65	23.20%
Public University of Science and Technology	81	28.90%
Private Institute of Science and Technology	43	15.40%
Total	280	100%

Gender

The data for the participants by gender indicated that 180 females (64.30%) and 100 males (35.7%) completed the study, which was representative of the overall population.

Academic Major

The participants in the second part of Phase 1 in the study came from eleven different departments. Applied Foreign Languages majors comprised the largest group (31.10%), followed by Nursing majors (26.40%), International Trade majors (13.90%), Hospitality Management majors (7.90%), Dental Laboratory Technology

majors (6.10%), Tourism and Leisure Management (5.40%), Business Administration majors (2.90%), Marketing Logistics Management majors (2.90%), Finance majors (1.80%), Accounting Information majors (1.40%) and Communication Engineering majors (0.40%).

Age

As Table 2 shows, the participants were between 18 and 26 years old, with an average age, 19.45.

Table 2

Ages of the Participants in Phase I

# of Participants	Minimum Age	Maximum Age	Mean	Standard Deviation
280	18	26	19.45	1.313

Number of Years of Studying English

Sixty-one participants (21.80%) had studied English for 5-7 years, 193 participants (68.90%) had studied English for 8-10 years, 19 participants (6.80%) had studied English for 11-13 years and 7 participants (2.50%) had studied English for 14-15 years.

Reading English Materials outside the Classroom

More than half of the participants (154 participants; 55%) indicated that they had never read any types of English materials outside the classroom. For those who specified the English materials they read outside class, popular magazines were their

first choice (50 participants; 17.90%). Since there were multiple choices on this survey item, some participants selected more than one choice as their answer to the survey question. Table 3 illustrates the types of English materials read by the participants.

Table 3

Types of English Materials Read outside the Class

Reading Materials	Number of Participants	Percent
Never Read	154	55.00%
Newspapers	6	2.10%
Popular Magazines	50	17.90%
Novels, Literature	13	4.60%
Newspapers, Popular Magazines	8	2.90%
Newspapers, Popular Magazines, Novels, Literature	6	2.10%
Popular Magazines, Novels, Literature	18	6.40%
Newspapers, Novels, Literature	1	0.40%
Others	24	8.60%
Total	280	100.00%

Reading Languages other than English

More than half of the participants (164 participants; 58.60%) clearly indicated that they could not read any other foreign languages other than English. In other words, they could only read their native language, Chinese. However, some did have experience with other languages: seventy-two participants (25.70%) reported

Japanese, one learner (0.40%) had studied French, and one participant (0.40%) listed both Japanese and French. The rest of the participants (*n*=42) treated the local dialects of Chinese, Taiwanese and Hakka, as different languages, and said that they were able to read them. Thus, one can infer that as high as 206 participants (73.50%) were not able to read any foreign languages other than English.

Participants' Self-Rated English Proficiency

More than half of the 280 L2 English readers (158 participants; 56.40%) self-rated their reading competence as fair out of four possible choices: poor, fair, good, and excellent. In addition, as indicated by Table 4, one hundred and fifty participants (53.60%) considered their English listening competence to be fair; 139 participants (49.60%) rated their English speaking competence as fair; 140 participants (50.00%) reported that their English writing ability was fair (see Table 4).

Table 4

Participants' Frequencies in Self-Rated English Proficiency

English Proficiency	Poor	Fair	Good	Excellent
Listening	67	150	57	6
Speaking	109	139	29	3
Reading	61	158	61	0
Writing	127	140	13	0

N=280

Selection Techniques (Phase I)

GEPT Scores

I used the intermediate-level reading comprehension section of the General English Proficiency TEST (GEPT) to measure the participants' reading competence in English. A total of 479 students who were randomly selected from the four institutions took the GEPT. Based on their results on this test, I selected the first 280 intermediate L2 English readers in four colleges in Taiwan whose test scores fall in the range (5-15) to participate in Phase I of the study. The highest possible test score was fifteen, measured as one point for each correct responses. This test will be described more fully in the section of Instruments in this chapter.

Rationale for score levels. My selection of this particular scale was based on modification of a scale used by Wu (2005). Since I planned to identify intermediate L2 English readers, I excluded the learners whose scores were under 5 because their reading comprehension level was too low to be considered at the intermediate level. As a result, I established this particular grading scale (5 to a possible 15) to identify the participants for this study.

Selection Techniques (Phase II)

GEPT Scores

For the qualitative interviewing in Phase II of the study, 15 participants from one college were selected. Because of my concern that the longer reading material might be too difficult for some participants, I invited participants who performed better on the GEPT reading comprehension test. On the first screening, I recruited only participants who scored 6 or above on the GEPT. However, at that point, I did not have as many volunteers as I needed; moreover, most volunteers with high GEPT scores were females. Because of this, I revised my original screening method and included several male participants with a score of 5 on the GEPT.

Table 5 shows a simple profile of these participants in Phase II.

Table 5

A Profile of the Participants (Phase II)

Participants	Age	Gender	GEPT Reading Proficiency Test Scores	Majors
01	21	F	6	N
02	20	F	11	N
03	22	M	5	D
04	20	M	10	D
05	20	M	5	D
06	21	M	5	D
07	21	F	8	N
08	20	F	10	N
09	20	F	7	N
10	20	F	10	N
11	20	F	11	N
12	22	F	12	N
13	20	M	5	N
14	21	M	5	N
15	21	F	7	N

M=male; F=female; N=Nursing; D= Dental Laboratory Technology

Instruments

In the sections that follow, I will discuss each of the research instruments in turn.

The General English Proficiency Test

Commissioned by the Taiwanese Ministry of Education in 1999, the Language Training & Testing Center (LTTC) developed an English proficiency test called the General English Proficiency Test (GEPT) to measure the competence of English

learners in Taiwan (http://www.gept.org.tw/#). There are five different levels for the GEPT test: Elementary, Intermediate, High-Intermediate, Advanced, and Superior. The examinees' listening, reading, writing, and speaking are all tested in the LTTC GEPT test.

Replicating the method utilized by Wu (2005), I gained permission from LTTC (personal communication, April 7, 2008, see Appendix A-1) to use the Intermediate-Level reading comprehension section to measure the learners' English reading proficiency. I limited myself to this one test, since it was a prerequisite for my study that I assessed the participants' reading comprehension , and I felt that this test would be adequate for that purpose (For full details on the items in this test, see Appendix A-2).

Reading Passages

Text Selection Criterion

In selecting these texts, the participants' content schemata were my major concern. Even though I have used the textbook from which all three texts were chosen (Anderson, 2003a) for some of my English classes at a five-year program in a university of science and technology a few years ago, most of the undergraduate students in my study had no previous access to the selected reading passages before taking part in my study. According to my contact with the English teachers who

taught in the institutions of technology where the data was collected, I was informed that this textbook was not normally chosen for the classes from which I drew my participants.

In addition, the first expository text for Phase I of the study was a science text which covered some surgical techniques, while the pair of texts used in Phase II were comparable articles about second language vocabulary learning and the history of formal education respectively (See Appendix B). Considering the participants' backgrounds, I assumed that the topics of these expository texts were not entirely unfamiliar to them. That is, since these participants came from programs in science and technology, the first pair of selections may be reasonably familiar to them. Also, since all had qualified as intermediate readers according to their proficiency test scores, I reasoned that academic texts selected from an intermediate level ESL textbook should not be too difficult for them, and the general topic of learning and education should also be reasonably familiar to them. Besides, none of the texts selected contained culture-specific knowledge which might affect the Taiwanese L2 English learners' use of reading strategies.

Text Manipulation

In Phase I, one text was adapted to retain as much information as possible from the original, while fitting that information into the two discourse types of collection and problem solving. As to the texts for Phase II, since they had already been written in the two discourse types, there was no need to adapt the texts.

In Phase I of the study, I rearranged one selected passage into two discourse types, collection and problem/solution, to see whether the overall organization of a single very limited discourse had an impact on the learners' strategic processing. As noted in the previous chapter, the collection and problem/solution structures represent the two opposite ends of a continuum, following Meyer and Freedle's (1984) analysis. My selection of this classification scheme was due to the consideration that Meyer and Freedle's (1984) framework is still capable of classifying western texts. Therefore, these organization types seemed well suited to a study whose goal was to examine the effects of the overall organization of a western discourse on the participants' use of the reading strategies.

For the overall discourse organization, the problem/solution mode is considered to be more organized and well-formed than the collection structure. Because of this, the problem/solution type should be better adapted to the reader than the collection structure.

Table 6

The Features of the Two Rearranged Reading Passages in Phase I

	Collection	Problem/solution
Total words	258	258
Reading ease (Flesch-Kincaid)	45.80	45.30
Flesch-Kincaid grade level	11.40	11.80

Table 6 summarizes some basic features of the two reading passages used in Phase I of the study. Both of the versions had 258 words (239 words in the two passages were the same and 19 were different.) Based on the Flesch-Kincaid Formula (Kincaid, Fishburne, Roger, Chissom, 1975), the two passages had relatively the same reading ease and grade level. As indicated by the Flesch readability formula (Flesch, 1948), since the reading ease of the texts ranged from 45.8 to 45.3, both passages were considered to be moderately difficult. In addition, according to the Flesch-Kincaid Formula (Kincaid, Fishburne, Roger, Chissom, 1975), one of the texts was assigned the grade level of 11.40 and the other the grade level of 11.80. As the participants in the study were undergraduate students and had already passed the high-school level, the reading material was not expected to be difficult for them to read.

Table 7

The Features of the Pair of Reading Passages in Phase II

	Collection	Problem/solution
Total words	606	598
Reading ease (Flesch-Kincaid)	34.30	44
Flesch-Kincaid grade level	12	12

Table 7 summarizes the same features for the two reading passages used in Phase II of the study. In terms of the number of words per article, the length of the two passages was similar. Based on the Flesch-Kincaid Formula (Kincaid, Fishburne, Roger, Chissom, 1975), both of the passages had similar reading ease and exactly the same grade level. As indicated by the Flesch readability formula (Flesch, 1948), since the reading ease of the texts range for the two passages ranged from 34.40 to 44, both passages were considered to be moderately difficult. In addition, according to the Flesch-Kincaid Formula (Kincaid, Fishburne, Roger, Chissom, 1975), the pair of texts selected for Phase II of the study were classed at the grade level of 12.0. Since the participants in the study were undergraduate students and had already passed the high-school level, these two texts were also not expected to be very difficult for them to read.

The Adaptation of the Survey of Reading Strategies

Since my study examines the use of reading strategies in two particular English passages in different discourse types, rather than the use of strategies in general

academic reading, I found it necessary to revise the Survey of Reading Strategies (SORS) for use in Phase I of the study.

To adapt the SORS to serve the purpose of the study, I made some minor changes to the original survey. For example, I changed the opening statement to indicate that the purpose of the questionnaire was to collect information about the various techniques the participants used when reading a particular reading passage (see Appendix D). What is more, I changed the adverbial clause on one of the reading strategy items from “when reading” into “when reading this article” and altered the verbal tense in the items in order to let the survey takers know that they were supposed to respond only in terms of their experience with this particular reading. Furthermore, in order to put this particular task in context, at least as the participants themselves saw it, I added two optional, open-ended items at the end of the short survey, including “How does your normal reading practice differ from what you did as you read this article?” and “Is there anything you would like to add about your experience in doing this reading?”

Although the reading strategy survey used in the study contained many verbatim items from the SORS, it was indeed a revised version which I thought better served the aim of the studies focusing on learners’ awareness of reading strategies in their reading of a specific academic text. Through my personal communication with

the authors of the SORS (May 17, 2008, see Appendix D-2), I obtained their permission to use this modified form of the SORS for the present study.

A Revised Version of Think-aloud Verbal Report

Since think aloud protocols are admittedly flawed, with this in mind, in Phase II of the study, I employed a revised version of think-aloud verbal reports in order to get more in-depth data regarding the participants' use of reading strategies. That is, having become fully aware of criticisms of this method, I sought to minimize the disadvantages of the think aloud protocols in several ways.

First, I planned to examine different aspects of the participants' use of reading strategies from quite different perspectives, namely the self-report surveys and the participants' retrospective reports. The synthesis of different methods in a study is nothing new in a qualitative study like the present one. As indicated by Gay, Mills and Airasian (2006), "[the] typical qualitative study involves a number of different data collection strategies, and although all options are open, some strategies are used more often than others" (p. 413).

Second, I further modified the think aloud procedure in ways that may minimize its shortcomings. In order to neutralize any negative effects from the use of think aloud protocols, I followed a variation of a four-step procedure as proposed by Anderson and Vandergrift (1996). As indicated by Anderson and Vandergrift

(1996), researchers need to provide think aloud training before the real think aloud section. Adapted from the practice tasks developed by Ericsson and Simon (1983/1993), I asked the participants to perform various verbal tasks as shown in Appendix G. Ericsson and Simon recommended the use of warm-up think aloud exercises for the reason that ". . . the simple and direct verbalization of such information makes it clear to the subject that think-aloud involves concurrent verbalization of heeded thoughts rather than a retrospective and explanatory report, which subjects may be more familiar with" (p. 378). The think aloud training lasted for about twenty minutes with each participant.

Third, researchers have tended to ask learners to produce think aloud protocols only when they are at the end of the target task; however, this is problematic due to the memory load it places on the learners (Anderson and Vandergrift, 1996). For this reason, I inserted a red dot at the end of each sentence in the reading passages to remind the participants to verbalize their inner thoughts. As pointed out by Anderson and Vandergrift (1996), "[this] avoids putting the learner in a situation of having to rely on long-term memory of what he or she was doing during the task" (p. 6).

Fourth, because think aloud tends to be a retrospective activity, some contextual cues are needed to help the participants remember the strategies that occurred to them

in the reading task (Anderson and Vandergrift, 1996). Therefore, I used several interview questions to elicit more data from them as they proceeded through the think aloud task. My cues included questions such as, “What came to your mind when you read this sentence?”, “Could you say that again?”, or “I am afraid that I don’t understand what you just said. Could you put it in another way?” And when the learners hesitated to verbalize their thoughts, my interview questions would be “Could you tell me more?” or “Is there anything you would like to add?” In short, my interview questions were designed to elicit the participants’ immediate responses to the stimuli—the individual sentences before the red dots in the reading passages. To preserve the data, the entire think aloud session which lasted for about forty minutes per participant was tape-recorded.

Finally, as indicated by Anderson and Vandergrift (1996), “[it] is important for learners to speak freely, so they should use any language that is comfortable” (p. 6). Hence, at the start of the think aloud section, I made it clear to the participants that they may use either Chinese or English to verbalize their thoughts in the reading tasks.

At the end of the revised version of think-aloud verbal report, pointing to the sentences with which the participants had more difficulties verbalizing their thoughts, I asked them several questions to collect more data regarding their use of reading

strategies when they encountered these difficult areas. In other words, I used the sentences about which the participants did not verbalize clearly as a basis to elicit the participants' retrospective accounts of their use of reading strategies. The questions included "What else do you want to say about the sentence?" and "Are you sure you fully expressed your thoughts about this sentence?" Also, in order to understand what signals in the text seemed to serve as signs of organizational intent for these participants, my questions were "Have you noticed any organizational signal that helps you understand the text better?" and "If so, can you identify them for me?"

Data Collection Procedures

Phase I

To begin with, in Phase I of the study, three English teachers and I were responsible for administering the GEPT reading comprehension test to the learners (see Appendix A-2). Prior to the test, the participants were instructed to fill in the first consent form both in Chinese and in English (see Appendix E) and a background information sheet to elicit their demographic information (see Appendix C). I used the participants' GEPT reading proficiency scores to identify the participants who had the intermediate English reading comprehension competence. I used the following grading scale to establish the grouping: of a possible score of 15 points, I identified students as intermediate (5 to 15). The administration of the test lasted for one hour.

After the intermediate L2 English readers at Taiwanese colleges agreed to participate in the study, I gave the participants envelopes that contained the necessary instruments to elicit the data from them. These instruments included an expository text, a reading strategy survey, and reading comprehension questions. Prior to distributing the envelopes to the participants, I explained the detailed procedure, the purpose of this study to the three language teachers. What is more, the participants were informed that participating in the study would take about thirty minutes and that it was up to them to decide whether they were willing to participate in the study.

Each of the envelopes contained a second consent form written both in Chinese and in English (see Appendix F), a reading passage written either in collection or in problem/solution (see Appendix B), a reading strategy survey (see Appendix D-1) as well as a comprehension test which contained five multiple-choice test items (see Appendix G). In one school, the one from which I intended to choose the smaller group of participants, the envelope contained a different version of the consent form written both in Chinese and English, in which the learners were asked about their willingness to participate in Phase II of the study (see Appendix H).

After signing the second consent form (see Appendix F), the participants were asked to read one version of the modified text on robotic surgeons (collection or problem solving) to fill in the strategy questionnaire and complete the five-item

comprehension test on their passage. In order to let the participants understand the wording and implications of the survey, the English teachers and I translated the survey items from English to Chinese verbally before they filled in the survey. This second activity completed Phase I of the study.

Phase II

In Phase II of the study, the volunteers were assigned to a smaller group of 15 participants based on their personal consent and their performance on the GEPT test. Due to the concern that the reading material might be too difficult to the participants, I made every effort to include the participants who had better performance on the GEPT reading comprehension test. I first contacted the high scorers in the test via telephone, inviting them to participate in this phase of the study. However, in order to have a better balance regarding the participants' gender, as explained earlier, some participants who were not high scorers also participated in the study.

Prior to the think-aloud verbal session, I gave this smaller group of participants a think aloud training lesson which the participants attended either in group or individually, depending on their schedules. In the think aloud training, I presented the participants with some warm-up tasks, so that they were comfortable thinking aloud and providing both retrospective and concurrent reports. After this training experience, I met with each participant individually and asked him/her to read a

second expository text written in the discourse type of collection. A few days later, the participants went through the same procedure except for reading another expository text, this time composed in the discourse type of problem/solution. In the process of their read-aloud reporting, I utilized a few interview questions reminding them to respond to each of the individual sentences in the reading passages.

After the participants had responded in an interactive way during their reading, I also had a prepared set of interview questions, designed to ask them to reflect on the sentences where they seemed to have trouble verbalizing their thoughts. The whole process of Phase II of the study took each participant two hours and a half. The following table summarizes the procedure of data collection in the current study.

Table 8

The Procedure of Data Collection

Phase I of the study	
Method	The research question(s) relevant to the method
The GEPT reading proficiency test	Research question 1 and 2
Background information sheet	Research question 1 and 2
Reading task	Research question 1 and 2
The survey of global reading strategies	Research question 1
Reading comprehension test	Research question 2
Phase II of the study	
Think aloud training	Research question 1 and 2
A revised version of think-aloud verbal report	Research question 1 and 2

Data Analysis

There were two different ways of handling the data in the study. Since the study examined the effects of two discourse types on the Taiwanese college students' reading strategies, I classify Phase I of the study as a quantitative, causal-comparative study which includes two groups differing only on the independent variable of discourse types, and which compared the reactions of different groups on the dependent variable, their on-line use of academic reading strategies when approaching texts written in these two discourse types. As indicated by Gay, Mills and Airasian (2006), a variety of descriptive and inferential statistics are involved in the analysis of data in causal-comparative studies. I employed the Statistical Package for the Social Science (SPSS/PC, version 15.0) to analyze the data I collect in Phase I of the study.

In order to provide information on the first research question, asking whether discourse type differences are significant as factors in readers' choice of strategies, I utilized *t*-tests to do the statistic analyses, comparing the use of strategies in the two discourse types by participants having the same reading proficiency level. Since I had two groups and one dependent variable in the study, Independent Samples t-tests were appropriate to use. It must be noted that the independent variable in the study, discourse type differences, referred to the two discourse types of the passages read by the intermediate L2 English readers in Taiwanese colleges. The dependent variable,

the participants' use of academic reading strategies, mainly referred to their average responses to the first eleven questions of the strategy survey, which were all five point Likert scale questionnaire items. Thus, averaging the participants' responses to these eleven items, I compared the average responses of the two groups to these items by doing a single two-tailed *t*-test. In order to answer the second research question given the quantitative data from Phase I of the study, simple descriptive statistics regarding the means and the standard deviations of the numbers of the participants' reading strategies and the participants' mean scores were computed.

In Phase II, qualitative methods were used; foremost among these was the coding of the think-aloud interview sessions. I first parsed the transcriptions of the interviews into T-units. Then, I reviewed each of the protocols collected from the participants' reading of the two articles and coded them for the use of reading strategies. Mokhtari and Sheorey's (2002) list of 30 reading strategies were used as a starting point in coding the protocols because these were commonly used metacognitive reading strategies. After the protocols were coded, if additional strategies were reported by the participants but not accounted for by Mokhtari and Sheorey's coding system, they were categorized and added to the list of strategies.

Summary

This was a two-phase study designed to investigate the influence of two expository structures, collection, and problem/solution on Taiwanese L2 readers' strategy use during real-time reading. I triangulated the data with a mixed methodology that included surveys, comprehension questions and think-aloud verbal reports in order to get more complete and reliable results. This chapter has reported the methods I used to carry out the study, with an emphasis on the reason why I employed the mixed method for my research. In addition, the chapter has described the research elements such as the setting, participants, instruments, data collection procedures and data analyses.

Limitations of the Study

The limitations of the study are the selection of the participants in Phase II. As mentioned in this Chapter, on the first screening, I recruited only participants who scored 6 or above on the GEPT. However, at that point, I did not have as many volunteers as I needed; moreover, most volunteers with high GEPT scores were females. Revising my original screening method, I included several male participants with a score of 5 on the GEPT. However, since gender had already been discounted as a factor of influencing the learners' strategy use in this study, by including these male learners, I lost a chance to examine a group of participants who

would have been more capable of reporting reading processes due to their higher language competence. Thus, the selection of the participants in Phase II called into the question the results of the study.

Researcher Bias

In Phase I of the study, I selected a passage and have rearranged the information it contained into two discourse types, collection and problem/solution. In Phase II, I utilized a second expository test written in the problem/solution mode and a third one composed in the collection mode for the participants to read. As explained in the previous chapter, given the strong differences between the two discourse types, I hypothesized that it should require quite different strategies for a reader to comprehend and retain information from these two types of text. With this in mind, I was aware that I might "unintentionally affect study results, typically in the direction desired by [me], simply by looking, feeling, or acting a certain way" (Gay, Mills and Airasian 2006, p. 245). With this awareness in mind, I made every effort to keep my bias neutral, especially in Phase II of the study.

Validity

I have used a mixed method for the present study in order to compensate for limitations in the methods used in the previous studies on the effects of discourse types on language learners' use of reading strategies. After reviewing the extant

literature research, I found that the researchers either used survey research or employed think aloud protocols to carry out their studies. In fact, neither self-report surveys nor think aloud protocols are free of shortcomings. Having become fully aware of the criticisms of these methods, I chose to use a mixed research design, with both quantitative and qualitative methods, including surveys, comprehension questions, and think-aloud verbal reports, as my way of striving toward validity.

CHAPTER 4

RESULTS

Introduction

As stated in the first chapter, the purpose of the study was to investigate the influence of two expository discourse structures, collection and problem/solution, on Taiwanese L2 readers' strategy use during real-time reading. First, this chapter restates the hypothesis of the study. Then, the results from the study are organized according to the two research questions. Finally, the conclusion is presented after the results.

Hypotheses

There are significant differences between the two discourse types, problem-solving and collection, in the participants' use of global reading strategies.

Research Question # 1

What reading strategies are used by intermediate L2 English readers at Taiwanese colleges when they read English texts written in the discourse types of collection and problem/solution?

a. How do the students' reading strategies differ when reading English texts written in the two discourse types?

b. Is there a link between the choices made by these students and the text organization?

c. What signals in the texts seem to serve as signs of organizational intent for these readers?

Results Related to Research Question # 1

(1) In order to provide information on the first research question whether discourse type differences were significant, I averaged the participants' responses to the eleven items of the global reading strategy surveys and compared the average responses of the two groups to these items by doing a single two-tailed *t*-test. Doing a single t-test was because of the concern that the inflation of Type I error due to numerous t tests might influence interpretation of the results. The *t*-test result showed that there were significant differences between the two discourse types, problem-solving and collection, in the participants' use of global reading strategies ($p<.01$). The result confirmed the hypotheses that there are significant differences between the two discourse types, problem-solving and collection, in the participants' use of global reading strategies. The number of participants in the problem/solution group is 113, and the number of participants in the collection group 167.

(2) Based on the results of the global reading strategy surveys, the participants employed 9 of the 11 global reading strategies (82%) more frequently when reading the collection text than when reading the problem-solving text.

(3) According to the analyzed data of the participants' think-aloud verbal reports in Phase II of the study, within the three categories of reading strategies proposed by Mokhtari and Sheorey (2002), the participants employed the reading strategies more frequently when reading collection texts than when reading problem-solving texts. These strategies are "noting text characteristics," "using context clues," "finding relationships among text," "guessing text meaning," "re-reading for better understanding," "confirming prediction," "guessing meaning of unknown word," "translating from English to Chinese," "questioning word meaning," and "questioning sentence meaning."

(4) None of the signals (0%) the participants identified clearly reflected the underlying structure of the text. The participants in Phase II of the study were more capable of identifying the signals reflecting the organization of text in their reading the article written in collection than in the article written in problem-solving; though most readers in the collection group also failed to identify the organizational signals in the text. However, even when reading the text written in collection, only four of

the 15 participants (26%) identified signals which were compatible with authors' organization of the text.

In order to provide information on the first research question, asking whether discourse type differences correlated with different sets of strategies, I employed *t*-tests to compare the use of strategies in reading two discourse types based on the results from the reading strategy survey. The independent variable was discourse type, involving the two discourse types of the passages read by the participants. The dependent variable, the participants' use of academic reading strategies, was measured by their average responses to the first eleven questions of the strategy survey. After averaging the participants' responses to these eleven items, I compared the average responses of the two groups to these items by doing a single two-tailed *t*-test. As indicated in Table 9, the corresponding two-tailed *p*-value was .003, which was less than .01 (see Table 9). Therefore, the result showed that significant differences were in fact found between the two discourse types, problem-solving and collection, in the participants' use of global reading strategies.

Table 9

Differences in Self-Reported Strategy Use between the Two Discourse Types (Phase I)

Category	Problem/Solution (*n*=113)		Collection (*n*=167)		*t*	*p*-value
	Mean	Standard Deviation	Mean	Standard Deviation		
Global Reading Strategies	3.15	.51	3.35	.54	-2.98	.003

As illustrated by Table 10, for 9 of the 11 global reading strategies (82%), the participants employed these nine strategies more frequently when reading the text written in collection than when reading the text in problem-solving. Differences varied however, and were sometimes minimal, as for strategy 5, “noting text characteristics.” Given the fact that the participants used more global strategies in the collection text than in the problem-solving text, the collection mode was probably more salient to them than the problem-solving mode. That is, the participants were probably more familiar with the collection discourse type.

Table 10

Differences in Self-Reported Metacognitive Global Reading Strategy Use by Taiwanese L2 English Readers When Reading the Two Discourse Types (Phase I)

	Problem/Solution (*n*=113)		Collection (*n*=167)	
Strategy	M	S.D.	M	S.D.
1. Setting purpose for reading	3.25	1.00	3.19	.85
2. Using background knowledge	3.41	.88	3.58	.92
3. Taking an overview of the text	3.19	.86	3.15	.94
4. Checking how text content fits purpose	2.62	1.08	3.17	.86
5. Noting text characteristics	3.16	.96	3.17	.96
6. Determining what to read closely	2.97	1.01	3.13	.99
7. Using context clues	3.37	1.06	3.71	.95
8. Analyzing and evaluating the text	2.62	.94	3.02	.97
9. Checking understanding	3.35	.81	3.40	.91
10. Guessing text meaning	3.52	.90	3.81	.94
11. Confirming prediction	3.28	.91	3.54	.98

In the participants' protocols collected in Phase II of the study, twenty types of reading strategies were detected. As mentioned in Chapter 3, Mokhtari and Sheorey's (2002) list of reading strategies were used as a starting point in coding the

protocols. However, when coding the protocols, I found four additional strategies which were reported by the participants but not accounted for by Mokhtari and Sheorey's coding system. The four strategies were "commenting on behavior or process," "questioning meaning of a clause or sentence," "questioning meaning of a word," and "using knowledge of grammar." Based on Mokhtari and Sheorey's (2002), Cheng's (1999), and Block's (1986) definitions of reading strategies, I categorized "commenting on behavior or process" as a global reading strategy, and "questioning meaning of a clause or sentence," "questioning meaning of a word," and "using knowledge of grammar," as problem-solving reading strategies. All but the first of these are self-explanatory. In the first class, "commenting on behavior or process," I included the protocols which the participants produced to express a sense of accomplishment or frustration during the reading tasks (Please refer to Appendix K for a full description of these strategies).

Table 11 shows the average number of reading strategies the participants employed to read the two different texts in the second phase of the study. The participants employed 10 of the 20 strategies (50%) more frequently when reading the text written in the discourse type of collection than when reading the text in the discourse type of problem-solving. For 9 of the 20 reading strategies (45%), they

utilized these strategies more frequently when reading problem-solving texts than when reading collection texts.

Table 11

Differences in Reading Strategy Use by Taiwanese L2 English Readers When Reading the Two Discourse Types (Phase II)

	Problem/Solution (*n*=15)		Collection (*n*=15)	
Strategy	# of Strategies	Ranking	# of Strategies	Ranking
1. Using background knowledge (GLOB)	2	10	0	15
2. Taking an overview of the text (GLOB)	2	10	0	15
3. Reading aloud for better understanding (SUP)	204	2	203	2
4. Noting text characteristics (GLOB)	1	11	4	12
5. Determining what to read closely (GLOB)	10	9	3	13
6. Using context clues (GLOB)	0	12	8	10
7. Paraphrasing for better understanding (SUP)	23	7	10	8
8. Visualizing information read (PROB)	1	11	0	15
9. Finding relationships among text (SUP)	1	11	9	9
10. Guessing text meaning (GLOB)	64	5	70	5
11. Re-reading for better understanding (PROB)	11	8	18	7
12. Asking oneself question (SUP)	2	10	1	14

Table 11 continued

	Problem/Solution (*n*=15)		Collection (*n*=15)	
Strategy	# of Strategies	Ranking	# of Strategies	Ranking
13. Confirming prediction (GLOB)	2	10	6	11
14. Guessing meaning of unknown words (PROB)	35	6	50	6
15. Translating from English to Chinese (SUP)	268	1	280	1
16. Thinking in both languages when reading (SUP)	1	11	0	15
17. Commenting on behavior or process (GLOB)	10	9	9	9
18. Questioning word meaning (PROB)	117	3	121	3
19. Questioning sentence meaning (PROB)	92	4	107	4
20. Using grammar knowledge (PROB)	1	11	1	14

Considering the 11 types of global reading strategies investigated in Phase I of the study, the 15 participants in Phase II identified only 5 of these 11 types in their reading of the article written in the collection mode and six of the 11 types of global strategies in their reading of the text in the problem-solving mode.

When given a list of strategies, participants in this study identified nearly twice as many global strategies as they had listed when asked to generate a list of strategies. It is possible that, when the participants talked aloud their reactions as they read, they were inevitably commenting on a portion of the text at any time, not to the whole text.

Therefore, it might be simply natural that they did not identify as many global strategies.

Judging from the participants' self-reports, when reading the text in the problem-solving mode, there were five global reading strategies they did not use. These were the following: "I have a purpose in mind when I read this article," "I think about whether the content of the text fits my reading purpose," "I use context clues to help me better understand what I am reading," "I critically analyze and evaluate the information presented in the text," and "I check my understanding when I come across new information." In their reading of the article written in the collection mode, the six global strategies that they did not identify were the following: "I have a purpose in mind when I read this article," "I think about what I know to help me understand what I read," "I take an overall view of the text to see what it is about before reading it," "I think about whether the content of the text fits my reading purpose," "I critically analyze and evaluate the information presented in the text," and "I check my understanding when I come across new information."

Table 11 shows the 20 strategies with labels reflecting the three categories of reading strategies proposed by Mokhtari and Sheorey (2002): SUP for support, PROB for problem-solving, and GLOB for global. As Table 12 shows, the participants employed reading strategies in all three categories more frequently when reading the

text in the discourse type of collection than when reading the text in the discourse type of problem-solving. This is consistent with the results of Phase I of the study, in which more strategies were associated with the collection type.

In addition, for the category of reading strategies most frequently used by the participants in their reading of texts written in the two discourse types, 'support' reading strategies were most favored or most frequently used strategies, followed by problem-solving reading strategies and global reading strategies. Again, this could be partly the result of the think aloud activities.

Table 12

Means for Global, Problem-Solving and Support Reading Strategies and Overall Reading Strategies (Phase II)

Category	Problem/Solution (*n*=15)	Collection (*n*=15)
	M	M.
Overall	2.82	3.00
Global	.75	.83
Problem-Solving	2.85	3.30
Support	5.54	5.58

Patterns in the Participants' Strategy Use

(Phase II)

As indicated by the participants' protocols, most of the time when the sentences were of relative ease to them, they tended to use the support strategy, "translating from English to Chinese." It is interesting to note the frequency of translation as a

strategy that seems to come in almost as a default for these learners. That is interesting, given the fact that translation to a learner's L1 has long been controversial among second language acquisition researchers. In the past, L2 English learners' errors were explained as the result of interference from their L1 (Kaplan, 1972). Dulay, Burt, and Krashen (1982) indicated that the influence of the learners' L1 was significant only in pronunciation and negligible in grammar. More recently, Cook (1992 & 1996) challenged the notion of a clean separation between the L1 and the L2, and considered language competence as a unified linguistic system with knowledge of two or more overlapping languages. In the same vein, Cohen (2001) used his contacts with different languages as an example to illustrate that his accumulated language learning experiences made his each exposure to a new language easier. In this sense, translating the text from English to Chinese seems to be an essential tool to make English learning more enjoyable for these participants.

When they encountered difficult sentences in the texts, of course, translation was no longer possible. In this case, they often used other localized strategies such as "reading aloud for better understanding," "questioning word meaning," and "questioning sentence meaning" to solve their reading problems. However, it seems that if they felt sure that they knew the other words in the sentences, they would cite the global reading strategy "guessing text meaning" to comprehend the texts. In

order to illustrate how the participants cited these strategies during their think aloud protocols, I would like to present some examples that were most typical of the participants' responses when using particular strategies. In the following examples texts, I will italicize the sentences which represent translations what the participants said in Chinese, in order to differentiate these from their reading or statements in English. In the running text, however, italics will simply be used as a general means of citing English words or phrases.

Example I

The first example comes from my session with Mary, who was reading the collection text. This example shows that she mainly used two types of reading strategies during her reading of a sentence: "translating from English to Chinese," and "reading aloud for better understanding." When parts of the sentence were of relative ease to her, she tried to translate them word by word from English to Chinese, even though she mistook the word *access* as the word *assess*. Vitevitch (2002) indicated that, in the process of lexical selection, phonologically similar words can block each other or compete with each other. Likewise, Ferreira and Griggin (2003) pointed out that phonologically similar words can influence lexical selection and result in errors. In contrast, when Mary had difficulties with the English phrase, *now take for granted*, she read it aloud to help her understand what she had read. This

strategy was most typical of the participants who read both discourse types in Phase II.

Text: In modern developed society, access to formal education is something that many people now take for granted.

Protocol: 在現代的一個社會的發展之下，然後・・・由・・・去評估一個教育的・・・Now take for granted. (*Under the development of a modern society, then . . . to evaluate an educational . . .* Now take for granted.)

It seems clear from the student's transcript at this point that she did not realize her error with the word *access*. In fact, she turned the form into a verb to accommodate her incorrect translation. Of course, this led to a very serious misunderstanding of the sentence. Also, her repetition of the phrase *now take for granted* was followed by a comment that only referred back to the word *educational*, and did not address the meaning of the idiom *to take for granted*. As a result, where the sentence claimed that universal education was simply accepted without thought in modern society, the student seemed to have read it as meaning that people evaluate ('assess') student learning.

Example 2

The second example comes from my session with Sarah who was also reading the collection text. Even though the participant indicated that she was able to recognize the words of a sentence, she was not able to comprehend the portion of the sentence which followed the words, *[f]ew formal schools*. It was not clear quite how to categorize this excerpt, though I had counted passages like this as examples of the strategy, "questioning sentence meaning." In fact, it seemed to represent the learner's giving up the search for meaning, rather than 'questioning' to grasp the meaning.

Text: Few formal schools existed, and the ones that did were costly and, therefore, reserved for children of the wealthy.

Protocol: 很少數的一些學校丫・・・這邊不太懂意思，雖然字都看得懂。(*Very few schools. Oh. . . I can not understand this part, even though I understand all the words.*)

The student had left the word *formal* out of her translation for this sentence; more important, she was not able to decipher the overall meaning of the sentence. Interestingly, she commented that all of the words were familiar. Thus, it had to be the rather complex construction of the sentences that was giving her trouble. One got the impression that this learner abandoned the attempt to read the sentence,

without trying first to re-arrange the words (*one . . . were costly*, or *formal schools were for children of the wealthy*). She might simply have assumed that there was no way she could decipher the relationship between these individual words which she claimed to know.

Expressing a Lack of Understanding

In this section, my examples will be cases where the participant identified something they did not know, but did not try to puzzle out the meaning from the context or from the other words. Although I assigned codes to these, such as "questioning word meaning" or "questioning sentence meaning," it is important to note that the learners here are not really using a strategy to try to understand the text. Rather, they are voicing their frustration at not being able to understand. The examples give an idea of in the exchanges that took place in such cases, which are quite frequent in the data. In fact, "questioning word meaning" and "questioning sentence meaning" are two of the most frequently cited strategies in both discourse types (See Table 11 in this chapter).

Example 3

Example 3, which demonstrates the use of the strategy "questioning word meaning," comes from a session which I had with Tommy in his reading of the problem-solving text. Pointing to a word which he did not understand, he was

actually employing the strategy “questioning word meaning,” which was commonly cited by the other participants in their reading of the two discourse types.

Text: Faced with the prospect . . .

Protocol: 然後面對・・・那個 prospect 的字，我不知道。

(*Then facing . . . I don’t understand that word*, prospect.)

Example 4

Example 4 comes from Emmy who was reading the first sentence of the problem/solution text. She identified a word she did not understand, after reading the whole sentence aloud. This example also shows that she used the strategy, “questing word meaning.”

Text: People who have studied a foreign language know that it can be one of the life’s most rewarding experiences; they also know how much efforts it takes.

Protocol: 嗯，rewarding 是什麼意思。Much efforts 這個字好像有看過。

(*Oh. What does* rewarding *mean? Earlier, I seem to have read the words*, much effort.)

Example5

Example 5 demonstrates how Steve utilized the strategy I have coded as “questioning sentence meaning” in his reading of the problem/solution text. He

could translate some of the words in the first half the sentence, but he indicated that he knew little about what the rest of the sentence said. This time, it was unclear whether the words were familiar, as terms like *mastery* and *achieve* are not common, and the learner may have been struggling with word meaning rather than sentence structure.

Text: Expert opinions differ on the specific number of words a second-language learner needs to know to achieve mastery, but they generally agree that it is several thousand.

Protocol: 它說藉由公開調查，第二語言的學習者，知道一些什麼，丫・・・後面不太知道意思。(*It said that the second language learners know something through public investigation. Ah . . . I don't quite understand what the rest of the sentence means*.)

Example 6

Example 6 comes from a session which I had with John in his reading of the problem/solution text. This example shows that his comprehension of the sentence was limited. He admitted that he did not know most of the words in the sentence and could only translate the portion of sentence, *many students and teachers*. Although I also coded this example under the strategy, "questioning sentence

meaning," the student seemed to be simply admitting a lack of understanding, rather than pursuing some strategy to help him to achieve understanding.

Text: Over the years, many students and teachers have developed useful shortcuts to make language-learning smoother, faster, and hopefully, more enjoyable.

Protocol: 有一些老師跟一些學生由 ・ ・ ・或者是做什麼？然後有一個單字看不懂，然後所以不知道他們在做什麼，那只知道有一些學生跟老師。(*There are some teachers and some students through . . . or do what? There's a word I don't understand, so I do not know what they are doing. I just know that there are some students and teachers.*)

Example 7

The following example also comes from John in his reading of the first sentence of the problem/solution text. At the beginning, he spent a couple of minutes reading the text silently, and then commented that the article was extremely unfamiliar to him. He claimed that he was not able to read the article because there were a lot of vocabulary items he did not understand. If he understood some of the words, he would try to guess what the sentence said. The example shows how the

participant expressed a sense of frustration abut his reading and described his strategy use.

Text: People who have studied a foreign language know that . . .

Protocol: 看到這個文章覺得很陌生，有一些陌生的單字，然後也無法將整篇文章串聯起來，只懂得裡面幾個陌生的字這樣，就稍微作聯想，主要有些單字不懂，所以也不知到句子在講什麼。那有一些懂的話，也只能猜看看。(*When I read this article, I feel it is very unfamiliar to me. There are some unfamiliar words, and then I cannot piece the whole article together. I just know some of the words. Sort of guess what they mean. Mainly because there are some words I do not understand, I do not know what the sentence is about. If I know some of them, I only can guess what they mean.*)

In example 7, John was expressing a general sense of frustration, since he seemed to not be familiar enough with the words to allow him to make progress at all. Waring and Nation (2004) estimated that a leaner has to be familiar with at least 95% of the words in a passage. Otherwise, the learner's probability of success in guessing unknown words will be severely limited. This student seemed to be

beyond his level, and to be unable to decode the text due to the lack of enough vocabulary.

Example 8

Example 8 also shows a participant's feeling about the article. It comes from the session I had with Helen when she read the collection text. She had difficulty understanding some portions of the sentence. She read them aloud, and indicated the words she did not understand by saying, "I don't understand." When she approached the portion of sentence, *at Sunday school*, she translated it into Chinese. However, she was not sure what *Sunday school* really meant. She felt lost, saying "What a strange article!"

Text: In the counties that followed, though, schooling for many still remained quite haphazard; some pupil attended classes in churches, while others were educated at Sunday school.

Protocol: In the 看不懂、that 看不懂、看不懂、schooling for many still 看不懂 quite 看不懂、some 看不懂、看不懂、classes in 看不懂、看不懂期他，were 看不懂、at Sunday school.禮拜天學校？好奇怪的文章ㄡ。(*I don't understand* In the. *I don't understand* that. *I don't understand* schooling. *I don't understand* for many still. *I don't understand* quite. . . *I don't understand* some. *I don't*

understand *I don't understand* classes in. *I don't understand.* Other. *I don't understand* were. at Sunday school. *Sunday school? What a strange article!*)

Example 9

In Example 9, Lisa again commented that the sentence was very difficult for her; she guessed it was about English learning, but did not grasp the main idea being expressed.

Text: Faced with the prospect of endless hours of learning vocabulary, memorizing rules, and practicing pronunciation many people simply abandon hope of ever achieving a higher level of fluency.

Protocol: ㄡ好難耶，這篇是講那個嗎？學英文的一些 . . . 就還沒有看到後面，不知道。(*Oh, it's so difficult. Does this article talk about . . . Something about English leaning . . . Since I have not read the following text, I don't have a clue*.)

Example 10

The following example comes from a session which I had with Mary in her reading of the collection text. She started to read the whole sentence aloud to figure out what it said. When reading aloud, she skipped the word, *rehearse,* perhaps because the word was difficult for her to pronounce. Then, she translated the phrase,

different way. At this point, she showed her sense of frustration by saying, “My brain has become confused.”

Text: Doing this often requires that we rehearse the information over time and in different ways.

Protocol: Doing this often requires that we 什麼的？the information over time and in different way. 不同的方式・・ ・嗯，做到這邊，我的腦筋已經開始模糊。(Doing this often requires that we . . . *What ?* the information over the time and in different ways. *Different ways. Ah. . . . At this point, my brain has become confused.*)

Example 11

The next example comes from Mike who was reading a sentence in the problem/solution text. After reading it silently for a while, he admitted that this sentence was very difficult for him. When I asked him whether he had anything he wanted to add, he said that he could not think of anything. The participant expressed a sense of frustration about his reading experience.

Text: Simply put, mnemonics is a methods used to help one remember information that is otherwise difficulty to recall.

Protocol: 好難ㄡ・・・ 腦筋一片空白。(*It is so difficult . . . There is nothing*

on my mind.)

Partially Successful Strategies

Example 12

This section presents two examples where the participants were partially successful applying strategies to construct meaning, but still were not able to figure out the meaning of a whole passage based on the words they had already known. Example 12 comes from a session which I had with Tommy in his reading of the collection text. It shows how the participants cited the strategy "guessing text meaning." Comparing this sentence with the previous sentence he had read, the participant said that he could manage to understand more words in this sentence. Even though he was not able to comprehend the whole sentence, he guessed that this sentence compared boys with girls. The strategy "guessing text meaning" was commonly cited by the participants when they had questions about sentences or portions of sentences in the two discourses.

Text: Education for the majority of girls and young women consisted mainly of learning domestic crafts; very few were exposed to the same academic content that boys and young men were.

Protocol: 這裡看得懂的字比較多。然後什麼的，女孩跟年輕的女人啦，consisted. . .consisted 有點忘記了，什麼學習什麼的。對ㄚ，它

好像在男生跟女生在比較什麼的，不過不知道在比較什麼東西。很少的，詳細不太清楚，不過好像在比較什麼東西的。 (*I can understand more words here. Then what. . . Girls and young women ah. . . .* consisted *. . . I kind of forget the word,* consisted. *Right. It seems that it compares boys and girls. Something like that. But I don't know what it compares. Very few. . . I don't know many details about it, but it seems to compare something*.)

Example 13

Example 13 comes from Emmy who was reading a sentence of the problem/solution text. After reading the whole sentence aloud, she guessed that the sentence was about some kind of rhyming technique for learning English. This example also shows how the participant used the strategy, "guessing text meaning."

Text: Without even being aware of rhyming mnemonics, many English-speaking schoolchildren learn to count using a rhyme that begins 'One, two, buckle my shoe."

Protocol: . . . 是一種學英文的口訣嗎？ (*Is this a kind of rhyming technique for learning English?*)

The above example shows that this guessing text meaning was only partly successful. The student used the words ‘learn’ and ‘rhyme,’ but then still constructed the wrong meaning, because of missing the word *count*. There is an implication here. Teachers could lead students through a process of how to figure out new meaning from really paying attention to the words already known, while also trying to ascertain which words are necessary to fully understand a given passage.

Least-Used Strategies (Phase II)

The participants identified the following three strategies least often in both texts: “thinking in both languages when reading,” “visualizing information read,” and “using grammar knowledge.” However, the rest of the ‘least used’ list differs. For the problem-solving text, the list includes these items: “using context clues,” “finding relationships among text,” and “noting text characteristics.” In contrast, for the collection text, the list is somewhat different: “using background knowledge,” “taking an overview of the text,” and “asking oneself questions.” Given the fact that “using background knowledge” was not cited at all in the participants’ reading of the collection text, they probably did not consciously consult schema knowledge during their reading. In addition, perhaps due to the think-aloud activities, they did not cite the global strategy “taking an overview of the text” when reading the collection text.

Example 14

In this section, I would like to present some examples to demonstrate how the participants cited these 'least-used" strategies in their reading of the two discourses. Example 14 comes from a session which I had with Tommy when he read a sentence in the collection text. At the beginning, he used more commonly-used strategies to comprehend the sentence: "translating from English to Chinese," "guessing meaning of unknown words," and "questioning word meaning." Then, approaching the word *who*, he identified the word as a relative pronoun. The following example shows that the participant cited the strategy "using grammar knowledge." However, as is clear from the example, this strategy was not useful for this reader, as he was unfamiliar with terms like *the U.K.* and *priests*, and he seemed puzzled about the use of *school* as an adjectival form with the suffix *–ed.*

Text: During the early days of education in the U.K., many students were schooled by local priests, who taught reading and writing classes in their churches.

Protocol: 喔，就是在比較早的時候丫，然後在 *U.K.*，這應該是一個國家吧，我猜的，很多學生 . . . *schooled* 不太清楚意思，這是本土的什麼？*priests* 不太知道，這是關係代名詞 . . . 。

(*Oh, at the earlier days, Yah . . Then at* U.K. . . . *Could this be*

a country? I guess. Many students . . . schooled? *I am not quite sure about its meaning. What is this local something? I don't not know for sure what priests means. This* [who] *is a relative pronoun . . .*)

Example 15

Example 15 comes from a session which I had with the same participant, Tommy, in the previous example. When he was reading a sentence in the problem/solution text, he citied the strategy, "using grammar knowledge" again. In fact, he was the only participant who utilized this strategy. He was not sure what the main sentence meant, even though he could identify the words like *map* and *link*. When he tried to re-read the whole sentence in order to figure out its meaning, he tried again to apply his grammatical knowledge. But in doing so, he mistook the sentence as an inverted sentence. Note also that in both these cases, the student simply used a grammatical label (once correctly, once incorrectly); he did not then use this identification as a step toward better understanding. The implication here is that grammatical knowledge is often taught as a labeling exercise. This lack of use of grammatical knowledge might suggest that teachers might help students by using grammar in context more. In particular, in the present case, the student needs to become aware of the uses of adverbial gerund phrases at the start of a sentence.

Text: Using this method, a student might create a mental map of her home town and link locations in the town to words she wants to remember.

Protocol: 用一些方法之類的，這個字忘記了。map 我知道是地圖，不過不知道它其它有什麼意思。它的家鄉的什麼地圖，link 我想起來好像是什麼連結之類的，連結他們本土的一些什麼？等一下，我看一下一整句，這是好像是一個倒裝的句子。(*Use some kinds of methods. I forget this word. I know* map *means map, but I am sure if it has other meanings. What map in its country? I remember* link *means connecting. Something like that. In order to link their local . . . What? Wait a minute. Let me read the whole sentence. This seems to be an inverted sentence.*)

Example 16

Example 16 comes from a session which I had with March when she read a sentence in the problem-solving text. At first, she read the sentence aloud, and then translated the sentence from English to Chinese. Although she had translated the sentence, she was still skeptical about whether she comprehended it. At this moment, she expressed her doubt in English, saying “I am not so sure about this.” I coded this example as illustrating the strategy “thinking in both languages when reading,”

though it could also have been illustrated as “questioning sentence meaning.” It seems that the participant had understood that memory was in question here; but presumably she may have been unfamiliar with the word *retrieval*, and so she had guessed that it may have to do with speed. Reasonably enough, she then questioned her hypothesis about the meaning. This strategy was only cited once in the participants’’ protocols.

Text: Some information, though, we want to store for later retrieval.

Protocol: 有一些資訊我们想要快速的記住嗎？ (*There is some information we want to memorize quickly?* I am not so sure about this.)

Example 17

Example 17 comes from a session which I had with Mary in her reading of the problem-solving text. When she read the portion of sentence, *a large number of,* she said that she had read this portion in the earlier text. However, she did not know how to translate it correctly. Thus, she intended to go back to the earlier text to check on it. This example demonstrates how the participant went back and forth in the text to find relationships among portions of sentences in it. “Finding

relationships among text" is one of the least-used strategies in the problem-solving text.

Text: Although it is possible to learn the meaning and usage of a large number of words, it can also be extremely time-consuming.

Protocol: 大概知道這個意思吧，a large number of words 這句話前面也會出現過，然後可能就會往回找一下，看一下，對，就是 a large number of words，但是這句話我不會正確的翻出來，這句話前面有出現過，就會往回看一下，去抓到那個點、那個字，再往回看一下。

(*I can get its general meaning. The phrase,* a large number of words, *also showed up in the earlier text. Then, I will probably go back to check it up, take a look at it. Right. It is* a large number of words, *but I cannot translate the sentence correctly. This sentence showed up earlier. I will go back to take a look at it. Grasp the word, and then go back to check on it.*)

In fact, in example 17, the participant did not solve her problem. She did seem to look back at the earlier use of the phrase, but it did not seem to have helped. The implication here is that these less frequent strategies might be illustrated in classroom

sessions, since they probably have not been taught, and they involve some potentially complex reasoning.

Example 18

"Asking oneself question" was one of the 'least-used' strategies which the participants cited in their reading of the collection text. This strategy was only cited once in the participants' reading of the collection text. The following example shows that Sarah asked herself a question before she figured out what the sentence was about.

Text: Some offer basic academic education while others offer students the chance to specialize in their field of choice such as drama, science, music, or technology.

Protocol: 有一些會提供基本的教育呀，去提供學生一個機會，去秀出自己的獨特性嗎？drama 阿！就是用學生自己的興趣，去選擇學科。(*Some would offer basic education. Is this in order to provide students an opportunity to show their individuality?* Drama. *Oh. Students use their interests to choose a subject to learn*.)

Noting Text Characteristics

The strategy, "noting text characteristics," refers to noticing text characteristics like length and organization (Mokhtari and Sheorey, 2002). This strategy was one of

the ‘least-used’ strategies in the participants’ reading of the problem-solution text and also seldom cited in their reading of the collection text. In this section, I would like to present three examples which demonstrated how some participants cited this strategy in their reading of the two texts. The sentences in the following examples were either at the conclusion of a text or at the end of a paragraph. Perhaps due to the location of the sentences in the texts, it was easier for the participants to notice text organization.

Example 19

Example 19 comes from Jane who was reading the first sentence of the last paragraph in the problem-solving text. Before reading this sentence, she commented on the organization of the text, noting that this passage was about the conclusion of the text. This example shows how she cited the strategy “noting text characteristics.” This strategy was only cited once in the participants’ reading of the problem-solving text.

Text: Rhymes, acronyms, mental maps, and images are just some of the many types of mnemonics devices that can be used by language learners.

Protocol: 最後就是做總結，就是說・・・有很多字看不懂，我只看得懂想像。這些方法就是前面講的那些，這些方法能幫助語言學習

的人比較能記憶。

(*Finally, it comes to the conclusion. That is to say. . . There are a lot of words I cannot understand. I only know the word, images. These methods refer to what has been mentioned before. These methods can help language learners memorize more.)*

Example 20

Example 20 comes from my session with Sarah in her reading of the collection text. Before moving to the last paragraph, she identified the word, *nowadays,* as a signal which showed a transition in the text. While the signal which she identified did not reflect the discourse organization of the text, she actually utilized the strategy "noting text characteristics" in her reading of the sentence.

Text: Nowadays, a variety of school exist in the U.S. and U.K.

Protocol: 嗯，出現轉折語氣嗎？Nowadays? (*Ah. Is this a turning point in the text?* Nowadays?)

Example 21

Example 21 comes from a session which I had with Steve when he was reading a sentence in the collection text. He had difficulties comprehending this sentence, but he noticed the text organization.

Text: Many of Dewey's theories continue to be discussed and debated by

educators today.

Protocol: 嗯，這句話稍不太懂，不過知道它大概是這段結尾，應該不算很重要。(*Ah, I don't quite understand this sentence, but I know it may be the conclusion of this paragraph. Therefore, it should not be very important.*)

This is an example of a reference to text characteristics. It may be an erroneous one, but it is interesting that the student made the effort to assess the importance of the sentence by its position. Again, the fact that this strategy was so seldom used, and possibly even then may not have been used effectively, leads to a possible suggestion for teaching about text characteristics.

Elaborating or Paraphrasing for Better Understanding

Supporting strategies are basic support mechanisms which can help the reader in comprehending texts (Mokhtari & Sheorey, 2002). Based on the results from Phase II of the study, the 15 Taiwanese participants seem to have favored local support strategies such as questioning word and sentence meaning, rather than more global strategies aimed at getting a sense of the text. Because this strategy was very similar to the other strategies like "guessing text meaning," the following examples in this section can demonstrate how the participants paraphrased texts or elaborated on them for better understanding.

Example 22

The next example comes from a session which I had with Jane when she was reading the last sentence of the text. She restated the whole sentence in her own words because she did not know how to translate it. This example illustrates how the strategy "paraphrasing for better understanding" was cited by the participants.

Text: The key, though, is to try a variety of methods and find a few that work for the best for you.

Protocol: 最後一句我不太曉得意思，不過我會用自己的話講，就是我覺得它是在講記憶的方法還是要看人，就是每個人用的方法不一樣，要去嘗試這個樣子。(*I do not quite understand what the last sentence means, but I will put it in my own words. That is, I feel that what it says is that memorizing techniques depend on people. Everyone tries her own way. We just need to try.*)

Example 23

Example 23 comes from a session in which March was reading a sentence in the problem/solution text. Like the previous example, the participant restated the sentence because she was not sure what the sentence meant. By restating it in her words and providing herself an example, she was able to get a general idea about the sentence.

Text: The mental image of the town would act as prompt and enable learners to recall the associated words.

Protocol: 後面這句話不是很確定，不過大概就是說他精神想像畫出來一個東西，他常常有在使用的東西，活用的東西啦，然後可以幫助他去更快速的學習東西，因爲他常用，譬如說 box，他會去唸出這個字，大概是這個意思吧。(*I am not sure what the last sentence means. However, in general, he uses his imagination to draw something, something he uses very often. This is something he can apply flexibly because he uses it a lot. For instance,* box. *He will read the word aloud. This is the general idea*.)

In Example 23, March seemed to be elaborating on the one term she might have understood, mental image. She was not really paraphrasing the passage, though she might have been trying to use her own idea of imagination as a support to guess the meaning of the sentence.

Example 24

The following example comes from a session which I had with March in her reading of the collection text. This example shows how the participant utilized the strategy, “paraphrasing for better understanding.” Instead of translating the sentence

word by word from English to Chinese, she used her words to explain the meaning of the sentence.

Text: Some offer basic academic education while others offer students the chance to specialize in their field of choice such as drama, science, music, or technology.

Protocol: 就是現代教育就對了，學校的東西，給我们的東西必需要足夠讓我面對社會未來的需要，跟我們自我學習的欲望就對了。(*It is about modern education. That's right. The school's stuff. The stuff they give us must be enough for us to face the needs in the future society, and our individual learning needs. That's right.*)

Example 25

Example 25 comes from a session which I had with Sarah in her reading of the collection text. At first, the participant tried to translate the whole sentence, but she found a couple of words she could not understand. In order to better comprehend this sentence, she restated the sentence in her own words. This example shows that "paraphrasing for better understanding" could be a good strategy for the participants when they were not able to translate a sentence correctly.

Text: The Education Act of 1944 reformed the schooling system further

by providing equal educational opportunities for boys and girls and changed teaching approaches to incorporate students' individual ages and abilities.

Protocol: 平等的教育男生跟女生，去教導一些，這兩個字看不懂，然後 student，嗯，這應該是寫作的，不管怎樣這句話就是說，它最主要的意思就是說，教育的話，在 1994 年的時後，教育的系統會提供人的教育機會，平等給男生跟女生一起去就讀的，去改變一些以前的舊有觀念。(*Equal education for boys and girls.* To instruct . . . *I cannot understand these two words. Then,* student. . *Ah, this should mean writing. Regardless of what this sentence says, its main idea is that, in terms of education, in 1994, educational systems provided equal educational opportunities for boys and girls to study together. This changed old concepts in the past.)*

The above example seems like an especially thoughtful use of the paraphrasing strategy. The student had thoughtfully identified what she knew and did not know, and was trying to weave together a meaning from the familiar items, also extrapolating from the use of the date 1994, that the use of this date must have indicated a change.

In the following, I will list the signals identified by the participants in order to illustrate whether they were able to identify the two types of western discourse organization. Table 13 gives a list of the textual signals mentioned as a help to their understanding as they read the two types of text. I identified words of phrases in the text as 'signals' when participants made comments such as "我猜是這個字 *mnemonics* 吧" ("I guess it could be the word, *mnemonics.*")

Table 13

Signals Detected by Taiwanese L2 English Readers When Reading the Two Discourse Types (Phase II)

Learner	Signals Detected in the Discourse Type of Problem/Solution	Signals Detected in the Discourse Type of Collection
01	mnemonics	UK, US, church, years such as 1187, names such as Dewey
02	although, that	during, years such as 1187, nowadays
03	X	years such as 1187
04	mnemonics	education
05	language, information	X
06	foreign languages	educational systems, U.S., U.K.
07	mnemonics, rhymes, acronyms	exist, establish
08	rhymes, mental images, acronyms	compulsory
09	language learning	education
10	language	education
11	language learning, language learning methods	US., UK.
12	for instance, although	during , until, nowadays, during the early days of education
13	language	education
14	language learning, vocabulary	education
15	language	education, learners

X=No signals detected.

It is important to note that none of the signals (0%) the participants identified clearly reflected the underlying structure of the text. While I specifically asked the

participants whether they detected any words that showed authors' organizational intents, most of the words offered by them were more related to the content of texts than to the organization. In fact, most of the words were vocabulary items which carried the content, or experiential meaning of the text (Halliday & Hasan, 1989). For instance, some of the words they have identified were: *education*, *language learning*, and *rhymes.* One participant did mention the text organization, but it seemed that her sense of text organization only referred to her own organization of what she had just read, and not to structure within the text itself. In fact, this interviewee claimed that the text she read was arranged in the discourse type of collection, when in fact the article she read was actually arranged in the mode of problem/solution.

At this point, to get a closer look at this part of the data from these retrospective think aloud sessions, I would like to discuss three specific exchanges that took place in connection with this issue of signals.

The first brief exchange, reported here as conversation one, comes from my session with a participant who had read the problem/solution text. This participant's response, which focused on content rather than textual signals of organization, was typical of those who read this type of text.

Conversation One

Interviewer: 妳在剛才讀過的文章中，有發現任何與文章的組織架構有關的字嗎？(*Have you found any words which are related to the organization of the article you just read?*)

Participant #11: 我覺得. . ．一開始，它先提語言學習那方面的。(*I feel . . . At the beginning, it mentioned something about language learning.*)

然後它談到語言學習的方法。(*Then, it talks about language learning methods.*)

一步接一步，它介紹這些方法。(*Step by step. It introduced these methods*.)

一點接一點，然後舉例子。(*One point after another. Then, it gives us some examples*.)

最後，它做結論，並總結這些方法。(*Finally, it makes a conclusion and summarizes these methods.*)

In contrast, participants who read the collection text were slightly more capable of identifying the signals reflecting the organization of text. Four of the 15 participants (26%) in this group identified signals which were compatible with the organization of the text. This is perhaps to be expected, as the organization of this

particular text involved a series of time references, a particularly salient type of signal.

Conversation Two

Interviewer: 你有找到可以幫助你指認出本文章的組織架構的字嗎？(*Have you found any words which help you identify the organization of the article?)*

Participant #03: 嗯. . . 我是注意到這篇的年代。(*Uh… I paid attention to the years in this article.*)

不同的年代在文章中出現很多，所以我想這篇文章可能是比較不同的年代。(*Different years show up a lot in this article, so I figure that this article probably compares different periods of time.*)

On an additional note, one of these four participants thought that the text was arranged in the comparison structure, even though the signals identified by him reflected chronological order.

The third conversation shows the more typical type of response given by the collection-mode readers; that is, most of these readers, in spite of the presence of overt organizational markers in their text, again responded with terms relating to

content rather than discourse organizers when asked about words that reflected the organization or structure of their essay.

Conversation Three

Interviewer: 你有找到與你剛才讀過文章的組織架構有關的字嗎？(*Have you found any words which are related to the organization of the article you just read?)*

Participant#13: 應該是教育那個字。(*It ought to be the word*, education.)

對。這個字「education」。(*Right. The word* "education".)

Interviewer 有要補充什麼字嗎？(*Any word you want to add*?)

Participant #13: 阿. . . 它好像有在比較 U.S. 跟 UK. (*Well. It seems that the article compares U.S. and U.K.*)

而且它列出年代，針對這個主題的進展。(*Also, it lists ages and focuses on the development of topic.*)

Research Question # 2

Which of the two discourse types, collection or problem/solution, seems to create more difficulties for intermediate-level L2 English readers at Taiwanese colleges? Given the testimony of these readers, what are the reasons for the difficulty?

Results Related to Research Question # 2

In Phase I, those who had read the collection text achieved a higher mean score than those who had read the problem/solution text (2.13, as compared with 1.80). According to the test scores, the collection group performed better than the problem/solution group.

Nevertheless, based on the participants' testimony in Phase II of the study, thirteen participants (86%) thought that the text written in collection was more difficult than the text written in problem/solution. Asked what the reasons for the difficulty of the text were, ten participants (66%) reported that the text written in the discourse type of collection was more difficult to read because its vocabulary items were difficult for them.

Table 14 shows the differences in the participants' scores in the reading comprehension test administered after their reading of the two different texts in the second part of Phase I. The highest possible test score was four, measured as one point for each correct response; there were four items in the comprehension test.

Table 14

Differences in Reading Comprehension Test Scores between the Two Discourse Types (Phase I)

Category	Problem/Solution (*n*=113)		Collection (*n*=167)		*t*	*p*-value
	M	S.D.	M	S.D.		
Reading Comprehension Test Scores	1.80	1.240	2.13	1.133	-2.33	.02

One can evaluate significant differences by looking at the *p* value of the *t*-test in the table. As indicated in Table 14, the differences in the participants' reading comprehension test scores after their reading of the two different texts were significant ($p < .05$). Those who had read the collection text achieved a higher mean score than those who had read the problem/solution text (2.13, as compared with 1.80). While the problem-solution text was considered to be more organized than the collection text (Meyer and Freedle, 1984), the discourse organization was not particularly beneficial to the problem/solution readers in terms of their test scores.

At the end of the participants' retrospective verbal reports, I asked them to reflect on the two texts they had read. Thirteen of them (86%) thought that the text written in collection was more difficult than the text written in problem/solution. In contrast, only two participants (13%) believed that the text written in problem-solving created more difficulties for them. As to the reasons for the difficulty of the text, ten

participants (66%) reported that the text written in collection was more difficult for them to read because its vocabulary items were difficult for them (see Table 15).

Table 15

Frequencies & Percentages of Self-Reported Reasons for the Text Difficulty (Phase II)

Frequencies Reasons	Problem/Solution # of Participants (%)	Collection # of Participants (%)
Because vocabulary items are difficult.	0 (0%)	10 (66%)
Because I am not familiar with the content of text and because vocabulary items are difficult.	0 (0%)	2 (13%)
Because sentences are too long and because vocabulary items are difficult.	0 (0%)	1 (7%)
Because the information of the text is not presented orderly.	1 (7%)	0 (0%)
Because I cannot guess the meaning of the whole text.	1 (7%)	0 (0%)

Conclusion

In Phase I of the study, the *t*-test results showed that there were significant differences between the two discourse types, problem-solving and collection, in the participants' use of global reading strategies ($p<.01$). According to the data analyzed from the participants' think-aloud verbal reports in Phase II, within the three categories of reading strategies proposed by Mokhtari and Sheorey (2002), the participants employed the reading strategies more frequently when reading collection

texts than when reading problem-solving texts. The three categories included global, problem-solving, and support strategies.

The results do seem to suggest that there is a link between the Taiwanese college students' choice of reading strategies and discourse types. A discussion of the findings and some pedagogical implications derived from the results ensue in the next chapter.

CHAPTER 5

DISCUSSIONS, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Introduction

As an aid to the reader, this chapter starts with the statement of research problem, presents the hypothesis, and then discusses the results. Finally, it offers some pedagogical implications derived from the results, makes some suggestions for future studies related to this research topic, and reflects on how the data was analyzed in the study.

Statement of the Research Problem

Considering discourse types or genres as a means of achieving communicative goals by writers (Dudley-Evans, 2005), this study aimed to know whether readers adjusted their reading strategy use according to different discourse types, in particular the two expository structures, collection and problem/solution. That is, the interaction between reading strategies and discourse types was the main focus of the study. In Phase II of the study, it was also possible to ask the extent to which these readers were aware of text types or of organizational terms in text.

Hypotheses

There are significant differences between the two discourse types, problem-solving and collection, in the participants' use of global reading strategies.

Discussion of the Results

The results presented in the previous chapter seemed to confirm the hypothesis that there is a link between the Taiwanese college students' choice of reading strategies and discourse types. Even so, further discussions of some findings are needed. In the following sections, the results of the study will be interpreted, related to previous research and checked against existing theory.

Task Effects on the Participants' Reporting of Strategies

When reading a text written in collection, in all of the reported 11 global reading strategies (100%), the participants' mean reported use of these strategies was above 3.00 (out of a possible 5), implying use of these strategies. Likewise, while reading the text written in the discourse type of problem/solution, eight global reading strategies (73% of the 11 strategies) were reported to be used by the participants, again based on the fact that their mean reported use of these seven strategies was above 3.00.

Nevertheless, of the 11 types of global reading strategies investigated in Phase 1 of the study, the 15 participants in Phase II cited only 5 types of these strategies in their reading of the article written in the collection mode and six types in their reading of the text in the problem-solving mode.

There were possible effects of the different tasks on the participants' reporting of reading strategies. In Phase I of the study, when given a list of reading strategies, the participants could easily 'articulate' their use of reading strategies by circling the answers in the surveys. However, in Phase II, even though the participants received training on think-aloud verbal report before reading the articles, many of them probably were still not able to verbalize their inner thoughts clearly in their reading of the expository texts. That is, it was possible that the participants did use some of the global reading strategies they did not report, but they might have lost track of their inner thinking before verbalizing it. As noted earlier, a subtly different view of this issue arises if we note the immediacy of the reporting done in the think aloud protocol, which focuses the reader's attention on immediate elements rather than on overall structure. It may point out weakness of the revised version of think-aloud report used in this study. While this result may stem partly from the task they were engaged in, it may also suggest that such global strategies do not figure, at least consciously or prominently, in readers' notions of how they deal with text.

The Effects of the Participants' Ability to Identify Discourse Organization on their Strategy Use

Drawing from schema theory, Meyer (1987) considered reading as a conversation between an author and a reader. As explained by Meyer (1987), the

success of the conversation between an author and a reader depends largely on whether the reader has a general idea of the author's purpose and can identify the top-level structure of a text. Only when the author's message is comprehended can the reader argue back at the author.

An examination of the 280 participants' use of global reading strategies in Phase I of the study revealed that the global reading strategy, "I critically analyze and evaluate the information presented in the text," was one of the least-used strategies in their reading of both expository texts (see Table 10 in Chapter 4). In addition, this very global strategy was not cited at all in the 15 participants' reading of the texts in Phase II. Kintsch and Van Dijk (1978) pointed out that discourse types influence the reader's goal in reading in a reading task. Because the global reading strategies focus on identifying a purpose for the reading act (Wu, 2005), we can speculate that the participants' inability to utilize the same top-level structures as those used in the texts may have prevented them from using some of the global reading strategies. This may have been the reason why the participants in Phase II did not mention strategies such as "I critically analyze and evaluate the information presented in the text," "I have a purpose in mind when I read this article," and "I think about whether the content of the text fits my reading purpose" in their reading.

Within the three categories of reading strategies proposed by Mokhtari and Sheorey (2002), the participants in Phase II employed reading strategies more frequently when reading the collection discourse type than when reading the problem-solving discourse type. Nevertheless, they used the same types of reading strategies frequently in their reading of both the expository texts (see Table 11 in Chapter 4). A possible explanation was that these participants in Phase II were not able to recognize the discourse types used by the authors, so they were not able to adjust their reading strategy use according to the texts. Thus, they simply utilized the ones they were most aware of to comprehend the passages regardless of the discourse types used by the authors. In other words, the participants' creativity or flexibility in using reading strategies in response to different discourse types may have been inhibited by their relative inability to recognize the top-level structures of texts.

Richgels, McGee, Lomax and Sheard (1987) noted that "readers who are not aware of structure in text may employ a strategy of serial and discrete encoding of text information, with random retrieval of ideas "(p. 179). This claim may connect indirectly to Phase II of the study, in which most of the 15 participants were not fully aware of the structures of the two texts they read, which may have led them to rely on localized strategies such as support and problem-solving reading strategies more

frequently than global strategies. As indicated by the participants' protocols, most of the time when the sentences were of relative ease to them, they tended to use the support strategy, "translating from English to Chinese." When they encountered difficult sentences in the texts, they often used the other localized strategies such as "reading aloud for better understanding," "questioning word meaning," and "questioning sentence meaning" to solve their reading problems. As a general rule, this heavy concentration on local strategies may take a toll on a reader's ability to grasp broader concepts, such as overall organization and the writer's intentions.

Signals Identified by the Participants

None of the signals (0%) that the participants identified in their Phase II reading of the text in the problem-solving mode clearly reflected the underlying structure of the text they had read. For instance, most of the identified words were vocabulary items such as *education* or l*anguage learning*, which carried the content, or experiential meaning of the text (Halliday & Hasan, 1989). Although the participants who read the collection article were more capable of identifying the signals reflecting the organization of their text, still only four of the fifteen participants (26%) identified signals which were compatible with the authors' organization of the text. These words were time markers such as the year, "*1187."* Moreover, one of these four participants even thought that the text was arranged in the

structure of comparison, even though the signals identified by him were the ages reflecting chronological order in the text. This suggests a lack of at least conscious awareness of text organization.

Carrell's study (1984a) revealed a similar result to this study that most of the learners were not capable of utilizing the same top-level structures as those used in the texts. In Carrell's study, in order to investigate the effect of discourse type on ESL readers, a single passage was rearranged into four versions: collection of descriptions, causation, problem/solution, and comparison. Eighty ESL learners in four native language groups read one of the four text versions. After reading the texts, the subjects were asked to write down everything they could remember from the texts. In their writing, they were asked to indicate how the ideas in the texts were related to each other. The results showed that only one-fourth of the ESL students correctly identified the discourse structures of the texts in their immediate recall protocols. Discussing these results, Carrell (1984a) commented that "most of the ESL students may have failed to successfully identify the rhetorical organization of the text they read; they may not possess the appropriate formal schema, particularly if they come from a non-European background" (p.465).

Connor (1984) indicated that because ESL learners have little practice in reading expository texts in English, it is reasonable to expect that they will not be

aware of the structure of the text that they read. This theme of insufficient experience is echoed in the present study as well. As indicated by Table 3 in Chapter 3, more than half of the participants (55%) indicated that they had never read any type of English materials outside the classroom. Since these participants had little practice in reading academic texts in English outside class, their inability to recognize the discourse types of expository texts they read is not entirely unexpected.

Commenting on schemata effects on Taiwanese L2 English readers' comprehension, Chu, Swaffar and Charney (2002) indicated that, when comprehending a passage written in a western discourse type, Taiwanese L2 English readers could have a mismatch between their predictions and the discourse organization of English texts. Due to the influence of Chinese formal schemata, *qi-cheng-zhuan-he*, they could miss the important discourse features in the texts that were supposed to facilitate their comprehension.

In my study, when some of the participants cited the strategy "noting text characteristics," instead of reflecting the discourse organization used by the authors, they made comments such as "The next paragraph ought to be a turning point in the text," or "Finally, it comes to the conclusion." It seems that these participants were guided by their Chinese formal schema to predict text development. In this way,

they could have easily missed the signals used by the authors and failed to identify them.

What is more noteworthy is that the participants' inexperience in reading academic text in English was probably related to their educational background. As shown by Table 1 in Chapter 3, all of the participants in this study came from universities or institutes of science and technology. In Taiwan, most of the students studying at such institutions are recruited from vocational senior high schools where the core subjects are accounting, international trade and business management, subjects that are believed to help graduates get a good job and handsome income (Sue, 2004). Sue (2004) indicated that compared with the vocational core courses, English is not regarded as an important subject by vocational students.

While most Taiwanese vocational students today go to college or to a technology university after graduation, their limited English learning experience at their vocational senior high schools might affect their ability to study or read English. Sue (2004) claimed that asking learners to read English textbooks is impossible even at the best technology university in Taiwan.

As indicated by Wallace (1992), reading is not only a psycholinguistic process, but also a social one in which a reader's identity as a member of a community or a social group determines his understanding of a text. In light of the participants'

educational background, despite having intermediate-level reading comprehension competence, it can be speculated that their past practice in reading expository texts could have been very limited, and that they will thus have minimal experience with notions such as text organization and writer's intention..

Beyond Discourse Organization

Several issues related to discourse organization emerge in this study. First, Meyer and Rice (1984) claimed that Meyer's classifying system (1975) "is applicable to all types of expository prose and has also been applied to story material" (p. 328). In this study, the collection and problem/solution discourse types were investigated in terms of their influence on the participants' strategy use. The results showed that the participants in Phase II failed to identify the organizational signals in the text. In other words, the participants were not familiar with these two western discourse types. If the problem/solution and the collection mode are two basic discourse types and presumably salient in the texts the participants had read, I wonder why they were not able to identify them. Thus, it is very likely that Meyer and Freedle's (1984) classification scheme is only suitable for identifying western texts.

Second, Singer and Leon (2007) claimed that typically "a coherently organized text facilitates the reader's comprehension and [her] subsequent task performance" (p. 20). In Phase I of the study, after reading the short passages, the participants

answered a four-item comprehension questions. However, the results indicated that those who had read the collection text achieved a higher mean score than those who had read the problem/solution text (2.13, as compared with 1.80). While the problem-solution text was considered to be more organized than the collection text (Meyer and Freedle, 1984), the discourse organization was not particularly beneficial to the problem/solution readers in terms of their test scores. In addition, in both phases of the study, while the collection text was considered to be loosely structured (Myer and Freedle, 1984), this discourse type seemed to facilitate the participants' strategy use, given the fact that they utilized more strategies in their reading of the collection text. When the participants read this loosely structured text, they commented on the text more frequently and utilized more strategies. The results showed that tightly structured or coherently more organized texts might not be advantageous to the L2 English learners' strategy use.

Third, the discourse organization by itself is not the reason for facilitating the participants' comprehension and influencing their strategies use. The participants in this study were all native Chinese speakers. Generally speaking, in Chinese culture, writing tends to inductive, rather than deductive (Lee, 2006). Due to the influence of their culture, the participants' formal schemata might not match with texts written in western discourse type. That is, the mismatch between their schemata and western

discourse types might have led them to have a wrong expectation for texts and undermined their reading comprehension. Thus, when we examine the influence of discourse organization on the participants' strategy use, their cultural background should be taken into consideration.

Implications

The current study was designed to provide Taiwanese language teachers with a clearer understanding of the relationship between L2 readers' strategic use and the written text. Based on this understanding, language teachers can adjust their teaching to help students become more aware of important features related to text organization. Following are four pedagogical implications for L2 reading instruction, developed from the findings of the study.

Raising Students' Awareness of Discourse Features

The current study suggested that, in Phase II of the study, the participants' inability to utilize the same top-level structures as those used in the texts prevented them from accessing (at least consciously) some global reading strategies such as "I critically analyze and evaluate the information presented in the text," "I have a purpose in mind when I read this article," and "I think about whether the content of the text fits my reading purpose." In addition, most of the 15 participants were not fully aware of the structure of the texts they read; they tended to rely on localized

strategies such as support and problem-solving reading strategies more frequently than global strategies to decode the texts. This observation implies that identification of different discourse types is very important to L2 English readers. Sengupta (1999) suggested that, when language teachers consider raising rhetorical consciousness, textual or discourse features ought to be an important focus point in the language classroom. Halliday and Hasan (1989) treated the understanding of generic structures—text structures—as an active ingredient in the success of a language teacher. Carrell (1984a) indicated that "devoting reading instruction to the identification of different discourse structures may be effective in facilitating ESL reading comprehension, retention, and recall" (p. 465). My experience with the present study suggests that it is appropriate to underscore this advice, and to include explicit instruction in discourse type and organization in ESL reading courses.

Broadening Learners' Access to Academic Texts

As shown in the study, more than half of the participants (55%) indicated that they had never read any types of English materials outside the classroom. Since these participants had little practice in reading academic texts in English outside class, their failure to recognize the discourse types of expository texts they read was to be expected. Shih (1992) pointed out that L2 learners who can easily follow narrative and descriptive prose may nonetheless have greater difficulties recognizing the

discourse types of expository texts. In efforts to increase learners' practice in reading expository texts, Shih suggested that a reading unit might begin with an interesting and accessible periodical article and move on to content-area texts that are more informationally dense and organizationally complex. As indicated by Piccolo (1987), in order to develop the learners' schema for expository texts, teachers could provide learners with well-structured model paragraphs from which they can identify the critical features of each structure.

Using Graphic Organizers

The current study indicated that the signals identified by the participants rarely reflected the underlying text structures. As a solution to this problem, graphic organizers have been proposed to increase learners' awareness of basic text structures, even though the number of discourse patterns that can be identified at any given level of text is very large (Meyer & Rice, 1984). Sinatra, Stahl-Gemake and Morgan (1986) proposed to use semantic mapping to help learners understand the structure of discourse. According to the authors, semantic mapping is a graphic arrangement displaying the relationship of the major and minor ideas. Using this kind of networking in class can help learners understand how the new ideas are linked to their previous knowledge. Reutzel (1985) proposed a similar technique called story maps and suggested it to be used as a pre-reading organizer to guide the introduction of a

text. In addition, Geva (1983) believed that another graphic form called flowcharting can facilitate learners' reading comprehension. Less skilled readers can employ this technique to identify various components of text structure and to improve their reading strategies (Geva, 1983). Based on the results of the present study, I second the call for such measures, and suggest that instructors use graphic representations of text structure in their classes to introduce the concept to readers. More experienced readers could also be given the task of constructing their own graphic representations of straightforward texts, as a way to help prompt them to seek such structures in any reading they undertake.

Attending to the Basic Hierarchical Relationships of the Concepts within an Expository Text

In Phase II of the study, while I specifically asked the participants whether they detected any words that showed the authors' organizational intents, most of the words offered by them were more related to the content of texts than to the organization. It seemed to me that these participants were like visitors lost in a grove who were not able to see the grove for the trees. What this implied is that as a language teacher, we may need to reveal the basic hierarchical relationships of the concepts within an expository text to learners. Blanton (1984) commented that L2 readers have difficulties understanding expository texts because they simply treat the expository

texts as words, sentences and paragraphs, not as blocs of information that serves to arrange each text in its special way. Thus, Blanton (1984) suggested that “the formal patterns of expository discourse are best understood as an overlay on the basic conceptual hierarchy” (p. 43). Using L1 English learners as participants, Taylor and Beach’s (1984) empirical study showed that the instruction and practice in the hierarchical summary procedure may increase language learners’ recall for unfamiliar expository texts and improve their expository writing. Novice readers should be given practice in identifying the relationships between ideas in a text, as well as the signals that authors use to convey these relationships.

Suggestions for Future Studies

Given the specific population and narrowly defined focus of the present study, future studies need to raise questions beyond the scope of the study. Future research may be needed in four broad areas of study. First, additional studies are clearly needed on the interaction between reading strategies and discourse types. As mentioned above, even though it cannot be denied that reading is one of the basic language skills and discourse types are one of the components contributing to a reader’s mental representation of a text, discourse types are not widely recognized as a variable influencing the learner’s reading strategies. Surprisingly, while some of studies have provided empirical evidence that discourse types or text structures

influence L2 English reading, the research linking discourse types and L2 English learners' reading strategies has been limited.

Fairclough (2001) commented that through a process of 'naturalization'—an effect of power—discourse types are usually treated as something 'natural' and disguised as a form of common sense which can easily escape from people's attention. These common-sense notions of discourse types are only brought to a conscious level when they are into question, in a few situations such as the one in which "there is sufficiently large social or cultural divide between participants in an exchange" (Fairclough 2001, p. 88). Thus, perhaps because of the common-sense assumptions about discourse types, it is commonly held that discourse types do not create any problems for readers, and any influence of discourse type on readers' use of reading strategies is ignored. This observation underscores the need for further research to highlight this area.

Second, in this study, I rearranged my selected passages into two discourse types, collection and problem/solution, because the collection structure and the problem/solution represent the two opposite ends of a continuum. Because I aimed to find out whether the overall discourse organization would impact the participants' strategic processing, it was easier for me to examine the effects of the overall discourse organization on the participants' use of reading strategies when an

expository text is rearranged into these two discourse types. Still, future research seems needed on the relative influence of different top-level text structures on learners' use of reading strategies. Grabe (1997) pointed out that "it is still not clear that any particular type of text structuring—collection, description, cause-effect, comparison-contrast, problem/solution—is better for the learning of new information" (p. 8). Research suggests that discourse types are not always effective in facilitating the desired interaction between the reader and the text. Thus, much further research still needs to be conducted in order to understand in what ways the effects of top-level text structures on readers' use of reading strategies are activated and deactivated.

Third, while Meyer and Freedle's framework (1984) has been the most influential and generally accepted in previous studies (Sun, 2003), future research may need to go beyond Meyer's expository types and examine the range of specific discourse types more closely. As indicated by Fairclough (1995), from "the perspective of discourse practice, the possibilities for creative reconfiguration of genres and discourses seem unlimited" (p. 78). Hyon (1996) pointed out that Meyer's expository types are not capable of describing the specific forms and functions of adult discourse. In light of the wide range of texts and contexts encountered by adult L2 English readers, further studies may examine the relative influence of specific discourse types on L2 English learners.

Fourth, based on the results from Phase II of the study, the 15 Taiwanese participants seem to have favored local and detail strategies, such as breaking down and identifying words, rather than more global strategies aimed at getting a sense of the text. Abbott (2006) also discovered a similar phenomenon that the Mandarin-speaking ESL learners preferred to employ local, detail-oriented linguistic cues and strategies. Future research may need to investigate the effects of culture on Mandarin-speaking L2 English learners' strategies use. By comparing the results of studies conducted in the culture where Mandarin is the major language for communication, one might be able to identify the cultural patterns of the Mandarin-speaking L2 English learners.

Reflection

In analyzing the data for Phase II of the study, due to a lack of a clear guideline for classifying strategies, I found categorizing the participants' protocols into strategies to be particularly difficult for me. While I classified the participants' protocols into strategies based on Mokhtari and Sheorey's (2002), Cheng's (1999), and Block's (1986) definitions of reading strategies, I was not confident about these classifying schemes, because they were either too simplified or too superficial to be a clear guideline for categorizing strategies. Although I had tried to search for a clearer guideline for classifying strategies in reading research, I was disappointed that

most of these studies only presented classified strategies as final results, rather than providing more details about their classifying processes. Thus, in this section, I will reiterate some of my confusions over classifying strategies, since I believe that my struggling experiences might be useful for other researchers.

It was not clear to me how to categorize the participants' protocols in which they identified something they did not know, but did not try to puzzle out the meaning from the context or from the other words. In fact, these protocols or excerpts seemed to represent the participants' giving up the search for meaning, rather than 'questioning' or 'commenting on processes' to grasp text meaning. While I have counted passages like these as examples of strategies as "questioning word meaning," "questioning sentence meaning," or "commenting on behavior or process," these types of responses, which are common in the participants' protocols, seem to represent statements about the participants' reading problems rather than strategic attempts to solve these problems. Therefore, it would have been more appropriate if I had categorized these passages under the name, "indicating a lack of understanding," rather than the names I assigned to them; I have tried to give a sense of this type of response in the appropriately named section in Chapter 4.

Other problems with coding came up as well. For instance, in some cases that I coded as paraphrasing, I am not sure whether the participants were really

paraphrasing texts for better understanding. For instance, in Example 23 of Chapter 4, the participant, March, seemed to be elaborating on the one term she might have understood, *mental image*. In fact, she was not really paraphrasing the passage, though she might have been trying to use her own idea of imagination as a support to guess the meaning of the sentence. Therefore, it would have been more suitable if I had categorized passages like this under the name, "elaborating on texts." Assigning the name, "paraphrasing for better understanding," to these passages might be misleading, since the participants were only using their own ideas to elaborate on texts, rather than paraphrasing them.

If I have a chance to analyze data of this type again, I will not utilize pre-determined classifying schemes to categorize the participants' protocols. Rather, reviewing the participants' protocols carefully, I will come up with suitable categories to assign to their protocols. That is, my classifying scheme will emerge in my review of the participants' protocols. More importantly, instead of simply presenting what reading strategies the participants cited, I will provide more details and examples about the way I categorize their protocols into strategies, because I believe that these detailed examples will illustrate what really happened in the participants' reading of the two discourse types.

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APPENDICES

Appendix A-1: Agreement Letter from the Language & Testing Center (Original Version)

敬啟者:

您好. 台端來函所提，擬使用全民英檢中級閱讀測驗預試考題作為論文主題"言談型式對於臺灣大專生閱讀策略使用之效應"研究工具乙事，謹答覆如下：

全民英檢預試考題係本中心經教育部授權在全民英檢學習網站刊登， 台端在著作權宣導之範圍內(非營利之目的)可自行下載使用。

以上，謹此。順頌

學安

語言訓練測驗中心 敬啟

----- Original Message -----

From: 雷竣詠

To: gept@lttc.org.tw

Sent: Monday, March 24, 2008 8:57 PM

Subject: 徵詢同意使用貴網站上的考題

Appendix A-1: Agreement Letter from the Language & Testing Center (English Translation)

April 7, 2008

For Whom It May Concern:

In your earlier post to us, you mentioned that you planned to use one of the sample tests developed by us. After considering your request, we are pleased to grant you the permission to use it. Since your dissertation which investigates the effects of different discourse types on the Taiwanese college students' reading strategies is an academic endeavour, we do not think that you will use our test for commercial reasons. Therefore, you are free to download our sample test from our website as you will

We wish you every success in your doctorial studies at Indiana University of Pennsylvania.

Sincerely,

The Langauge & Testing Center

Appendix A-2. GEPT Intermediate Reading Proficiency Test (Form RTI-B)

中級閱讀理解

本部份共 15 題，包括數段短文，每段短文後有 2~5 個相關問題，試題冊上均提供A、B、C、D 四個選項，請由四個選項中選出最適合者，標示在**最後一頁**的答案紙上。

例：

Scotland Yard first began to use dogs for police work in 1946. At that time, they used only four dogs. Today, more than 300 police dogs are working in London. When a young dog is three months old, it goes to the home of a policeman. This person will be the dog's "handler." The dog stays at its handler's home, lives with his family, and plays with the children. A handler must really know his dog.

1. How old is a dog when it goes to its handler's home?
   A. Three months old.
   B. Six months old.
   C. Nine months old.
   D. One year old.

(正確答案：A)

2. What is the article mainly about?
   A. Policemen.
   B. Police dogs.
   C. Handlers.
   D. Scotland Yard.

(正確答案：B)

Questions 1-3

Manners are the ways in which people behave in various situations with other people. If they behave properly, we say that they have good manners, and if they behave badly, we say that they have bad manners. However, what are good manners in one society may be bad manners in another. For example, in one society, it may be good manners for an old man to open a door for a young woman because men should be polite to women in this way; on the other hand, in another society it may be better manners for a young woman to open a door for an old man because young people should be polite to old people in this way. So when you travel to another country, you should learn what are considered good manners there. If you use good manners, you will be a welcome visitor.

1. The word "behave" in line 1 is closest in meaning to
   A. think.
   B. read.
   C. have.
   D. act.

2. According to this passage, which of the following statements is true?
   A. Good manners are more important in some societies than in others.
   B. Ideas about good and bad manners vary from one society to another.
   C. Good manners in one society are sure to be bad manners in another.
   D. In one society, good manners may also be bad manners.

3. What does the writer imply in this passage?
   A. When you visit another country, you may need to behave differently from the way you behave in your own country.
   B. People in some societies do not correctly understand what are good and bad manners.
   C. No matter where you go, you will find that it is good manners for young people to treat old people politely.
   D. Our ideas about manners are basically the same as those of people in other societies.

Questions 4-5

The Caribbean is a wonderful winter vacation area that is especially convenient for residents of Canada and colder parts of the U.S., who are only a short flight away. Located just south and east of Florida, the Caribbean is an area of many small nations. Tropical islands, crystal clear waters, long beaches, clean air and a delightful mix of cultures make it a great vacation destination for families. Historical sites, like Spanish forts, plantation houses, and shipwrecks, attract vacationers of all ages. Duty free shopping on some islands draws visitors looking for bargains. And on the beaches, sports like water skiing, sailing, snorkeling, and scuba diving keep vacationers busy and happy. Whether you prefer relaxation or activity, you'll enjoy a vacation in the Caribbean.

4. Which of the following is the best title for this passage?
   A. Vacationers' Paradise – the Caribbean
   B. Excellent Shopping in the Caribbean
   C. The Caribbean – a Great Place to Relax
   D. The Caribbean for Wonderful Sightseeing

5. What is NOT a popular activity in the Caribbean?
   A. Buying things at low prices.
   B. Visiting old places.
   C. Bargaining with visitors.
   D. Swimming in the ocean.

Questions 6-8

After several years of falling sales, Burger King is selling more food again. Their problems began when another company from Britain bought their parent company, and British executives tried to run Burger King, a company that sells American food. The British people at the top simply did not understand hamburgers and tried things like pizza and shrimp baskets. The higher management also failed to listen to the shop owners, who knew what was good and what was bad. Things changed in 1993. The unhappy shop owners got together to tell the management what was wrong, and since then, Burger King has returned to the basics: hamburgers, French fries, and drinks. The new president of the company, an American, also brought Burger King back by offering low-priced meals and a new hamburger that is similar to the McDonald's Big Mac. In 1996, Burger King's share of the market grew from 18% to 19%, still far behind the competition, but the improvement has been continuous, and the British are letting Americans sell American food.

6. According to this passage, what was the major cause of Burger King's sales problem?
   A. The British people did not like hamburgers.
   B. The shop owners were not happy with the new management.
   C. The new management did not understand American food.
   D. McDonald's was too competitive for Burger King.

7. According to the passage, who saved the company?
   A. The new cooks.
   B. The store owners.
   C. The British customers.
   D. An American company.

8. The word "executives" in line 3 is most similar in meaning to
   A. food suppliers.
   B. investment bankers.
   C. administrative heads.
   D. government officials.

Questions 9-12

Balfour Castle

On a tiny island, just 5 1/2 miles long, you can live like royalty for just $130 a night...in Balfour Castle. Shapinsay, one of the seventy Orkney Islands, is just a few hours by ferry off the northern coast of Scotland, but staying at Balfour is like stepping back in time into a quieter, nobler
(5) world. The dozen or so guests who can be accommodated at the 150-year- old estate stay in oak-paneled rooms with 19th century furnishings and eat like kings around a long banquet table. (A big English breakfast and three- course dinner are included in the price.) During the day, you can hike around the island on nearly empty roads, seeing more sheep and cows than
(10) people, the horizon of sea and clouds continually in view. Or take a leisurely stroll through the 700 acres of garden and woods on the estate grounds. On chilly Orkney evenings, sit in front of a roaring fireplace and read one of the 4,000 leather-bound books in the castle library. For a unique vacation experience, ferry across the North Sea to another world...at Balfour Castle.

9. The advertisement implies that
   A. there aren't many guest rooms at the castle.
   B. the beaches on Shapinsay are beautiful.
   C. a king once owned the castle.
   D. the castle is large.

10. What does the advertisement writer suggest as a daytime activity?
   A. Riding the ferry.
   B. Swimming.
   C. Reading.
   D. Walking.

11. Which of the following statements about Shapinsay can NOT be inferred from the passage?
   A. People on the island like to read.
   B. The island is fairly flat.
   C. Many people raise sheep and cattle.
   D. The population of the island is small.

12. The word "chilly" in line 12 is most similar in meaning to

   A. relaxing. B. lonely. C. quiet. D. cold.

Questions 13-15

In public service lectures, fire fighters not only teach about fire prevention, escape plans, and the use of fire extinguishers, but also warn people never to go back into a burning building for any reason. Many people die each year from breathing smoke after rushing back into their homes to save valuables. When people who have lost their homes in a fire are asked what items they most regret losing, most reply "family photographs." Baby pictures and photographs of weddings, friends, relatives and vacations are often impossible to replace. Fire fighters recommend that people make copies of their important photographs and documents and ask a friend to keep them for the family. An alternative is to keep photographs as well as other valuables in a safety deposit box at a bank.

13. Which of the following is the best title for the passage?
    A. Learn How to Prevent Fires Now
    B. Protecting Your Photographs May Save Lives
    C. Smoke Kills Many People Every Year
    D. In Case of Fire, Save Photographs First
14. In their talks, fire fighters teach the public
    A. how to re-enter a burning building.
    B. what valuables to save when there is a fire.
    C. what to do when they lose their important photographs.
    D. how to use basic fire fighting equipment.
15. The word "alternative" in line 10 is closest in meaning to
    A. recommendation.
    B. location.
    C. option.
    D. opportunity.

Answer Sheet (答案紙) 【請務必填寫個人姓名、班級、學校名稱及學號】

Score: **Name:** **School:** **Class:**

Student Number(學號):

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15

Appendix B: READING PASSAGES

THE ORIGINAL FORM OF THE READING PASSAGE USED IN PHASE I

(Anderson, N. J., 2003a, pp. 98-99)

Robotic Surgeons

Images of robotic equipment being used in operating rooms were once seen only in science-fiction movies. Today, the use of robotic equipment for certain types of surgery is no longer make-believe—it's real!

Traditional surgical procedures require surgeons to make large incisions in a patient's body in order to gain access to the internal organs. It was once common for heart surgeons, who perform highly specialized and complex procedures, to make long incisions in a patient's chest and then split the breastbone to reach the heart. The patient then had to recover the trauma of the surgical treatment, the split bone, and the large wound created by the incision. Patients who undergo surgery requiring this kind of invasive procedure are often prone to infection, as bacteria can infect the cut in the skin. In addition, there is often a lengthy recovery period.

A surgical technique known as 'keyhole surgery' has become more common in recent years. This technique eliminates the need for surgeons to make large incisions. Instead, a couple of small incisions, each measuring about one centimeter, are made around the area to be operated on. Long instruments, which look a bit like

chopsticks, are inserted through the tiny incisions and into the patient's body. At the end of these instruments are small tools that resemble standard surgical tools. A tiny camera, called an endoscope, is also inserted into the body through one of the incisions. The camera relays an image of what is happening inside the patient's body to a large computer monitor, so doctors are able to see what is going on, and where to place the tools. The awkward part of keyhole surgery is that it is counterintuitive; if a surgeon wants to move the tool to the left, he or she must push it to the right, and vice versa.

READING PASSAGES REARRANGED IN TWO DISCOURSE TYPES

(PHASE I)

The differences between the two discourse types are capitalized, while the information shared by the two discourses is written in lowercase letters.

Collection. THE USE OF ROBOTIC EQUIPMENT IS NO LONGER MAKE-BELIEVE. TWO TYPES OF SURGICAL PROCEDURES WILL BE INTRODUCED. FIRST, traditional surgical procedures require surgeons to make large incisions in a patient's body in order to gain access to the internal organs. Its was once common for heart surgeons, who perform highly specialized and complex procedures, to make long incisions in a patient's chest and then split the breastbone to reach the heart. The patient then had to recover from the trauma of the surgical

treatment, the split bone, and the large wound created by the incision. Patients who undergo surgery requiring this kind of invasive procedure are often prone to infection, as bacteria can infect the cut in the skin. In addition, there is often a lengthy recovery period.

SECOND, a surgical technique known as ‘keyhole surgery’ has become more common in recent years. This technique eliminates the need for surgeons to make large incisions. Instead, a couple of small incisions, each measuring about one centimeter, are made around the area to be operated on. Long instruments, which look a bit like chopsticks, are inserted through the tiny incisions and into the patient’s body. At the end of these instruments are small tools that resemble standard surgical tools. A tiny camera, called an endoscope, is also inserted into the body through one of the incisions. The camera relays an image of what is happening inside the patient’s body to a large computer monitor, so doctors are able to see what is going on, and where to place the tools.

Problem/Solution. A SERIOUS PROBLEM IS THAT traditional surgical procedures require surgeons to make large incisions in a patient’s body in order to gain access to the internal organs. Its was once common for heart surgeons, who perform highly specialized and complex procedures, to make long incisions in a patient’s chest and then split the breastbone to reach the heart. The patient then had

to recover from the trauma of the surgical treatment, the split bone, and the large wound created by the incision. Patients who undergo surgery requiring this kind of invasive procedure are often prone to infection, as bacteria can infect the cut in the skin. In addition, there is often a lengthy recovery period.

A SOLUTION TO THIS PROBLEM IS THE DEVELOPMENT OF NEW SURGICAL TECHNIQUES. FOR INSTANCE**,** a surgical technique known as 'keyhole surgery' has become more common in recent years. This technique eliminates the need for surgeons to make large incisions. Instead, a couple of small incisions, each measuring about one centimeter, are made around the area to be operated on. Long instruments, which look a bit like chopsticks, are inserted through the tiny incisions and into the patient's body. At the end of these instruments are small tools that resemble standard surgical tools. A tiny camera, called an endoscope, is also inserted into the body through one of the incisions. The camera relays an image of what is happening inside the patient's body to a large computer monitor, so doctors are able to see what is going on, and where to place the tools.

THE READING PASSAGES USED IN PHASE II

Problem/Solution

Words to Remember (Anderson, N. J., 2003a, pp. 151-153)

People who have studied a foreign language know that it can be one of the life's most rewarding experiences; they also know how much effort it takes. Faced with the prospect of endless hours of learning vocabulary, memorizing grammar rules, and practicing pronunciation, many people simply abandon hope of ever achieving a high level of fluency. Over the years, many students and teachers have developed useful shortcuts to make language-learning smoother, faster, and hopefully, more enjoyable.

Remembering vocabulary necessary to express oneself in another language is the difficulty that many learners say causes the most anxiety. Expert opinions differ on the specific number of words a second-language learner needs to know to achieve mastery, but they generally agree that it is several thousand. Although it is possible to learn the meaning and usage of a large number of words, it can also be extremely time-consuming. One way that many teachers suggest accelerating the vocabulary-building process is by using mnemonics.

Simply put, mnemonics is a method used to help one remember information that is otherwise difficulty to recall. An example is the rhyme 'i before e, except after c, or when sounded like a, as in neighbor and weigh,' which many English learners use to remind themselves of a spelling rule. Mnemonics is based on the principle that by using as many functions of the brain as possible, information can be retrieved more easily.

The human brain interprets and processes tremendous amounts of information, some of which is used quickly and later forgotten. Some information, though, we want to store for later retrieval. Doing this often requires that we rehearse the information over time and in different ways. Much of the information we learn in school is often presented in only one way—as words on a page. As a result, many learners find that it is helpful to 'encode' the information they want to remember using rhymes, acronyms, or mental images.

Without even being aware of rhyming mnemonics, many English-speaking schoolchildren learn to count using a rhyme that begins 'One, two, buckle my shoe.' Many North American children memorize the names of the continent's Great Lakes by using the first letters of their names—Huron, Ontario, Michigan, Erie, and Superior—to spell out the acronym HOMES. Other learners use images such as graphs and charts to help them learn subjects with mathematics or history.

Foreign languages are ideally suited to the use of mnemonics. One common mnemonics aid involves using images to link a word in your own language with a word in a foreign language. When learning French, for example, an English speaker might remember *tapis*, the French word for 'carpet,' by imagining a rug with a tap or faucet as the central design. Another technique that learners use to recall foreign words is mind mapping. Using this method, a student might create a mental map of

her hometown and link locations in the town to words she wants to remember. Nouns, for example, might be linked to building, adjectives with locations in a park, and verbs with activities at a sports center. The mental image of the town would act as a prompt and enable learners to recall the associated words.

Rhymes, acronyms, mental maps, and images are just some of the many types of mnemonics devices that can be used by language learners. Some students may still prefer to use flashcards or stick word labels on the furniture around their homes in order to learn vocabulary. The key, though, is to try a variety of methods and find a few that work best for you.

Collection

The History of School (Anderson, N. J., 2003a, pp. 139-141)

In modern developed societies, access to formal education is something that many people now take for granted. Formal schools have not always existed, though, and it took centuries for a system of compulsory education to be established. Teachers, leaders, and parents had to campaign for years before reforms took place and the educational system we know today was established.

During the early days of education in the U.K., many students were schooled by local priests, who taught reading and writing classes in their churches. Few formal schools existed, and the one that did were costly and, therefore, reserved for children

of the wealthy. In addition, only boys were educated given the tradition that they would one day be the family's sole breadwinner.

In 1187, England's first university, Oxford, was founded. Over the next 400 years other colleges and universities were established including Cambridge and Edinburgh. During the seventeenth century, numerous private schools were founded and attended primarily by the sons of aristocrats who later continued their education at university. In the centuries that followed, though, schooling for many still remained quite haphazard; some pupils attended classes in churches, while others were educated at Sunday school. Harsh punishments were quite common and were given to disobedient or forgetful students. Education for the majority of girls and young women consisted mainly of learning domestic crafts; very few were exposed to the same academic content that boys and young men were.

The lack of a formal system of teaching training became an increasing issue, and in 1840, James Kay-Shuttleworth opened the first teacher-training college. In 1846, he established the pupil-teacher apprentice system whereby pupils aged thirteen could study and serve for five years with a teacher, then attend college for three years, in order to become trained teachers themselves.

It wasn't until the late 1870s that laws were passed in the U.K. requiring parents to ensure that their children received a basic education in reading, writing, and math.

In 1918, schooling became compulsory up to the age of fourteen. The Education Act of 1944 reformed the schooling system further by providing equal educational opportunities for boys and girls and changed teaching approaches to incorporate students' individual ages and abilities.

In the late eighteenth and early nineteenth centuries, various pioneers in educational reform were hard at work bringing about similar improvements to the education system on the other side of the Atlantic. Education in the U.S. at that time was much the same as it was in the U.K., with badly equipped classrooms and untrained teachers. Horace Mann was the first to establish teacher-training institutes; he also campaigned for equal opportunities in education, and increased the length of the school year from a few weeks to six months. John Dewey, one of the most influential education reformers of the twentieth century, campaigned for alternative approaches to teaching in order to accommodate a pupil's psychological and physical development, as well as assist in academic progress. Dewey argued that classroom learning should center on the child, a belief that is now common practice in many classrooms around the world. Many of Dewey's theories continue to be discussed and debated by educators today.

Nowadays, a variety of schools exist in the U.S. and the U.K. Some offer basic academic education while others offer students the chance to specialize in their

field of choice such as drama, science, music, or technology. Teachers must be fully trained and schools are required to follow government guidelines that specify which subjects should be taught in which grades. Today, educational content is regularly reviewed and adjusted in an effort to meet the changing needs of society and its learners.

Appendix C: Background Information Sheet

★ Please fill in your personal information in Chinese. 【請務必填寫個人姓名、班級、學校名稱及學號等個人資料】

Name:_____ Age:_____

School:_____ Class/Level:_____

Native Language:_____ Sex/Gender:_____

Student Number: _____

Major:_____

Can you read any languages other English?

Circle: yes no

If yes, which language(s)? _____

Other than your assigned readings, do you regularly read English materials outside the classroom?

Circle: yes no

If so, please check whichever apply: _____newspaper

_____popular magazines

_____novels, literature

_____other(specify)

Numbers of years of studying English

a. In Taiwan _____

b. In the U.S.A._____

c. In other country_____

How would you rate your own English proficiency in each of these skills? (Circle one)

Listening	**poor**	**fair**	**good**	**excellent**
Speaking	**poor**	**fair**	**good**	**excellent**
Reading	**poor**	**fair**	**good**	**excellent**
Writing	**poor**	**fair**	**good**	**excellent**

Appendix D-1: SURVEY OF GLOBAL READING STRATEGIES

The purpose of this survey is to collect information about the various techniques you use when you read this reading passage. All the items below refer to your reading of the article you just read. Each statement is followed by five numbers, 1, 2, 3, 4, and 5, and each number means the following:

'1' means that 'I strongly disagree'.

'2' means that 'I disagree'.

'*3*' means that 'I am neutral about this statement'.

'4' means that 'I agree'.

'5' means that 'I strongly agree'.

After reading each statement, circle the number (1, 2, 3, 4, or 5) which applies to you. Note that there are no right or wrong responses to any of the items on this survey.

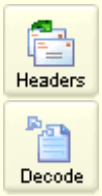
	Statement	Strongly Disagree				Strongly Agree
1.	I had a purpose in mind when I read this article.	1	2	3	4	5
2.	I thought about what I knew to help me understand what I read.	1	2	3	4	5
3.	I took an overall view of the text to see what it was about before reading it.	1	2	3	4	5
4.	I thought about whether the content of the text fit my reading purpose.	1	2	3	4	5
5.	I reviewed the text first by noting its characteristics like length and organization.	1	2	3	4	5
6.	When reading this article, I decided what to read closely and what to ignore.	1	2	3	4	5
7.	I used context clues to help me better understand what I was reading.	1	2	3	4	5
8.	I critically analyzed and evaluated the information presented in the text.	1	2	3	4	5
9	I checked my understanding when I came across new information.	1	2	3	4	5
10	I tried to guess what the content of the text was about when I read.	1	2	3	4	5
11	I checked to see if my guesses about the text was right or wrong.	1	2	3	4	5
12	If possible, would you like to participate in the next stage of the study which continues to explore your use of reading strategies? (Please check one)	Yes ☐ No ☐				

(The following two questions are ***optional***. You could write down your answers either in Chinese or in English next to the questions.)

13 How does your normal reading practice differ from what you did as you read this article?

14 Is there anything you would like to add about your experience in doing this reading?

Appendix D-2 Agreement Letter from the Authors of the SORS



Subject: RE: Asking your permission to use the SORS (urgent)

Date: Sat, 17 May 2008 14:22:02 -0400

To: Jiun-Iung Lei <j.lei@iup.edu>

Hi Lei, Jiun-Iung,

Thanks for your interest in using the SORS instrument for your dissertation research. As authors, we are pleased to grant you permission to use the instrument for such purposes. However, please note that you may need to also seek permission from the copyright holder, Journal of Developmental Education, if you wish to modify further and/or disseminate the modified version of the instrument in any other way.

Best of luck in your research,

Kouider

Kouider Mokhtari, Ph.D.
John W. Heckert Endowed Professor and
Director of the Heckert Center for Children's Reading & Writing
Department of Teacher Education
401 McGuffey Hall
Oxford, Ohio 45056
Phone: (513) 529-6469
Fax: (513) 529-4931

Appendix E-1 同意書

言談型式對於臺灣大專生英文閱讀策略使用之效應

本研究計劃的目的是要來調查英文的說明文體對於臺灣英語學習者閱讀策略的影響。易言之，閱讀策略以及言談型式之間的互動關係，是本研究計劃的焦點所在。

本人竭誠歡迎您參與此項計劃。

如果您同意參與此項計劃〔**請在兩份中英文同意書上簽名**〕，您將要先填寫一份個人資料，然後再做一份閱讀能力測驗。全部過程約佔一節課的時間〔約六十分鐘〕。此外，您亦可能被邀請參加其它的研究活動約三十分鐘。

參與此項計劃風險性極其低微。如果有的話，部份參與者會對於向研究者公開自己的私人資料，感到些許尷尬。

本研究有增加語言教師對於其學生語言策略使用之了解的潛力。教師可運用此知識於教學之上，使學生達到更高的成就。此外，此知識亦可增加學生對於語言策略的自覺性，使之提升學習英文的態度、動機及信念。

您所填寫的中英文同意書、個人資料以及閱讀能力測驗，全部放在由本人所提供的信封袋內密封。除了本人外，其他人無權過目。

您可全權決定是否參與本研究計劃。即使您決定參與本研究計劃，亦可隨時中止。如果您決定不參與本研究計劃或者中止參與本研究計劃，您的決定不會影響您在學校的分數。

如果您決定參與本研究計劃，請在下方處簽上您的姓名及聯絡資料。

研究者：雷竣詠，博士候選人
英文所，美國賓州印第安那大學
電話：724-357-9564，E-mail: sure54japhan@yahoo.com.tw

指導教授：Dr. Jeannine Fontaine
英文所，美國賓州印第安那大學
電話: 724-357-2261

我已經閱讀並瞭解同意書上的資訊並同意參與本項研究。我瞭解我所提供的訊息完全保密，而且我有權利隨時中止參與本研究計劃。我亦收到一份未簽名的同意函予以保留。

參與者簽名處：

日期：

聯絡之電話或住址：

聯絡之最佳時間：

我確定已向研究參與者說明本研究的目的、潛在效益、以及潛在風險，並回答參與者提出的問題，且目睹上述的簽名。

日期：

研究者簽名處：

Appendix E-2 INFORMED CONSENT FORM (The First Part of Phase I)

An Investigation of the Effects of Discourse Types on Taiwanese College Students' Reading Strategy Use

You are invited to participate in this research study being conducted by Jiun-Iung Lei. The following information is provided in order to help you make an informed decision about whether or not to participate. If you have any questions or concerns, please do not hesitate to ask me.

The purpose of the study is to investigate the influence of expository structures on Taiwanese L2 readers' strategy use during their L2 English reading. That is, the interaction between reading strategies and discourse types is the main focus of the study.

If you agree to participate in the study, you will be required to fill in a background information sheet and take a reading proficiency test. Participating in the study will take you one period of your class time which is about 60 minutes. In addition, you may be asked to participate in various activities which will last for about 30 minutes.

Participation in this study will presents minimal risk to subjects. The potential risks to the participants in the study will include the embarrassment the participants might feel about the exposure of their personal information.

This study has the potential to increase language teachers' understanding of their students' language strategies. They can use this knowledge in their language instruction that can lead to their students' greater achievement. In addition, this knowledge can be utilized to raise learners' general awareness of language learning strategies, thus enhancing their attitudes, motivation, and beliefs about language learning.

The documents including your consent form, the copy of the GEPT reading comprehension test and the answer sheet and the background information sheet will be kept in this envelope and will not revealed to anybody except me.

Whether to participate in the study is up to you. Even if you agree to participate in the study, you can stop at any time. If you determine not to participate in the study or if you stop participating at any time during the study, your choice will not affect your grades in your studies in any way.

If you are willing to participate in this study, please sign the statement below.

Researcher: Jiun-Iung Lei, PhD Candidate
Composition and TESOL
Department of English
The Indiana University of Pennsylvania
1302, Oakland Avenue, Apt. # E217
PA 15701
Phone: 724-357-9564
E-mail: sure54japhan@yahoo.com.tw

Project Director: Dr. Jeannine Fontaine
110 Leonard Hall
Indiana University of Pennsylvania
Indian, PA 15705
Phone: 724-357-2261

Informed Consent Form

VOLUNTARY CONSENT FORM:

I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent Form to keep in my possession.

Name (PLEASE PRINT)_____

Signature:_____

Date:_____

Phone number or location where you can be reached:_____

Best days and times to reach you:

_____

I certify that I have explained to the above individual the nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered any questions that have been raised, and have witnesses the above signature.

Date:_____ **Investigator's Signature**:_____

Appendix F-1 同意書

言談型式對於臺灣大專生英文閱讀策略使用之效應

本研究計劃的目的是要來調查英文的說明文體對於臺灣英語學習者閱讀策略的影響。易言之，閱讀策略以及言談型式之間的互動關係，是本研究計劃的焦點所在。

本人竭誠歡迎您參與此項計劃。

如果您同意參與此項計劃〔**請在兩份中英文同意書上簽名**〕，您將要先閱讀一篇文章。之後, 您要針對讀過的那篇文章，做一份閱讀策略的問卷調查 以及另一份閱讀理解測驗。全部過程約三十分鐘。

參與此項計劃風險性極其低微。如果有的話，部份參與者會對於向研究者公開自己的私人資料以及閱讀策略，感到些許尷尬。

本研究有潛力能夠增加語言教師對於其學生語言策略使用的了解。教師可運用此知識於教學之上，導致學生有更高的成就。此外，此知識亦可增加學生對於語言策略的自覺性，提升學習英文的態度、動機及信念。

您所填寫的中英文同意書、閱讀策略的問卷調查 以及另一份閱讀理解測驗，全部請您放在由本人所提供的信封袋內密封。除了本人外，其他人無權過目。

您可全權決定是否參與本研究計劃。即使您決定參與本研究計劃，亦可隨時中止。如果您決定不參與本研究計劃或者中止參與本研究計劃，您的決定不會影響您在學校的分數。

如果您決定參與本研究計劃，請在下方處簽上您的姓名及聯絡資料。

研究者：雷竣詠，博士候選人
英文所，美國賓州印第安那大學
電話：724-357-9564，E-mail: sure54japhan@yahoo.com.tw

指導教授：Dr. Jeannine Fontaine
英文所，美國賓州印第安那大學
電話: 724-357-2261

我已經閱讀並瞭解同意書上的資訊並同意參與本項研究。我瞭解我所提供的訊息完全保密，而且我有權利隨時中止參與本研究計劃。我亦收到一份未簽名的同意函予以保留。

參與者簽名處：

日期：

聯絡之電話或住址：

聯絡之最佳時間：

我確定已向研究參與者說明本研究的目的、潛在效益、以及潛在風險，並回答參與者提出的問題，並且目睹上述的簽名。

日期：

研究者簽名處：

Appendix F-2 INFORMED CONSENT FORM (The Second Part of Phase I)

An Investigation of the Effects of Discourse Types on Taiwanese College Students' Reading Strategy Use

You are invited to participate in this research study being conducted by Jiun-Iung Lei. The following information is provided in order to help you make an informed decision about whether or not to participate. If you have any questions or concerns, please do not hesitate to ask me.

The purpose of the study is to investigate the influence of expository structures on Taiwanese L2 readers' strategy use during their L2 English reading. That is, the interaction between reading strategies and discourse types is the main focus of the study.

If you agree to participate in the study, you will be required to read an expository article. After your reading, you will be asked to a reading strategy survey and a reading comprehension test. Participating in the study will take about 30 minutes.

Participation in this study will presents minimal risk to subjects. The potential risks to the participants in the study will include the embarrassment the participants might feel about the exposure of their personal documents and reading strategies.

This study has the potential to increase language teachers' understanding of their students' language strategies. They can use this knowledge in their language instruction that can lead to their students' greater achievement. In addition, this knowledge can be utilized to raise learners' general awareness of language learning strategies, thus enhancing their attitudes, motivation, and beliefs about language learning.

The documents including your consent form, the questionnaire and the comprehension test will be kept in this envelope and will not be revealed to anybody except me.

Whether to participate in the study is up to you. Even if you agree to participate in the study, you can stop at any time. If you determine not to participate in the study or if you stop participating at any time during the study, your choice will not affect your grades in your studies in any way.

If you are willing to participate in this study, please sign the statement below.

Researcher: Jiun-Iung Lei, PhD Candidate
Composition and TESOL
Department of English
The Indiana University of Pennsylvania
1302, Oakland Avenue, Apt. # E217
PA 15701
Phone: 724-357-9564
E-mail: sure54japhan@yahoo.com.tw

Project Director: Dr. Jeannine Fontaine
110 Leonard Hall
Indiana University of Pennsylvania
Indian, PA 15705
Phone: 724-357-2261

Informed Consent Form

VOLUNTARY CONSENT FORM:

I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent Form to keep in my possession.

Name (PLEASE PRINT)_____

Signature:_____

Date:_____

Phone number or location where you can be reached:_____

Best days and times to reach you:

_____

I certify that I have explained to the above individual the nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered any questions that have been raised, and have witnesses the above signature.

Date:_____ **Investigator's Signature**:_____

Appendix G

Comprehension Questions for Reading Passages
Name: **Score:**

Based on the text you just read, please write the letter of the best answer to each of the following questions in the parentheses.

( ) 1. Traditional surgical procedure often leaves _____ in a person's body.
a. a dangerous infection b. a large wound c. a tiny cut d. a counterintuitive effect

( ) 2. Many patients who have heart surgery have difficulty after the operation because _____.
a. they cannot eat for days. b. they had motion sickness. c. the incision becomes infected d. the cost of the surgery is very high.

( ) 3. Which of the following is NOT true of keyhole surgery?
a. A doctor views the inside of a patients' body on a computer screen.
b. It requires the use of long, thin tools and a small camera.
c. It has become more common than before.
d. It can be quite an invasive procedure.

( ) 4. In the first paragraph, what does the word *trauma* mean?
a. difficult work b. great sadness c. physical injury or wound d. great happiness

Appendix H-1　　參與第二階段研究計劃同意書

言談型式對於臺灣大專生英文閱讀策略使用之效應

本研究計劃的目的是要來調查英文的說明文體對於臺灣英語學習者閱讀策略的影響。易言之，閱讀策略以及言談型式之間的互動關係，是本研究計劃的焦點所在。

本人竭誠歡迎您參與此項計劃。

如果您同意參與此項計劃第二階段研究〔**請在兩份中英文同意書上簽名**〕，您要先接受放聲思考法的訓練，然後讀兩篇英文短文。讀文章的過程中，您要放聲報導您的思維過程。全部過程約佔您課餘時間兩個半小時。

參與此項計劃風險性極其低微。如果有的話，部份參與者會對於向研究者公開自己的私人資料以及閱讀策略，感到些許尷尬。

本研究有潛力能夠增加語言教師對於其學生語言策略使用的了解。教師可運用此知識於教學之上，導致學生有更高的成就。此外，此知識亦可增加學生對於語言策略的自覺性，提升學習英文的態度、動機及信念。

您所填寫的中英文同意書、訪談過程中錄下的錄音帶，除了本人外，其他人無權過問。

您可全權決定是否參與本研究計劃。即使您決定參與本研究計劃，亦可隨時中止。如果您決定不參與本研究計劃或者中止參與本研究計劃，您的決定不會影響您在學校的分數。

如果您決定參與本研究計劃，請在下方處簽上您的姓名及聯絡資料。

研究者：雷竣詠，博士候選人
英文所，美國賓州印第安那大學
電話：724-357-9564，E-mail: sure54japhan@yahoo.com.tw

指導教授：Dr. Jeannine Fontaine
英文所，美國賓州印第安那大學
電話: 724-357-2261

我已經閱讀並瞭解同意書上的資訊並同意參與本項研究。我瞭解我所提供的訊息完全保密，而且我有權利隨時中止參與本研究計劃。我亦收到一份未簽名的同意函予以保留。

參與者簽名處：

日期：

聯絡之電話或住址：

聯絡之最佳時間：

我確定已向研究參與者說明本研究的目的、潛在效益、以及潛在風險，並回答參與者提出的問題，且目睹上述的簽名。

日期：

研究者簽名處：

Appendix H-2

INFORMED CONSENT FORM FOR THE SECOND PHASE OF THE STUDY (Phase II)

An Investigation of the Effects of Discourse Types on Taiwanese College Students' Reading Strategy Use

You are invited to participate in this research study being conducted by Jiun-Iung Lei. The following information is provided in order to help you make an informed decision about whether or not to participate. If you have any questions or concerns, please do not hesitate to ask me.

The purpose of the study is to investigate the influence of expository structures on Taiwanese L2 readers' strategy use during their L2 English reading. That is, the interaction between reading strategies and discourse types is the main focus of the study.

If you agree to continue to participate in the second phase of study, you will be required to take a think-aloud training before reading two expository articles. The think-aloud training is to help you report your thoughts when you read an article. During your reading, you will be required to verbalize your thinking. Participating in the study will take you up to two hours and a half.

Participation in this study presents minimal risk to subjects. The potential risks to the participants in the study include the embarrassment the participants might feel about the exposure of their personal documents and reading strategies.

This study has the potential to increase language teachers' understanding of their students' language strategies. They can use this knowledge in their language instruction that can lead to their students' greater achievement. In addition, this knowledge can be utilized to raise learners' general awareness of language learning strategies, thus enhancing their attitudes, motivation, and beliefs about language learning.

The recorded audiotape of your conversation with me and its transcription will be only used for academic purposes and will not be revealed to anybody except me.

Whether to participate in the study is up to you. Even if you agree to participate in the study, you can stop at any time. If you determine not to participate in the study or if you stop participating at any time during the study, your choice will not affect your grades in your studies in any way.

If you agree to participate in the second phase of the study, I will pay you NT. 70.00 per hour as the compensation for your participation.

If you are willing to participate in this study, please sign the statement below.

Researcher: Jiun-Iung Lei, PhD Candidate
Composition and TESOL
Department of English
The Indiana University of Pennsylvania
1302, Oakland Avenue, Apt. # E217
PA 15701
Phone: 724-357-9564
E-mail: sure54japhan@yahoo.com.tw

Project Director: Dr. Jeannine Fontaine
110 Leonard Hall
Indiana University of Pennsylvania
Indian, PA 15705
Phone: 724-357-2261

Informed Consent Form

VOLUNTARY CONSENT FORM:

I have read and understand the information on the form and I consent to volunteer to be a subject in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time. I have received an unsigned copy of this informed Consent Form to keep in my possession.

Name (PLEASE PRINT)_____

Signature:_____

Date:_____

Phone number or location where you can be reached:_____

Best days and times to reach you:

_____

I certify that I have explained to the above individual the nature and purpose, the potential benefits, and possible risks associated with participating in this research study, have answered any questions that have been raised, and have witnesses the above signature.

Date:_____ **Investigator's Signature**:_____

Appendix I

A GENERAL INSTRUCTION FOR WARM-UP THINK ALOUD TASKS

The following procedure is adapted from the warm-up tasks developed by

Ericsson and Simon in 1984/1993 (p.378)

In this warm-up task, I am interested in what you think about when you find answers to some questions that I am going to ask you to answer. In order to do this, I am going to ask you to **THINK ALOUD** as you work on the problem given. What I mean by think aloud is that I want you to tell me **EVERYTHING** you are thinking from the time you first see the question until you give an answer. I would like you to talk aloud **CONSTANTLY** from the time I present each problem until you have given your final answer to the question. I don't want you to try to plan out what you say or try to explain to me what you are saying. Just act as if you are alone in the room speaking to yourself. It is the most important that you keep talking. If you are silent for any long period of time, I will ask you to talk. Do you understand what I want you to do?

Good, now we will begin with some practice problems. First, I want you to multiply these two numbers in your head and tell me what you are thinking as you get an answer.

"What is the result of multiplying 25 x 34"

Good, now I want to see how much you can remember about what you were thinking from the time you read the question until you gave the answer. We are interested in what you actually can **REMEMBER** rather than what you think you must have thought. If possible, I would like you to tell about your memories in the sequence in which they occurred while working on the question. Please tell me if your are uncertain about any of your memories. I don't want you to work on solving the problem again, just report all that you can remember thinking about when answering the question. Now tell me what you remember.

Good. Now I will ask you two more practice problems before we proceed with the main experiment. I want you to do the same thing for each of these problems. I want you to think aloud as before as you think about the question, and after you have

answered it. I will ask you to report all that you can remember about your thinking. Any questions? Here is your next problem.

"How many windows are there in your parents' house?"

Now tell me all that you can remember about your thinking.

Good, now here is another practice problem. Please think aloud as you try to answer it. There is no need to keep count, I will keep track for you.

"Name 20 different dishes."

Now tell me all that you can remember about your thinking.

A GENERAL INSTRUCTION FOR A REVISED VERSION OF

THINK-ALOUD VERBAL REPORTS

In this think-aloud verbal report section, I am interested in what you think about when you read this article. In order to do this, I am going to ask you to **THINK ALOUD** as you read the passage given. What I mean by think aloud is that I want you to tell me **EVERYTHING** you are thinking from the time you read a sentence until you see a red dot at its end. At every sentence of the article, I would like you to talk aloud **CONSTANTLY** from the time you read the first word of the sentence before you see the red dot at the end of the sentence. The simple procedure applies to every sentence of this article. I don't want you to try to plan out what you say or try to explain to me what you are saying. Just act as if you are alone in the room speaking to yourself. It is the most important that you keep talking.

I will use several interview questions to elicit more data from you as you proceed through the think-aloud task. My cues include questions such as, "What came to your mind when you read this sentence?", "Could you say that again?", or "I am afraid that I don't understand what you just said. Could you put it in another way?" And when you hesitate to verbalize your thoughts, my interview questions would be "Could you tell me more?" or "Is there anything you would like to add?" In short, my interview questions will be designed to elicit your immediate responses to the stimuli—the individual sentences before the red dots in the reading passages.

At the end of the retrospective verbal report session, pointing to the sentences with which you have more difficulties verbalizing your thoughts, I will ask you several questions to collect more data regarding your use of reading strategies when you encountered these difficult areas. The questions include “What else do you want to say about the sentence?” and “Are you sure you fully expressed your thoughts about this sentence?” Also, in order to understand what signals in the text seems to serve as signs of organizational intent for you, my questions are “Have you noticed any organizational signal that helps you understand the text better?” and “If so, can you identify them for me?”

Do you understand what I want you to do?

Now let’s begin from the first sentence of the article.

Appendix J: STRATEGY CLASSIFICATION SCHEME

A. Global reading strategies (13 items). Global reading strategies are used to plan, monitor and direct the learner's reading, including the strategies such as checking to see whether one's guesses are correct, deciding what material to pay close attention to and what to ignore. This type of strategy includes visualizing information to help one remember it and guessing the meaning of unknown words.

Strategy **Definition**

GLOB 1. The reader has a purpose in mind when he/she reads this article.

GLOB 3. The reader thinks about what he/she knows to help him/her understand what he/she reads.

GLOB 6. The reader thinks about whether the content of the text fits his/her reading purpose.

GLOB 4. The reader takes an overall view of the text to see what it is about before reading it.

GLOB 8. The reader reviews the text first by noting its characteristics like length and organization.

GLOB 12. When reading this article, the reader decides what to read closely and what to ignore.

Strategy **Definition**

GLOB 15. The reader uses tables, figures, and pictures in text to increase his/her understanding..

GLOB 17. The reader uses context clues to help him/her better understand what he/she is reading.

GLOB 20. The reader uses typographical features like bold face and italics to identify key information.

GLOB 21. The reader critically analyzes and evaluates the information presented in the text.

GLOB 23. The reader checks his/her understanding when he/she comes across new information.

GLOB 24. The reader tries to guess what the content of the text is about when he/she reads.

GLOB 27. The reader checks to see if his/her guesses about the text are right or wrong.

B. Problem-solving strategies (8 items). Problem-solving strategies refer to the procedures used by the learners when they read a text in order to clear up misunderstandings or difficulties in text comprehension.

Strategy **Definition**

PROB 7. The reader read slowly and carefully to make sure he/she understands what he/she is reading.

PROB 9. The reader tries to get back on track when he/she loses concentration in my reading of the article.

PROB 11. The reader adjusts his/her reading speed according to what he/she is reading.

PROB 14. When text becomes difficult, the reader pays closer attention to what he/she is reading.

PROB 16. The reader stops from time to time and thinks about what he/she is reading.

PROB 19. The reader tries to picture or visualize information to help remember what he/she reads.

PROB 25**.** When text becomes difficult, the reader re-reads it to increase his/her understanding.

PROB 28. When reading the article, the reader guesses the meaning of unknown words or phrases.

C. Support strategies (9 items). As to the supportive strategies, they are auxiliary materials and resources to increase text comprehension. Instances of such strategies include note taking and highlighting important information.

Strategy **Definition**

SUP 2. The reader takes notes while reading to help him/her understand what he/she reads.

SUP 5. When text becomes difficult, the reader reads aloud to help him/her understand what he/she reads.

SUP 10. The reader underlines or circle information in the text to help him/her remember it.

SUP 13. The reader uses reference materials (e.g., a dictionary) to help him/her understand what he/she reads.

SUP 18. The reader paraphrases (restate ideas in his/her own words) to better understand what he/she reads.

SUP 22. The reader goes back and forth in the text to find relationships among ideas in it.

SUP 26. The reader asks himself/herself questions he/she likes to have answered in the text.

Strategy **Definition**

SUP 29. When reading the article, the reader translates from English into his/her native language.

SUP 30. When reading the article, the reader thinks about information in both English and his/her mother tongue.

Appendix K: STRATEGY CODING SCHEME (Phase II)

Strategy	Definition	Sample Responses
1. Using background knowledge (GLOB)	The reader thinks about what he/she knows to help him/her understand what he/she reads.	"Mind mapping is our academic term. It is a learning method of visualizing things in mind."
2. Taking an overview of the text (GLOB)	The reader takes an overall view of the text to see what it is about before reading it.	"Before reading the text, I will scan the whole text to find which parts I understand and which parts I don't."
3. Reading aloud for better understanding (SUP)	When text becomes difficult, the reader reads aloud to help him/her understand what he/she reads.	"In 1187, England's first university, Oxford, was found."

Appendix K continued

Strategy	Definition	Sample Responses
4. Noting text characteristics (GLOB)	The reader reviews the text first by noting its characteristics like length and organization.	“The next paragraph ought to be the turning of the text.”
5. Determining what to read closely (GLOB)	When reading this article, the reader decides what to read closely and what to ignore.	“In fact, in this paragraph, I find a lot of new words I don’t understand, so I just skip them.”
6. Using context clues (GLOB)	The reader uses context clues to help him/her better understand what he/she is reading.	“This means that today’s schools have to be built in this way, because the last paragraph mentions that today’s educational system has been built in this way.”

Appendix K continued

Strategy	Definition	Sample Responses
7. Paraphrasing for better understanding (SUP)	The reader paraphrases (restate ideas in his/her own words) to better understand what he/she reads.	"I don't really know what the last sentence means, but I will use my own words to express it. In other words, memorization depends on the individuals. Everybody will use a different way. You have to try it."
8. Visualizing information read (PROB)	The reader tries to picture or visualize information to help remember what he/she reads.	"When I see the words I understand in the sentence, a scene emerges in my mind. That helps me relate to the meaning of the sentence."

Appendix K continued

Strategy	Definition	Sample Responses
9. Finding relationships among text (SUP)	The reader goes back and forth in the text to find relationships among ideas in it.	"The phrase 'a large number of words' appears many times. I will go back to the previous paragraphs to check it again."
10. Guessing text meaning (GLOB)	The reader tries to guess what the content of the text is about when he/she reads.	"I am not sure what mapping means, but I guess this part of the text means people use their mind to think."
11. Re-reading for better understanding (PROB)	When text becomes difficult, the reader re-reads it to increase his/her understanding.	"Expert opinions differ on the specific number of words? Hold on. Let's me read the sentence again. Expert opinions differ on the specific number of words. "

Appendix K continued

Strategy	Definition	Sample Responses
12. Asking oneself question (SUP)	The reader asks himself/herself questions he/she likes to have answered in the text.	"What is using the first letters of their names for?"
13. Confirming prediction (GLOB)	The reader checks to see if his/her guesses about the text are right or wrong.	"Many years later, many learners enjoyed learning more. Well, I think my understanding of the previous reading was not right."
14. Guessing meaning of unknown words (PROB)	When reading the article, the reader guesses the meaning of unknown words or phrases.	"Over the years? Does it mean that many years have passed?"

Appendix K continued

Strategy	Definition	Sample Responses
15. Translating from English to Chinese (SUP)	When reading the article, the reader translates from English into his/her native language.	"用不同的方法來記住這些事，或是處理這些事吧。"
16. Thinking in both languages when reading (SUP)	When reading the article, the reader thinks about information in both English and his/her mother tongue.	"There is some information we want to memorize quickly? *I am not so sure for this.* (This sentence is spoken in English)."
17. Commenting on behavior or process (GLOB)	The reader describes strategy use, indicates awareness of the components, or expresses a sense of accomplishment or frustration.	"Oh, it is so difficult. My mind is like a blank slate." "I have a feeling that this part of the text is very difficult."

Appendix K continued

Strategy	Definition	Sample Responses
18. Questioning word meaning (PROB)	The reader does not understand a particular word.	"What does the word 'mnemonics' mean?"
19. Questioning sentence meaning (PROB)	The reader does not understand the meaning of a portion of the text.	"I don't understand the part of the sentence that follows the word 'say'."
20. Using grammar knowledge (PROB)	The reader uses knowledge of grammar to understand a portion of the text.	"This seems to be an inverted sentence."