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二個教育層級間英語為外語讀者的策略使用與  
焦慮之關聯

**The Relationship Between Strategy Use and  
Anxiety in Foreign Language Readers  
Across Two Educational Levels**

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## 中文摘要

本研究主要的目的在比較台灣國中生和高中生英文閱讀策略使用情形和英文閱讀焦慮程度，共有 251 位國中生及 235 位高中生參與此研究。

研究者提出四個研究問題：(一) 國中生和高中生間的英文閱讀策略使用是否存在顯著差異？(二) 國中生和高中生間的英文閱讀焦慮程度是否存在顯著差異？(三) 英文閱讀策略使用與閱讀焦慮相關程度為何？(四) 教育層級與英文閱讀焦慮程度對英文閱讀策略使用是否存在交互作用？

針對以上研究問題，本研究的主要發現為：(一) 國、高中生的英文閱讀策略使用存在顯著差異；(二) 國、高中生的英文閱讀焦慮存在顯著差異；(三) 國、高中生的英文閱讀策略使用和英文閱讀焦慮程度之間具顯著中度負相關；(四) 教育層級與英文閱讀焦慮程度對於全體閱讀策略使用以及對於統整型閱讀策略使用之交互作用皆不顯著，然而，其對於非統整型閱讀策略使用則存在顯著的交互作用。

**關鍵字：**閱讀策略、閱讀焦慮、教育層級

## ABSTRACT

The purpose of this study was to compare learners' English reading strategy use and English reading anxiety level across two educational levels in Taiwan: junior high school and senior high school. Two hundred and fifty-one junior high school students and 235 senior high school students were recruited as the participants.

Four major research questions were proposed in this study. The first research question inquired the differences between junior high school students and senior high school students in English reading strategy use. The second concerned the differences between junior high school students and senior high school students in English reading anxiety. The third question was to investigate the relationship between English reading anxiety and English reading strategy use. The fourth concerned the interaction effect of English reading anxiety level and educational level on English reading strategy use.

The findings of this study were as follows. First, junior and senior high school students differed significantly in their English reading strategy use. Second, junior and senior high school students differed significantly in their English reading anxiety. Third, for both educational levels, English reading anxiety was negatively and significantly associated with English reading strategy use at a moderate level. Fourth, English reading anxiety and educational level did not have a significant interaction effect on overall English reading strategy use and general English reading strategy use. However, there was a significant interaction effect of English reading anxiety and educational level on non-general English reading strategy use.

**Keywords:** reading strategy, reading anxiety, educational level

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## CHAPTER ONE INTRODUCTION

### Background

Great emphasis has been put on English reading instruction in secondary education in Taiwan. English reading competence is also a requirement for the entrance to higher education and many job opportunities. Similarly, researchers have widely acknowledged the importance of reading for L2 acquisition (Day & Bamford, 1998, 2002; Grabe, 2004). Recently, Hayati and Shariatifar (2009) argued that reading should be emphasized in the initial stages of language teaching. Synthesizing other researchers' opinions, they regarded reading as a great tool for enriching other dimensions of life and an important source of pleasure. They also claimed that students can learn more through reading than through other language skills.

According to previous research, background knowledge, reading experience, interest, cognition, motivation, reading purpose, and processing strategies are demanded to achieve skillful reading (Alsamadani, 2009; Bernhardt, 2005; Grabe & Stoller, 2002). More specifically, language ability as well as reading ability are both crucial elements for successful L2 reading (Alderson, 1984; Anderson, 1991; Bernhardt & Kamil, 1995; Carrell, 1991; Clarke, 1980; Lee & Schallert, 1997; Olshavsky, 1977). On the one hand, second language knowledge such as vocabulary knowledge (Alderson, 2000; Block, 1992; Grabe, 1991; Laufer, 1997; Nation, 2001; Qian, 1999, 2002; Stanovich, 1980; Zhang & Annul, 2008) and phonological awareness (Afflerbach, Pearson & Paris, 2008) appear to be predictors of L2 reading ability. On the other hand, reading skills, including use of reading strategies (Afflerbach et al., 2008; Alderson, 1984; Bernhardt, 2005; Hudson, 2007), were found to be positively related to L2 reading comprehension. Considerable research also shows that reading strategy instruction improves L2 reading comprehension (Block &

Pressley, 2002; Carrell, 1998; Macaro & Erler, 2008; National Reading Panel, 2000; Duke & Pearson, 2002; Pressley 2002b, 2002c; Talebi, 2009; Trabasso & Bouchard, 2002; Zhang, 2008).

Since reading strategy use is important for improving L2 reading ability, research efforts have also been put on investigating factors that may influence L2 reading strategy use. For example, linguality (Block, 1992; Maghsudi & Talebi, 2009; Padron, Knight & Waxman, 1986; Padron & Waxman, 2001) and gender (Alsamadani, 2009; Martinez & Cristina, 2008) have been shown to affect L2 reading strategy use, although more studies concluded that the effect of gender is not as significant (Phakiti, 2003; Poole, 2005; Sheorey & Mokhtari, 2001; Young & Oxford, 1997). Numerous studies also revealed that L2 proficiency (e.g., Al-Nujaidi, 2003; Chuang, 2008; Ikeda & Takeuchi, 2006; Sheorey & Baroczky, 2008), text complexity or difficulty (e.g., Huang, Chern & Lin, 2006; Oxford, Cho, Leung & Kim, 2004; Smith, 1991; Wu, 2006), and anxiety (Chen, 2007; Hsu, 2004; Lee, 1999; Miyanaga, 2007; Oh, 1990; Sellers, 1998) were significantly related to L2 reading strategy use.

Previous studies have offered some support to the link between L2 reading strategy use and L2 reading anxiety (Hsu, 2004; Lee, 1999; Miyanaga, 2007; Oh, 1990; Sellers, 1998) as well as the correlation between language learning strategy use and language learning anxiety (Djigunovic, 2000; Huang, 2001; Kostic-Bobanovic & Ambrosi-Randic, 2008; Mills, Pajares & Herron, 2006). However, few of them explored the relationship between use of a specific category of reading strategy and different levels of reading anxiety. In Taiwan, Chen's (2007) research is the only study that explored the relationship. However, the instruments Chen (2007) adopted are problematic. For one thing, Foreign Language Reading Anxiety Scale (Saito, Horwitz, & Garza, 1999) she used was criticized as consisting of items that examine reading skills instead of anxiety (Sparks, Ganschow & Javorsky, 2000). For another, the

Survey of Reading Strategies (Mokhtari & Sheorey, 2002) she used was not verified through factor analysis, and thus the validity of each reading strategy category remains unknown. Moreover, to my knowledge, there are no investigations on the relationship between English reading strategy use and English reading anxiety level across junior high and senior high school students in Taiwan. However, numerous differences between students at these two educational levels, such as age, cognitive ability, environment, proficiency, and instructional materials, may cause considerable differences in their English reading strategy use and English reading anxiety. Specifically, senior high school students are older and usually mentally more mature and cognitively more capable in dealing with problems, including learning and reading problems, than junior high school students. On the other hand, being in the academic track, senior high school students are generally under greater academic pressure than junior high school students. However, senior high school students may be of better English proficiency than junior high school students given more years of English learning.

Most importantly, tremendous differences exist in the English reading materials prepared for junior high school and senior high school students and in the learning goals set for the two groups of students. Regarding learning goals, according to the national curriculum guidelines, junior high school graduates are expected to acquire 2000 English vocabulary items while senior high school graduates are required to master 7000 English words. As to English reading skills, much higher standards are also set for senior high school students. For example, junior high school students are mainly expected to master literal comprehension of an English article while senior high school students are expected to achieve interpretive and even critical levels of text comprehension.

Also, there are immense differences in English reading materials prepared for

junior and senior high school students. The reading materials for senior high school students tend to be much longer, involve more complicated sentence and text structures, and contain a greater variety of genres than those for junior high school students. Besides, the English reading materials for senior high school students cover a wider range of topics, some of which are unfamiliar and quite abstract to students. In contrast, English reading materials for junior high school are mostly related to students' daily life. It is thus reasonable to assume that a heavier text processing load is imposed on senior high school students than on junior high school students when they read English materials.

Since there are numerous differences between junior and senior high school students that may result in differences in English reading strategy use and anxiety, and since few studies have examined these differences, this study is thus conducted to fill the research gaps.

### **Research Questions of the Study**

In view of the above research gaps, four research questions are addressed in this study:

1. Is there a significant difference between junior high school students and senior high school students in English reading strategy use?
2. Is there a significant difference between junior high school students and senior high school students in English reading anxiety?
3. How does the relationship between English reading strategy use and English reading anxiety vary across junior and senior high school students?
4. Does the effect of English reading anxiety on English reading strategy use depend on educational level?

## **Definition of Terms**

### **Reading Strategy**

Oxford (1990) defined learning strategies as specific actions taken by the learner to make learning more pleasurable, more self-directed, more effective, and more transferable to new learning tasks. As one dimension of language learning strategy, Garner (1987) characterized reading strategy as actions that the reader employs in order to construct meaning while reading. According to Cohen (1990), L2 reading strategies are mental processes the L2 reader consciously decides to utilize in accomplishing reading tasks. Based on these definitions, the present study defines L2 reading strategies as conscious actions learners take to assist meaning construction in performing reading tasks. Specifically, reading strategies were divided into general and non-general categories according to Hsu's (2009) English Reading Strategy Questionnaire used in the present study. General reading strategies basically correspond to the general strategies in Block's (1986) framework which involve top-down processing. Non-general reading strategies consist of items from the categories of general and local strategies in Block's framework, involving both conventional top-down and bottom-up processing. Hsu (2009) clarified that when reading in an L2, much of the top-down processing was used in a bottom-up way because of limited language proficiency.

### **Reading Anxiety**

Horwitz, Horwitz, and Cope (1986) regarded foreign language classroom anxiety as the self-perceptions, beliefs, and feelings arising from the language learning process under the circumstances of classroom language learning. As one aspect of foreign language learning anxiety, L2 reading anxiety is found to be distinguishable from general foreign language classroom anxiety (Saito, Horwitz & Garza, 1999). Saito, Horwitz and Garza (1999) saw reading anxiety as associated with the emotional

reactions to disturbed, fearful, nervous, or worrying situations while reading a text. Based on the above definitions, this study defines reading anxiety as the uneasy or worrying feelings that a reader experiences during the course of reading.

## **CHAPTER TWO LITERATURE REVIEW**

This chapter provides an overview of the literature relevant to L2 reading strategy use and L2 reading anxiety. The first section reviews important reading comprehension models. Then, studies on L2 reading strategies, one of the primary components of L2 reading skills, are presented in the second section. In the last two sections, L2 reading anxiety research and studies that probed into the relationship between L2 reading strategy and L2 reading anxiety are reviewed.

### **Reading Comprehension Models**

Several important reading comprehension models have been proposed, including top-down, bottom-up, and interactive models. Bottom-up model describes reading as a process in which the reader decodes the text from word level to clausal level (La berge & Samuel, 1974) while top-down model assumes that the reader processes the text as a whole, elaborating the words, clauses and meanings simultaneously and incorporating the text into his own schemata (Goodman, 1967). More recently, the interactive model of reading comprehension was proposed. According to the interactive model, L2 reading comprehension involves both higher-level and lower-level processing, ranging from word recognition to syntax, semantics, discourse, and the reader's background knowledge. Cognitive, linguistic and nonlinguistic skills are all required in the course of L2 reading (e.g., Bernhardt, 1991; Carr & Levy, 1990; Carrell, Devine, & Eskey, 1988; Fender, 2001; Gholamain & Geva, 1999; Grabe, 1991; Lee, 1997; Nassaji, 2002; Swaffar, Arens, & Byrnes, 1991). The interactive model of reading was first constructed by Rumelhart (1977), who proposed that higher-level and lower-level processing not only work in a parallel manner but also interact with one another. That is, information flows both from lower to higher levels and from higher to lower levels. Besides, information from one level can feedback and affect the



processing at another level. Information from syntax, semantics, discourse and the reader's background knowledge is integrated and then comprehension can be achieved. In light of the interactive model, readers need to apply their background knowledge (top-down processing) and decoding skills (bottom-up processing) simultaneously. Similar to the interactive model, an interactive compensatory model was proposed by Stanovich (1981, 1982, 1986). According to the interactive compensatory model, the deficiencies at one processing level can be compensated for by information at another processing level. Specifically, Stanovich (1982) indicated that the insufficient capability in bottom-up processing can be compensated for by top-down processing. However, fewer resources will be left in top-down processing owing to the extra requirement in the reader's attentional resources. Therefore, lower-level processing like word recognition should be mastered beforehand so as to provide comprehension with enough attentional resources.

No general consensus has been reached on the relative importance of higher or lower level processing in reading comprehension. Some researchers argued that higher-level syntactic, semantic, and pragmatic processing can facilitate fluent reading more than lower-level word recognition processing (e.g., Cziko, 1980; Goodman, 1988, 1996; Smith, 1971, 1994). Other researchers claimed that lower-level processing can exert greater effects in reading comprehension than higher-level processing (e.g., Bell & Perfetti, 1994; Carr, Brown, Vavrus, & Evans, 1990; Cunningham, Stanovich, & Wilson, 1990; Daneman, 1996; Perfetti, 1991; Stanovich, 1991, 1993, 2000). The importance of lower-level word recognition and graphophonic processing in L2 reading was supported by numerous studies (e.g., Akamatsu, 1999; Durgunoglu, 1997; Gottardo, Yan, Siegel & Wade-Wooley, 2001; Haynes & Carr, 1990; Koda, 1998, 1999; Muljani, Koda, & Moates, 1998; Muter & Diethelm, 2001; Segalowitz, Poulsen, & Komoda, 1991). Specifically, lower-level processing appears to remain crucial in L2

reading comprehension even for learners whose proficiency has been elevated (Horiba, 1996, 2000; Taillefer, 1996).

The phenomenon of language proficiency threshold (Cummins, 1979) or linguistic ceiling (Clarke, 1978, 1980) has received considerable attention. Once the metaphorical threshold has been reached, a significant change will occur. Another similar concept is the linguistic ceiling that a reader encounters while reading in the target language. The main idea of this concept is that readers can read effectively only when a certain level of language proficiency has been achieved. Likewise, Carrell (1988) suggested that a threshold level of L2 proficiency must be reached and then the transfer of L1 reading skills (strategies) and the application of background knowledge can be facilitated to improve L2 comprehension.

Similarly, Alderson (1984) reviewed previous research and questioned whether L2 reading is a language problem or a reading problem. Alderson concluded that although L2 reading is both a language problem and a reading problem, it is more of a language problem than a reading problem for low levels of L2 competence. Some other research efforts also supported the importance of L2 proficiency in L2 reading comprehension. Lee and Schallert (1997) revealed that L2 proficiency can better predict L2 reading proficiency than L1 reading ability. Besides, in a study in which Chinese adult readers' strategies when comprehending Chinese and English were compared, Kong (2006) found that higher L2 proficiency can facilitate the transfer of higher-level cognitive and metacognitive knowledge from L1 to L2. Likewise, Yang (2006) indicated that only when equipped basic knowledge of the target language can students utilize reading or monitoring strategies to increase their reading comprehension in the target language. Thus, when learning to read in an L2, the knowledge or intuitions from L1 reading experiences can be applied by readers with sufficient L2 proficiency while this application is more difficult for beginning readers.

On the other hand, L1 reading ability has also been found to be essential in enhancing L2 reading comprehension. Cummins (1991) constituted linguistic interdependence hypothesis, suggesting that L1 reading skills are able to be transferred directly to L2 reading. Based on Krashen's (2002) review of empirical studies, L1 reading ability has a considerable beneficial effect on the development of early L2 literacy. In another study, Yamashita (2002) also indicated that L1 reading ability and L2 proficiency mutually compensate for each other. Through this mutual compensation, readers with different levels of L1 reading ability and L2 proficiency can be assisted in achieving L2 reading comprehension to the highest possible extent.

### **Factors Affecting L2 Reading Comprehension**

Previous studies have revealed that numerous factors can affect L2 reading comprehension, such as phonological awareness (Al-Tamimi & Rabab'ah, 2007; Geva & Yaghoub Zadeh, 2006), vocabulary knowledge (Al-Nujaidi, 2003; Geva & Yaghoub Zadeh, 2006; Jongejan, Verhoeven, & Siegel, 2007; Kahn-Horwitz, Shimron, & Sparks, 2005, 2006; Nassaji, 2003; Stahr, 2008), culturally specific prior knowledge or background knowledge (Lin, 2005; Yang, 2004), the knowledge of text structure (Vongpumivitch, 2005), L1-L2 writing system distance and L2 reading experience (Sasaki, 2005). Among these factors, researchers argued that reading strategy use may also have some effects on L2 reading comprehension (Carrell, 1984; Carrell, Pharis & Liberto, 1989). Similarly, some researchers claimed that strategic awareness and monitoring of the comprehension process have a central place in skilled reading (Pressley & Afflerbach, 1995; Sheorey & Mokhtari, 2001). In the Chinese EFL setting, Zhang (2002) found that learners' metacognitive awareness was related to their English reading proficiency. According to Sheorey and Mokhtari (2001), the skilled L2 readers distinguished from the unskilled readers in their conscious awareness of the

strategic reading processes and the actual utilization of reading strategies. Likewise, it has also been proven that reading strategy instruction has a facilitating effect on L2 reading comprehension (Almasi, 2003; Carrell, Pharis & Liberto, 1989; Cotterall, 1990; Hayati & Shariatifar, 2009; Kusiak, 2001; Macaro & Erler, 2008; Salataci, 2002; Song, 1998). Specifically, studies revealed that instruction on text structure analysis (e.g., semantic mapping) (Carrell, 1985; Carrell et al., 1989; Raymond, 1993; Talbot, 1995), instruction on word cognition or clausal level processing (Fraser, 1999; Kitajima, 1997) as well as instruction on metacognitive strategy use (Auerbach & Paxton, 1997; Cotterall, 1990; Song, 1998) were beneficial in L2 reading processing.

Research also revealed that reading anxiety can affect L2 reading comprehension. With a few exceptions (e.g., Brantmeir, 2005; Mills, 2004 ; Mills, Pajares & Herron, 2006), most studies on L2 reading anxiety have supported that reading anxiety negatively correlated with L2 reading comprehension and reading processing (Hsu, 2004; Oh, 1990; Saito, Horwitz, & Garza, 1999; Sas, 2002; Sellers, 1998, 2000; Tucker, Hamayan, & Genesee, 1976; Young, 2000; Zhang, 2003; Zhao, 2010). For example, in a study on English-speaking learners of Chinese as a foreign language, Zhao (2010) found that a negative relationship existed between foreign language reading anxiety and foreign language reading performance. As advanced into higher course level, students' foreign language reading anxiety was augmented owing to the increasing difficulty of the reading materials. Sellers' (2000) research on learners of Spanish as a foreign language at a large research university revealed that high anxious students were inferior to low anxious students in that they tended to recall less passage content and fewer important and supporting pausal units as well as experienced more off-task in L2 reading. On the contrary, Brantmeier's (2005) study on English-speaking university students recruited in an advanced level Spanish grammar and composition course showed that L2 reading anxiety did not hinder

comprehension.

In a word, reading strategy and reading anxiety are two of the important factors affecting L2 reading comprehension and thus this present study focuses on these two variables. The following sections firstly review L2 reading strategy use research and then research on L2 reading anxiety. After that, research on the relationship between L2 reading strategy use and L2 reading anxiety is reviewed to offer the theoretical background for the current study.

### **L2 Reading Strategy Research**

A respectable stockpile of research on general language learning strategy has provided important groundwork for the current investigation on L2 reading strategy use. Language learning strategy research began by the investigation on good language learners' learning strategy use (Rubin, 1975). A substantial body of research documents the tendency of good language learners to use strategies more frequently and in a greater number of situations than less proficient learners do (Anderson, 2005; Bruen, 2001; Chamot & El-Dinary, 1999; Ehrman & Oxford, 1990; Green & Oxford, 1995; O'Malley & Chamot, 1990; Rubin, 1975; Wharton, 2000). Moreover, most researchers agreed that high-proficiency learners use cognitive and metacognitive strategies more frequently than low-proficiency learners (Kaylani, 1996; O'Malley, Chamot, Stewner-Manzanares, Küpper & Russo, 1985; Park, 1997; Peacock & Ho, 2003; Vandergrift, 2003). It appears that proficiency level is related to the use of different categories of learning strategy. Besides proficiency, time variables such as years of language study, (Rahimi, Riazi & Saif, 2008; Ramirez, 1986), course or grade level (Chamot, O'Malley, Küpper & Impink-Hernandez, 1987; Chen, 2006; Ghrib Maamouri, 2004; Griffiths, 2003; Ok, 2003; Politzer, 1983) and educational level (Kostic-Bobanovic & Ambrosi-Randic, 2008; Magogwe & Oliver, 2007) also appear

to correlate with the use of different categories of learning strategies. Note that years of language study (Watanabe, 1990) has been included by Green and Oxford (1995) as examples of proficiency levels.

In the past decades, numerous studies were carried out on the identification and classification of various reading strategies (Flavell, 1979; Garner, 1987; Mokhtari & Reichard, 2002, 2004; Sheorey & Mokhtari, 2001; Young & Oxford, 1997). A distinction between cognitive and metacognitive strategies has been identified (Garner, 1987; Flavell, 1979). Likewise, reading strategies could also be classified into global reading strategies and local reading strategies (Young & Oxford, 1997). Among these classifications, there were two more commonly adopted categorizations of reading strategies developed in a series of studies (Mokhtari & Reichard, 2000, 2004; Mokhtari & Sheorey, 2002; Sheorey & Mokhtari, 2001). One is the Metacognitive Awareness of Reading Strategy Inventory (MARSİ) constituted by Mokhtari and Reichard (2000) for the investigation on L1 learners' reading strategy use; the other is the Survey of Reading Strategies (SORS) developed by Mokhtari and Sheorey (2002) which was modified and constructed from the MARSİ. The SORS was constructed for the exploration on the reading strategy use of ESL learners. The MARSİ consists of global strategies, problem-solving strategies and support strategies. Similarly, reading strategies are also divided into three categories in the SORS: metacognitive strategies, cognitive strategies, and support strategies. Metacognitive strategies in the SORS correspond to global strategies in the MARSİ while cognitive strategies in the SORS correspond to problem-solving strategies in the MARSİ. The definitions of the three categories of strategies are as follows: (1) Global (metacognitive) strategies are carefully planned techniques to monitor reading, such as having a purpose in mind and previewing the text. (2) Problem-solving (cognitive) strategies are actions or procedures to work directly with the text, such as guessing the meaning from unknown

words and visualizing the information read. (3) Support strategies are mechanisms to assist the understanding of the text, such as using a dictionary and taking notes. MARSİ and SORS have been widely used in language learning research field, however, only MARSİ has been verified with high internal consistency reliability in each subscale as well as the overall scale. Factor analysis, including the scree plot, the eigenvalues, and the interpretability, has been conducted to the MARSİ and its three-factor structure has been confirmed. On the contrary, factor analysis has not been conducted to verify the factor structure of the SORS. More recently, based on MARSİ, Hsu (2009) developed an EFL reading strategy questionnaire, dividing the items into two subscales: general reading strategies and non-general reading strategies. The general strategies correspond to Block's (1986) general strategies and the non-general strategies consist of items from the categories of general and local reading strategies in Block's framework. The Cronbach's coefficients of the total and subscales were high. Besides, the fit indexes of confirmatory factor analysis were also high. These results show high reliability and construct validity of Hsu's (2009) English Reading Strategy Questionnaire. Therefore, Hsu's reading strategy instrument was adopted here.

Resembling the findings of studies on general language learning strategies, research on L2 reading strategies revealed that language proficiency affected readers' frequency and variety of strategy use (Al-Nujaidi, 2003; Barnett, 1988; Carrell, 1989; Chuang, 2008; Ikeda & Takeuchi, 2006; Kamhi-Stein, 1998; Law, Chan, & Sachs, 2008; Mokhtari & Reichard, 2004; Sheorey & Baroczky, 2008; Sheorey, Kamimura, & Freirmuth, 2008; Tsai, Ernst, & Talley, 2010; Zhang, 2001). Researchers indicated that high proficient L2 readers use problem-solving (cognitive) strategies or global (metacognitive) strategies more frequently (Garcia & Pintrich, 1994; Paris, Byrnes, & Paris, 2001; Maghsudi & Talebi, 2009; Wu, 2006; Zhang & Wu, 2009; Zimmerman, 2000). For example, Mauricio (2008) investigated Spanish-speaking L2 learners and

found a correlation between a high level of metacognitive reading strategy use and the learners' language proficiency. Honsfeld (1977) indicated that proficient L2 readers were more likely to exercise skills like skipping words, keeping the meaning of the passage in mind, and having a self-concept as readers. In a case study, Mangubhai (1990) found that proficient ESL high school readers tended to utilize more background knowledge in meaning construction.

Researchers also explored the effect of years of study or grade level on L2 reading strategy use. Some researchers argued that there is not always a positive correlation between years of study and proficiency level (Rahimi et al., 2008). However, Wu (2006) found that years of study were related to EFL reading strategy use. Likewise, in a study to examine the reading strategy awareness of Arabic-speaking medical students studying in English, Malcolm (2009) found that the frequency ranking of reading strategy use for Year One students was cognitive, support, and then metacognitive strategies while for Year Four it was cognitive, metacognitive, and then support strategies. Besides, Year One students reported translating more frequently. In contrast, upper year students translated less and applied more metacognitive strategies, particularly critically evaluating, skimming to note text characteristics and using text features such as tables.

In a mixed method study, Iwai (2010) attempted to investigate metacognitive awareness and strategy use in academic reading among ESL students of various academic levels. The Survey of Reading Strategies (SORS) was conducted to gather participants' responses. Additionally, six students (two English Language Institute students, two undergraduate students, and two graduate students) were recruited in semi-structured interviews. The results showed that although students at each academic level were aware of metacognitive reading strategies, the English Language Institute students utilized metacognitive reading strategies more frequently than the



undergraduate and graduate students.

As a part of a larger study aimed to investigate the English reading strategies used by Singaporean bilingual children, Zhang, Gu and Hu (2008) examined the correlation between proficiency or grade level to reading strategy use among 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup> graders. The results showed that once language proficiency and grade level increased, reading strategy use increased as well. Additionally, although grade level did not significantly correlate with reading strategy use, reading strategies were used more frequently and flexibly by more mature students who also had metacognitive awareness in the course of reading. Besides, sixth graders also better used strategies such as “inferencing”, “relating to personal experiences”, and “asking for help.” Moreover, older learners used more global strategies while younger learners used more local strategies. Furthermore, older learners were superior in properly deploying strategies according to the situation-specific need of the reading comprehension tasks. The author explained that more years of exposure to English and metalinguistic knowledge obtained over these years had led to these better applications of reading strategies by students at higher grade levels.

In sum, previous research efforts have shed some light on the present exploration of L2 reading strategies. These studies have shown a close relationship between reading strategy use and reading proficiency (e.g., Carrell, 1989; Chuang, 2008; Ikeda & Takeuchi, 2006; Law, Chan, & Sachs, 2008; Maghsudi & Talebi, 2009; Mauricio, 2008; Mokhtari & Reichard, 2004; Sheorey & Baroczky, 2008; Sheorey, Kamimura, & Freirmuth, 2008; Tsai, Ernst, & Talley, 2010; Wu, 2006; Zhang & Wu, 2009), year of study (Malcolm, 2009; Wu, 2006), grade level (Zhang, Gu & Hu, 2008) and academic level (Iwai, 2010). However, little has been done on how educational level may affect the relationships between reading strategy and reading anxiety, another important learner factor in explaining L2 reading comprehension, as the following

review will show.

### **L2 Reading Anxiety Research**

Anxiety was divided into three major categories in the field of psychology: trait anxiety, state anxiety, and situational anxiety. Trait anxiety means a more permanent personality of an individual to feel anxious across situations (Scovel, 1978; Spielberger, 1972). Contrary to trait anxiety, state anxiety is clarified as a temporary affective situation which occurs at a specific moment (MacIntyre, 1999; Spielberger, 1972, 1983). Similar to state anxiety, situational anxiety indicates disquietude which is triggered by a particular situation (Spielberger, 1983). Specifically, according to MacIntyre and Gardner (1991), situational anxiety can be regarded as trait anxiety measured within a certain context. That is, the difference between trait anxiety and situational anxiety lies in whether or not the subject is asked to attribute the anxiety to a specific source, such as giving a speech, taking a test, and communicating in a foreign language. The sources of one's foreign language anxiety can be identified in these contexts. Therefore, MacIntyre and Gardner suggested that foreign language anxiety can be studied from the perspective of situational anxiety.

Sellers (2000) indicated that there has been relatively little research conducted on L2 reading anxiety although the significance of anxiety in the reading process has been ascertained in some L1 reading models. Thus, he suggested that further research work can be done on L2 reading anxiety so that more integrated L2 reading models can be established and more insight on L2 reading instruction can be obtained. In addition, future empirical research on the effectiveness of anxiety-reducing strategies was also recommended.

Like what was found about general language anxiety, several studies found that year of study significantly correlated with foreign language reading anxiety.

According to previous studies (Saito & Samimy, 1996; Samimy & Tabuse, 1992), course level could exert considerable effect on foreign language reading anxiety. However, while Huang (2001) found that the length of time having learned English was negatively related to reading anxiety level of Taiwanese university students, other researchers have found that course level had a positive effect on foreign language reading anxiety (Kitano, 2001; Zhao, 2010). Zhao (2010) argued that this positive effect probably resulted from increased text difficulty. In Zhao's (2010) study on 125 learners of Chinese as a foreign language, the correlations of reading anxiety with gender, course level, time spent in China, and reading performance were investigated. The results showed that course level exerted significant influence on foreign language reading anxiety level. Specifically, a significantly higher level of foreign language reading anxiety was experienced by intermediate-level students than by elementary-level students. Note that most studies on the relationship between years of study and L2 reading anxiety involved university students. Students at secondary schools seem to be neglected. Therefore, the current study recruits junior and senior high school students to obtain an understanding of L2 reading anxiety experienced by students of different educational levels.

A review of the literature indicates that several studies on L2 reading anxiety have been conducted accompanying the construction of reading anxiety scales (e.g., Brantmeier, 2005; Mills, Pajares, & Herron, 2006; Saito et al., 1999; Sellers, 2000). The first measurement of reading anxiety was Zbornik's (1988) Reading Anxiety Scale (RAS) measuring L1 reading anxiety. Later on, Zbornik and Wallbrown (1991) scrutinized the RAS and found that reading anxiety differentiated from general anxiety in that reading anxiety possessed a stronger negative correlation with reading achievement. As for L2 context, Saito et al. (1999) first investigated the reading anxiety of foreign language learners and developed the Foreign Language Reading

Anxiety Scale (FLRAS) as a tool for researchers to further explore this dimension of foreign language learning anxiety. The FLRAS has been widely used (e.g., Miyanaga, 2007; Pichette, 2009). However, Sparks, Ganschow, and Javorsky (2000) argued that FLRAS includes variables of reading capacity in almost every item and thus they doubted its validity. That is, Sparks, Ganschow, and Javorsky questioned the validity of FLRAS as a measurement completely investigating anxiety. For instance, item 2, “When reading, I often understand the words but still can’t quite understand what the author is saying,” exhibits reading comprehension problem. Also, item 9, “I usually end up translating word by word when I’m reading,” demonstrates decoding skill deficiency. Based on Zbornik’s (1988) Reading Anxiety Scale, Sellers (2000) designed another Reading Anxiety Scale (RAS) to investigate reading anxiety. However, scrutiny of Sellers’ RAS showed that it has the same problem of not ridding of reading capacity from the scale items.

Since the FLRAS and the RAS have been controversial, the French reading anxiety items constructed by Mills, Pajares and Herron (2006) seems to be more valid in testing foreign language reading anxiety because the items do not reflect reading difficulty. Adapted from Betz’s (1978) Mathematics Anxiety Scale (MAS), Mills, Pajares and Herron’s (2006) reading anxiety scale is comprised of nine items, and the Cronbach’s alpha coefficient obtained is .87, indicating a high reliability. Therefore, the present study adapted Mill, Pajares and Herron’s (2006) French reading anxiety scale into an EFL reading anxiety scale.

In short, scholars have developed some foreign language reading anxiety scales for further investigation on L2 reading anxiety level. Besides, previous research findings have revealed a close relationship between reading anxiety and time variables such as length of time having learned English (Huang, 2001) as well as course level (Kitano, 2001; Saito & Samimy, 1996; Samimy & Tabuse, 1992; Zhao, 2010).

However, few studies have been conducted to explore how time variables like educational level may affect the relationships between L2 reading strategy and L2 reading anxiety. Therefore, the present study has been done in order to fill this research gap.

### **The Relationship Between Reading Strategy and Reading Anxiety**

Research on the correlation between general foreign language learning strategy use and language learning anxiety has provided abundant theoretical basis to investigate relationships between L2 reading strategy and L2 reading anxiety. Mihaljević Djigunović (2000) found that language learning strategy use was associated with all four affective variables they explored: anxiety, self-concept, attributions, and motivation. Kostic-Bobanovic and Ambrosi-Randic (2008) also reported a significant correlation between language learning strategies and language anxiety, self-concept and previously achieved language learning experience. Noormohamadi (2009) found that language learning anxiety was negatively related to language learning strategy use. More interestingly, high and low anxiety students used strategies of different categories classified in Oxford's (1990) SILL. Specifically, high-anxiety students used metacognitive and memory strategies most, and compensation and affective strategies, least. On the other hand, low-anxiety students reported using metacognitive and social strategies most, and memory and affective strategies, least. Likewise, Huang (2001) indicated that students who received strategy training demonstrated a significant decrease in English learning anxiety. Moreover, Mills, Pajares and Herron (2006) suggested that strategies that foster self-efficacy could increase positive linguistic behaviors and decrease the need for techniques to reduce anxiety.

Similarly, several studies have examined the relationship between L2 reading strategy use and L2 reading anxiety. Oh's (1990) study on 114 Korean university EFL

students found that the less familiarity to reading text formats could arouse anxiety, and the anxiety extent had an effect on reading strategy use. Sellers' (1998) study revealed that more direct translation was demonstrated by high-anxiety L2 readers while more holistic and carefully planned reading processing was found among low-anxiety readers. Hsu (2004) also suggested that reading anxiety may have an impact on L2 readers' meaning construction and strategy adoption. Similarly, in a recent study, Miyanaga (2007) explored the relationships among reading proficiency, reading anxiety, perception of reading strategies, and reasons for learning English in Japanese EFL university students. The results showed that high-anxiety readers and their low reading anxiety counterparts differed markedly in their reading strategy use. Specifically, it is more difficult for high-anxiety readers to grasp the organization and the gist of the text than low-anxiety readers. Besides, looking up words in a dictionary was perceived to be more effective by high-anxiety readers than by low-anxiety readers. By the same token, Lee (1999) also suggested that an L2 reader's decision making processes, decisions about meaning and strategy use may be influenced by reading anxiety.

In Taiwan, Chen (2007) also examined the relationship between EFL reading anxiety and reading strategy use. One hundred and thirty university students participated in the study. The researcher used the Foreign Language Reading Anxiety Scale (FLRAS) (Saito, Horwitz, & Garza, 1999) and the Survey of Reading Strategies (SORS) (Mokhtari & Sheorey, 2002) to collect data. The results showed that reading anxiety was negatively related to reading strategy use. However, high and low anxiety students' use of overall and each category of reading strategies did not differ significantly. Only some individual reading strategies were found to be different between high- and low- anxiety students. Specifically, low-anxiety readers used background knowledge and checked how text content fitted the purpose more

frequently than high-anxiety students. On the other hand, high-anxiety readers employed reference materials and translated from English to Chinese more frequently than low-anxiety readers. Chen's (2007) study was one scarce effort on the relationship between L2 reading anxiety and L2 reading strategy use in Taiwan. However, there were some limitations in Chen's study. First, the two instruments used were problematic. Specifically, the FLRAS does not exclude the confounding effect of reading difficulty and the categories of the SORS have not been verified through factor analysis. Second, Chen (2007) only probed into students at one educational level, that is, college students.

From the above review, it can be concluded that there is a significant relationship between strategy use and anxiety level of L2 readers. However, few studies investigated the relationship between L2 reading strategy use and L2 reading anxiety among high school students. Even fewer examined how the relationship varies among students at different educational levels. However, differences between students at two educational levels in their proficiency, age, cognitive ability, instructional material and environment may cause considerable discrepancies in their L2 reading strategy use and L2 reading anxiety. Since educational level or other time variables has been proven to be related to L2 reading strategy use (Iwai, 2010; Zhang, Gu & Hu, 2008) and reading anxiety (Huang, 2001; Kitano, 2001; Saito & Samimy, 1996; Samimy & Tabuse, 1992; Zhao, 2010) respectively, the present research attempts to survey EFL senior and junior high school students and probe into not only the effect of educational level on reading strategy use and reading anxiety respectively, but also the effect of educational level on the relationship between reading strategy and reading anxiety.

## **CHAPTER THREE METHOD**

This study used a quantitative method to investigate Taiwanese junior high and senior high school English learners' reading strategy use, reading anxiety, and the relationship between these two variables. In the following section, detailed descriptions of the participants, instruments, data collection procedures, and data analysis procedures are provided.

### **Participants**

A total of 61 second-graders in one public junior high school and 78 second-graders in one public senior high school in Changhua County participated in the pilot study. For the formal study, 251 second-graders in the same public junior high school and 235 second-graders in the same public senior high school as the pilot study were recruited as the participants because they were assumed to have enough learning experiences to represent students at each educational level. They were also expected to be more willing to answer the questionnaires than the third graders.

### **Instruments**

The instruments employed in this research included Hsu's (2009) English Reading Strategy Questionnaire and an adapted version of Mills, Pajares, and Herron's (2006) English Reading Anxiety Scale.

#### **English Reading Strategy Questionnaire**

In order to investigate participants' use of English reading strategies, the researcher used Hsu's (2009) English Reading Strategy Questionnaire. The English Reading Strategy Questionnaire consists of two categories: general strategies and non-general strategies. General strategies basically correspond to the general reading strategies in Block's (1986) framework, involving higher-level processing. General



strategies consist of 13 items (items 4, 12, 14, 15, 17, 18, 19, 20, 23, 25, 26, 28, 29), such as “I have a purpose in mind when I read,” “I read aloud to help me understand when texts become difficult,” and “I try to get back on track when I lose concentration.” Non-general strategies consist of items from both the general and local strategies in Block’s (1986) framework, involving both conventional higher-level and lower-level processing. Hsu argued that higher-level processing can be applied in a bottom-up manner in L2 reading because of insufficient language proficiency. Non-general strategies are composed of 16 items (items 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 13, 16, 21, 22, 24, 27), such as “I analyze every word to construct the meaning of a sentence,” “I write down key words to help increase my understanding,” and “I go back and forth in the text to find relationships among ideas.” In total, English Reading Strategy Questionnaire contains 29 items. The questionnaire applied a 5-point Likert scale continuum from 1 (zero percent of usage) to 5 (almost one hundred percent of usage).

The English Reading Strategy Questionnaire was expanded from the MARSQ (Mokhtari & Reichard, 2000) by adding 13 new items and modifying six items in MARSQ. The 43-item preliminary ERSQ was pretested by 220 college students. Exploratory factor analysis, the scree test, the eigenvalue-greater-than-one criterion, and the conceptual interpretability suggested the adequacy of extracting two factors and identified items that might need to be deleted. Again, the ERSQ was factor analyzed using the two-factor solution and a Direct Oblimin rotation. The resultant 29-item ERSQ was then factor-analyzed. Exploratory factor analysis (EFA) using the Principal Component method of extraction and a two-factor extraction with Direct Oblimin rotation both supported the two-factor solution. Factor I was basically in compliance with Block’s (1986) general strategies while Factor II consisted of both general and local strategy categories in Block’s framework. Besides, the Cronbach’s

alpha coefficients were .96 for the overall scale, and .92 for the General as well as .94 for the Non-General, indicating good internal consistency.

In Hsu's formal study of 432 college freshmen, the confirmatory factor analysis (CFA) was conducted to examine the factor structures. With NFI, NNFI, and CFI being .96, .97, and .97, the CFA results lent support to its two-factor structure validity. The reliability coefficient (Cronbach's alpha) for the overall questionnaire was .95, and that of the General and Non-General Reading Strategy subscales was .90 and .92 respectively. The results indicated good internal consistency of the English Reading Strategy Questionnaire.

The English Reading Strategy Questionnaire was then put into the pilot test of this current study. From the results of junior high school participants, the reliability coefficients (Cronbach's alpha) were .94 for the overall questionnaire, .83 for the General Reading Strategy subscale, and .92 for the Non-General Reading Strategy subscale. The reliability coefficients obtained from senior high school participants were .92, .88 and .88 for the overall questionnaire and the General and Non-General Reading Strategy subscales respectively. These coefficients indicated a high internal reliability. Likewise, in the formal study, the reliability coefficients obtained from junior high school participants were .93 for the overall questionnaire, .89 for the General Reading Strategy subscale, and .89 for the Non-General Reading Strategy subscale. For senior high school participants, the reliability coefficients were .93, .87 and .90 for the overall questionnaire and the General and Non-General Reading Strategy subscales respectively. Therefore, a high internal reliability was also found through the formal study.

### **The English Reading Anxiety Scale**

Mills, Pajares, and Herron's (2006) French Reading Anxiety Scale was modified and translated into Chinese to form an English Reading Anxiety Scale. Two commonly

used reading anxiety scales, Foreign Language Reading Anxiety Scale (FLRAS) (Saito et al., 1999) and Reading Anxiety Scale (RAS) (Sellers, 2000) were not used because they have been criticized as containing items related to word decoding and reading comprehension skills (Sparks, Ganschow, & Javorsky, 2000).

Mills et al.'s (2006) French Reading Anxiety Scale adapted Betz's (1978) Mathematics Anxiety Scale (MAS). MAS has been adapted in various academic fields and the Cronbach's alpha coefficients ranged from .87 to .91 (Pajares & Graham, 1999; Pajares & Kranzler, 1995; Pajares & Urdan, 1996). Also, Dew, Galassi, and Galassi (1983) reported a test-retest reliability of .87. The French Reading Anxiety Scale measures students' reading anxiety levels with an 8-point Likert-type scale format in which 0 corresponds to definitely false while 7 represents definitely true. The Cronbach's alpha coefficient was .87, indicating a high reliability.

The following are examples of the items in the English Reading Anxiety Scale (ERAS): "Reading in English makes me feel uneasy and confused," "I get a sinking feeling when I think of trying to read a difficult English reading comprehension passage," and "I am afraid of doing an English reading comprehension exercises when I know that they will be graded." The English Reading Anxiety Scale comprises nine items. One junior high English teacher and one senior high English teacher were invited to check the accuracy and comprehensibility of the translated Chinese questionnaire. The English Reading Anxiety Scale was modified based on their suggestions.

The English Reading Anxiety Scale was pilot-tested in this present study and the reliability coefficient (Cronbach's alpha) was .86, indicating a high internal reliability. In the formal study, the reliability coefficient was .89, also demonstrating a high internal reliability.

## **Data Collection Procedures**

### **Pilot Study**

A pilot study was carried out to examine the practicability of data collection procedure and to analyze the reliabilities of the questionnaires. Sixty-one second-graders in two classes at one junior high school and Seventy-eight second-graders at one senior high school in Changhua County were recruited to participate in the pilot study. A 48-item questionnaire which contains the background questionnaire (10 items), the English Reading Strategy Questionnaire (29 items), and the English Reading Anxiety Scale (9 items) was administered to the participants. The researchers asked the homeroom teachers or English teachers to conduct the survey. According to the problems found, some improvement on the questionnaires was made.

To measure the internal-consistency reliability of the reading strategy use scale and the reading anxiety scale, Cronbach's alpha coefficients for each subscale were calculated. In order to improve the internal-consistency reliability of the subscale, Pearson product-moment correlation was performed between each item and the total of each subscale. Meanwhile, the participants' feedbacks to this questionnaire were also adopted by the researcher. Based on the correlation coefficient of each item and the total of the subscale to which it belongs to as well as the participants' responses, some of the items were to be deleted, rephrased or added. The Cronbach's alpha coefficients showed that the internal consistency of each scale was high, with the coefficients of the English Reading Strategy Questionnaire being .83 to .94 and that of the English reading Anxiety Scale being .86. Therefore, no item was deleted. However, some participants expressed that the wording of item 6 of the English Reading Anxiety Scale was ambiguous, hence rephrased.

### **Formal Study**

The formal study took place in the same junior high school and the same senior

high school as the pilot study in Changhua County but with different groups of students. The researcher first contacted the English teachers or homeroom teachers of the second grade at the schools. Being approved by the teachers, the researcher sent the questionnaires to the teachers. The purpose of this study and administration procedures were then explained to the teachers. The teachers were also asked to collect the questionnaires and return to the researcher after the survey. Before filling out the questionnaires, the participants were given the following instructions: First, they could fill out the questionnaire honestly because their responses would be kept confidential and their answers would not be regarded as correct or incorrect. Second, they should answer the questions without thinking too much. All of the questionnaires were collected by the researcher and were typed into the computer for statistical analyses.

### **Data Analysis Procedures**

Data collected from the questionnaires were entered statistical analyses. Descriptive statistics for each variable were firstly analyzed. In order to answer the first research question, junior high school students' responses to the English Reading Anxiety Scale (ERAS) were compared with senior high school students' using independent t-test. Likewise, to answer the second question, junior and senior high school students' responses collected from the English Reading Strategy Questionnaire were compared by means of independent t-test. Then, in order to explore the relationship between reading anxiety and reading strategy use, Pearson product-moment correlation was conducted respectively for junior high and senior high school students. Lastly, two-way ANOVA was used to examine the interaction effect of anxiety and educational level on strategy use. To do this, the participants were classified into high- and low- anxiety students. The dependent variables were the

participants' reported uses of general, non-general, and overall reading strategies.

## Chapter Four Results

This chapter presents the statistical results of the data analysis computed by SPSS version 19.0. Section one reports results on participants' background questionnaire. Sections two to five report results related to each research question respectively. Specifically, section two shows the results of English reading strategy use among the participants. Section three presents the results of English reading anxiety among the participants. Section four demonstrates the relationship between reading strategy use and reading anxiety. Section five deals with the results regarding the interaction effect of English reading anxiety and educational level on English reading strategy use.

### Analyses of the Background Questionnaire

#### Demographic Information of the Participants

A total of 486 students, 251 junior high school students and 235 senior high school students participated in this study. Table 1 shows the numbers and percentages of the participants of both sexes across these two educational levels. For both educational levels, there were almost as many males as females, with females being slightly more than males (junior: male = 47.8 %, female = 52.2 %; senior: male = 48.9 %, female= 51.1%).

Table 1  
*Gender distribution of participants*

Educational Level	Sex	N	%
Junior high	Male	120	47.8
	Female	131	52.2
	Total	251	100.0
Senior high	Male	115	48.9
	Female	120	51.1
	Total	235	100.0

Table 2 reveals that almost all the participants started to learn English before Grade 3 or 4. In other words, only few participants started at Grade 5 or 6 (junior = 3.2 %; senior = 8.9 %). As the senior high school participants are three years older than the junior high counterparts, it can be assumed that generally speaking, senior high school participants learned English three years more than junior high school participants.

Table 2

*Distribution of participants' English learning starting points*

Educational Level	Starting Point	N	%
Junior high	Before elementary	66	26.3
	Grade1 or 2	50	19.9
	Grade 3 or 4	127	50.6
	Grade 5 or 6	8	3.2
	Total	251	100.0
Senior high	Before elementary	73	31.1
	Grade1 or 2	63	26.8
	Grade 3 or 4	78	33.2
	Grade 5 or 6	21	8.9
	Total	235	100.0

The results listed in Table 3 shows that it was common for high school students to go to English cram school, with senior high school students being nearly ten percent higher than junior high school students in this aspect (junior = 74.5 %; senior = 82.6 %). Besides, senior high school students reported going to the cram school for 3.59 years as average while junior high school students reported 3.05 years.



Table 3

*Distribution of participants' cram school attendance*

Educational Level	Cram School Attendance	N	%
Junior high	No	64	25.5
	Yes	187	74.5
	Total	251	100.0
Senior high	No	41	17.4
	Yes	194	82.6
	Total	235	100.0

In general, as shown in Table 4, few high school students had been taught by English tutors after school (junior = 2.0 %; senior = 5.5 %). To be more specific, the average years of tutoring reported in the open-ended question were 3.8 and 2.1 for junior and senior high school students respectively.

Table 4

*Distribution of the participants' tutorial status*

Educational Level	Tutorial	N	%
Junior high	No	246	98.0
	Yes	5	2.0
	Total	251	100.0
Senior high	No	222	94.5
	Yes	13	5.5
	Total	235	100.0

The results given in Table 5 indicate that a much higher percentage of senior high school students engaged in extracurricular English learning than junior high school students (junior = 29.1 %; senior = 54.0 %). Participants were also asked to report their extracurricular English learning activities and the results show that these activities were quite similar for both educational levels. That is, English learning magazines and books, English learning TV and radio programs, English movies and

English songs were their main extracurricular learning materials. However, senior high school students largely outnumbered junior high school students in their English learning magazine reading (junior = 12.75 %; senior = 42.98 %). Other extracurricular learning sources mentioned were the Internet, on-line games and English camps.

Table 5

*Distribution of the participants' extracurricular English learning status*

Educational Level	Extracurricular English Learning	N	%
Junior high	No	178	70.9
	Yes	73	29.1
	Total	251	100.0
Senior high	No	108	46.0
	Yes	127	54.0
	Total	235	100

As Table 6 shows, nearly 15 % more of senior high school students experienced difficulty in English reading (junior = 67.7 %; senior = 81.7 %).

Table 6

*Distribution of the participants' experience of English reading difficulty*

Educational Level	Reading Difficulty	N	%
Junior high	No	81	32.3
	Yes	170	67.7
	Total	251	100.0
Senior high	No	43	18.3
	Yes	192	81.7
	Total	235	100.0

On the other hand, Table 7 reflects that English reading pressure has been experienced by more than half of the students from each educational level, with senior high school students feeling slightly higher (junior = 55.0 %; senior = 59.1 %).

Table 7

*Distribution of the participants experiencing reading pressure*

Educational level	Reading Pressure	N	%
Junior high	No	113	45.0
	Yes	138	55.0
	Total	251	100.0
Senior high	No	96	40.9
	Yes	139	59.1
	Total	235	100.0

**Participants' Responses to the Open-ended Questions**

After reporting whether they experienced English reading difficulty or reading pressure, participants were also inquired to report the sources of their English reading difficulty and English reading pressure through free responses. As for the sources of English reading difficulty, the results reveals that more junior high school students than senior high school students identified grammar (junior = 46.6 %; senior = 29.4 %), text length (junior = 33.5 %; senior = 25.1 %), and topic (junior = 18.3 %; senior = 9.4 %) as the sources. On the other hand, more senior high school students than junior high school students identified vocabulary (junior = 23.5 %; senior = 72.3 %) as the source. Moreover, slightly more senior high school students reported phrases (junior = 31.9 %; senior = 34.9 %) and other sources (junior = 3.6 %; senior = 4.3 %) as the sources of reading difficulty. Other sources of reading difficulties reported include low English proficiency, antagonistic feeling against English, feeling troublesome to read in English, fear of misunderstanding the texts, the subjectiveness of some reading contents, and lack of pictures to help clarify the meaning.

As regard the sources of pressure in English reading, the results show that junior high and senior high school students were quite similar in their sources of pressure. Slightly more junior high school students experienced pressure from teachers (junior =

9.6 %; senior = 7.2 %), testing situations (junior = 23.1 %; senior = 18.3 %), and difficult texts (junior = 40.6 %; senior = 40.4 %). Slightly more senior high school participants felt pressure from parents (junior = 8.0 %; senior = 12.3 %), peers (junior = 7.6 %; senior = 10.2 %), and other sources (junior = 3.2 %; senior = 7.7 %). Other pressure sources reported were quite different between these two groups of students. For junior high school participants, other pressure sources were related to fear of being teased, their siblings, BC Test, article length, self-expectations, low English competence, and memorization of lexical items. Besides, their pressure sources were quite different among individuals. For senior high school participants, other pressure sources were mainly related to tests, school work and self-expectations. Antagonistic feeling against English and memorization of lexical items were also mentioned.

In addition, two open-ended questions were also listed in the background questionnaire: (1) When you feel an English article is difficult, what will you do to help yourself understand the English article? (2) When you read in English, what will you do to help yourself ease English reading anxiety? The responses collected are as follows.

For the methods to help understand difficult English articles, junior high school students mostly reported consulting other people and looking up words in dictionaries. Many of them also reported making inferences from the context, engaging in English reading more often, and boosting their English proficiency. Other methods mentioned were reading repeatedly, reading slowly, referring to pictures and simplifying the articles. As for senior high school students, more than half of them reported looking up English words in dictionaries. Besides, many of them reported consulting other people, memorizing more English words, reading repeatedly and engaging in English reading more often. Some reading strategies included in the English Reading Strategy Questionnaire in this study were also mentioned by senior high school students as the

ways to solve English reading difficulties.

For the methods to help ease English reading anxiety, junior high school students reported listening to music, taking a rest, doing other things first and taking it easy as the most frequently used methods. Moreover, engaging in English reading more often, consulting other people, thinking about something fun, taking a deep breath and reading slowly were also reported by many junior high school participants as their ways to ease English reading anxiety. Similar to junior high school students, senior high school students reported taking a rest, listening to music, doing other things first, taking it easy and taking a deep breath as the five most used methods. Other methods are also similar to those reported by junior high school participants. However, senior high school students differ from their junior high school counterparts in that they applied a lot more English reading strategies as the ways to ease English reading anxiety, such as taking notes, underlining, skimming for the main idea, etc. In addition, they had more special habits which they think can help ease reading anxiety, like eating, grabbing hair, pressing fingers, knocking on the desk, and so on.

### **Reading Strategy Use of Junior and Senior High School Students**

This section presents analyses of the English Reading Strategy Questionnaire used in the formal study to collect data. As described in the previous chapter, the English Reading Strategy Questionnaire consisted of two subscales, the General Reading Strategies and the Non-general Reading Strategies. The final make-up of the two subscales comprised 13 items on the General Reading Strategies and 16 on the Non-general Reading Strategies. The participants' responses to this instrument were put into various statistical analyses. The results are presented as follows.

### **Descriptive Statistics**

Table 8 shows the group mean of each individual English reading strategy and highlights the most frequently used and least frequently used strategies across the two

educational levels. Given the small number of strategy items, three most frequently used and three least frequently used strategies are marked for each of the two strategy subcategories: general and non-general reading strategies. On the other hand, when all of the strategies are taken together (i.e., overall strategy use), the strategies ranked as the top five and the bottom five in mean score are highlighted.

Table 8  
*Reported use frequency of individual strategies*

	Junior High			Senior High		
	G Mean (Rank)	Non-G Mean (Rank)	Overall Mean (Rank)	G Mean (Rank)	Non-G Mean (Rank)	Overall Mean (Rank)
04. I question the importance or veracity of the information in the article.	2.63		2.63	2.90		2.90
12. I have a purpose in mind when I read.	2.73		2.73	2.80		2.80
14. I read aloud to help me understand when texts become difficult.	1.86 <b>(1)</b>		1.86 <b>(1)</b>	2.17 <b>(1)</b>		2.17 <b>(1)</b>
15. I think about whether the content fits my purpose or expectation.	2.55		2.55 <b>(4)</b>	2.58 <b>(2)</b>		2.58 <b>(2)</b>
17. I skim the text first by noting characteristics like length and organization.	2.96 <b>(3)</b>		2.96	3.32 <b>(1)</b>		3.32
18. I try to get back on track when I lose concentration.	3.10 <b>(2)</b>		3.10	3.32 <b>(1)</b>		3.32
19. I predict what the text is about when reading.	2.61		2.61	3.08		3.08
20. I decide what to read closely and what to ignore.	2.85		2.85	3.08		3.08

Table 8 (continued)

23. I stop from time to time to think about what I'm reading.	2.89	2.89	3.18	3.18
25. I critically analyze and evaluate the information presented in the text.	2.52 (3)	2.52 (3)	2.77	2.77 (5)
26. I react emotionally to information in the text.	2.43 (2)	2.43 (2)	2.75	2.75 (4)
28. I ask myself questions I like to have answered in the text.	2.57	2.57 (5)	2.60 (3)	2.60 (3)
29. I check to see if my guesses about the text are right or wrong.	3.27 (1)	3.27	3.27 (3)	3.27
01. I take notes while reading to help understand what I'm reading.	3.40	3.40 (4)	3.67	3.67 (5)
02. I use background knowledge to guess the meanings of unknown words.	3.43 (3)	3.43 (3)	3.80 (3)	3.80 (3)
03. I use tables and pictures in the text to increase my understanding.	3.59 (1)	3.59 (1)	3.63	3.63
05. I go back and forth in the text to find relationships among ideas.	3.06	3.06	3.67	3.67 (5)
06. I link the content of the text with what I already know.	3.31	3.31 (5)	3.73	3.73 (4)
07. I underline or circle information in the text to help me remember it.	3.18	3.18	3.66	3.66
08. I go back to the previous sentences in the text and re-read them if I'm having trouble.	3.51 (2)	3.51 (2)	4.02 (1)	4.02 (1)

Table 8 (continued)

09. I summarize what I read in my own words.	2.89 ( <b>2</b> )	2.89	3.34 ( <b>2</b> )	3.34
10. I write down key words to help increase my understanding.	3.00	3.00	3.17 ( <b>2</b> )	3.17
11. I read slowly and carefully to be sure I understand what I'm reading.	3.28	3.28	3.62	3.62
13. I use word-parts to help me understand meaning of a word.	2.88 ( <b>1</b> )	2.88	2.96 ( <b>1</b> )	2.96
16. I try to understand the meaning of every word when I read.	3.14	3.14	3.53	3.53
21. I use reference materials such as dictionaries to help me understand what I'm reading.	2.96 ( <b>3</b> )	2.96	3.97 ( <b>2</b> )	3.97 ( <b>2</b> )
22. I analyze every word to construct the meaning of a sentence.	3.03	3.03	3.61	3.61
24. I paraphrase (restate ideas in my own words) to better understand what I'm reading.	3.14	3.14	3.38	3.38
27. I check my understanding when I come across conflicting information.	2.96	2.96	3.30 ( <b>3</b> )	3.30

*Note:* G = General Strategy

Non-G = Non-General Strategy

Overall = Overall strategy use

① = Top 1; ② = Top 2; ③ = Top 3; ④ = Top 4; ⑤ = Top 5

① = Bottom 1; ② = Bottom 2; ③ = Bottom 3; ④ = Bottom 4; ⑤ = Bottom 5

According to Table 8, in general, the frequency rank of junior and senior high school students' English reading strategy use is quite similar. Specifically, the top three most frequently used general reading strategies were items 29, 18 and 17 for



both junior and senior high school students. That is, checking guesses, monitoring concentration and skimming were particularly favored by the two groups of participants. On the other hand, the least frequently used general reading strategy was item 14 (reading aloud) for students at both educational levels. However, for junior high school students, the second and third least frequently used general reading strategy were items 26 (reacting emotionally) and 25 (analyzing and evaluating); but for senior high school students, they were items 15 (checking if fit reader's purpose) and 28 (asking oneself questions).

Regarding the frequency rank of non-general reading strategy use, two of the top three most frequently used strategies were the same for students at both educational levels: items 8 and 2. It was found that re-reading (item 8) and using background knowledge to guess unknown words (item 2) were especially favored these students. However, item 3 (referencing to tables or pictures) was ranked as the most frequently used non-general strategy for junior high school students, but item 21 (using reference materials like dictionaries) was the third most frequently used non-general strategy for senior high school students. The least frequently used strategy was item 13 (using word-parts) for students at both educational levels. The second and third least frequently used strategies were item 9 (summarizing) and item 21 (using reference materials like dictionaries) for junior high school students, and item 10 (using key words) and item 27 (checking understanding when encountering conflicting information) for senior high school students. Note that item 21 (using reference materials like dictionaries) was the third least frequently used non-general reading strategy for junior high school students but the second most frequently used for senior high school students.

When all of the strategies are considered at the same time, students at both educational levels reported using the same five strategies least frequently: item 14

(reading aloud), item 26 (reacting emotionally), item 25 (analyzing and evaluating information), item 15 (checking if fits reader’s purpose) and item 28 (asking oneself questions). Moreover, among the top five most frequently used strategies by the two groups of students, four were the same: item 8 (re-reading), item 2 (using background knowledge to guess unknown words), item 1 (taking notes) and item 6 (linking the content to what is already known). However, the most frequently used strategy for junior high school students was item 3 (using tables and pictures), which was not listed in the top five most frequently used strategies for senior high school students. Instead, item 21 (using reference materials like dictionaries) and item 5 (finding relationships among ideas) were included in the top five for senior high school participants. It is worth noting that for students at both educational levels, the five most frequently used strategies were all non-general strategies while the five least frequently used were all general strategies.

Table 9 shows the mean scores and standard deviations of the participants’ use of each category of English reading strategies across the two educational levels.

Table 9

*Mean scores and standard deviations of strategy use across junior and senior high students*

	Junior High (N= 251)			Senior High (N=235)		
	Overall	G	Non-G	Overall	G	Non-G
Mean	2.93	2.69	3.17	3.24	2.91	3.57
Std. Deviation	.81	.80	.91	.62	.68	.65

*Note:* Overall = Overall strategy use

G = General Reading Strategy

Non-G = Non-General Reading Strategy

As shown in Table 9, senior high school students reported using more reading strategies than junior high school students ( $M_{\text{junior}} = 2.93$ ;  $M_{\text{senior}} = 3.24$ ). Similarly,

concerning the use of the two subcategories of reading strategies, there appeared to be differences in the mean scores between junior high (General = 2.69; Non-general = 3.17) and senior high (General = 2.91; Non-general = 3.57) school students, with senior high school students reporting more frequent use of strategies.

### **Independent T-test Results**

To test whether these observed differences revealed in Table 9 reached a significant level, independent t-tests were conducted. Table 10 shows the results of the independent t-tests.

Table 10

*Summary of t-tests for the reported strategy use across educational levels*

	<i>df</i>	<i>t</i>	<i>p</i>
Overall	464.99	-4.71	.000
General	479.51	-3.26	.001
Non-General	452.09	-5.49	.000

The results show that as a whole, senior high school students used overall reading strategies significantly more frequently than junior high school students ( $df = 464.99$ ,  $t = -4.71$ ,  $p = .000$ ). Regarding use frequency of general reading strategies, senior high school students also scored significantly higher than junior high school students ( $df = 479.51$ ,  $t = -3.26$ ,  $p = .001$ ). Likewise, in non-general reading strategy use, the score was found to be significantly higher for senior high school students than for junior high school students ( $df = 452.09$ ,  $t = -5.49$ ,  $p = .000$ ).

### **Discussion**

Concerning the rank of English reading strategy use frequency, the rank of general, non-general and overall reading strategies were similar across junior and

senior high school students. Specifically, the most and least frequently used strategies in all the strategy categories were almost the same across junior and senior high school students. The greatest differences between the two groups of students lied in the use of reference materials like dictionaries, which was the second most frequently used strategy of all among senior high school students but the third least frequently used non-general strategy among junior high school students. This difference can be explained by the greater amount of vocabulary that senior high students have to deal with in English reading materials. According to the curriculum guidelines, senior high school students have to master 7000 English words while junior high school students, 2000. Also, based on the participants' responses to the background questionnaire in the present study, senior high school students experienced much more difficulty in vocabulary than junior high school students did.

Another interesting finding is that the five most frequently used English reading strategies were all non-general strategies while the five least frequently used strategies were all general strategies for both educational groups. This tendency in English reading strategy use may suggest that for secondary school students, non-general strategies are easier to learn and/or are given more emphasis in English reading instruction. On the other hand, general strategies may be more difficult and/or are given less attention in secondary school English classes. Therefore, students were less capable in using them.

The results also show that for all the English reading strategy categories, senior high school students tended to score significantly higher than junior high school students. The results suggest that senior high school students apply overall reading strategies, general strategies as well as non-general strategies more frequently than junior high school counterparts. It seems that the length of time for which these English learners received English reading instruction is related to their use frequency

of English reading strategies.

The finding that students at a higher educational level apply English reading strategies more frequently is in accordance with previous findings that grade level (Malcolm, 2009; Zhang, Gu & Hu, 2008), years of study (Wu, 2006) and educational level (Iwai, 2010) are positively correlated with L2 reading strategy use. Specifically, higher graders more frequently made use of metacognitive (global) strategies (Malcolm, 2009; Zhang, Gu & Hu, 2008). Furthermore, older learners were more able to properly deploy strategies according to the situation-specific needs of the real L2 reading tasks (Zhang, Gu & Hu, 2008).

Likewise, studies conducted on general language learning strategies also yielded a similar trend. Time variables such as years of language study (Rahimi, Riazi & Saif, 2008; Ramirez, 1986), course or grade level (Chamot, O'Malley, Küpper & Impink-Hernandez, 1987; Chen, 2006; Ghrib Maamouri, 2004; Griffiths, 2003; Ok, 2003; Politzer, 1983) and educational level (Kostic-Bobanovic & Ambrosi-Randic, 2008; Magogwe & Oliver, 2007) are also related to the use of different categories of language learning strategies. Among these time variables, years of language study (Watanabe, 1990) has been included by Green and Oxford (1995) as examples of proficiency levels, which has been proven by numerous research to be essential to frequent use of various general language learning strategies (e.g., Anderson, 2005; Bruen, 2001; Chamot & El-Dinary, 1999; Green & Oxford, 1995; O'Malley & Chamot, 1990; Peacock & Ho, 2003; Rubin, 1975; Vandergrift, 2003) and reading strategies (e.g., Al-Nujaidi, 2003; Barnett, 1988; Carrell, 1989; Chuang, 2008; Ikeda & Takeuchi, 2006; Kamhi-Stein, 1998; Law, Chan, & Sachs, 2008; Mokhtari & Reichard, 2004; Sheorey & Baroczky, 2008; Sheorey, Kamimura, & Freirmuth, 2008; Tsai, Ernst, & Talley, 2010; Zhang, 2001; Zhang & Wu, 2009; Zimmerman, 2000). More time spent on English learning seems to help increase English reading strategy use. This

increase in L2 reading strategy use may suggest that L2 reading strategies can be acquired through experiences and education.

Zhang, Gu and Hu (2008) has explained that the differences in English reading strategy use for students at different grade levels were due to different years of exposure to English and metalinguistic knowledge base over the years. In other words, the knowledge and experience obtained from more years of English learning and English reading can facilitate English reading strategy use. Another similar explanation for this difference between two educational levels on English reading strategy use is that more extracurricular English learning caused senior high school students to use more reading strategies. In this study, senior high school students reported doing more extracurricular English learning than junior high school students did, including reading English magazines or other reading materials (see Table 5). Senior high school students may thus have more opportunities to exercise English reading strategies.

The increasing difficulty of English reading tasks and reading materials may have also contributed to more frequent English reading strategy use of senior high school students. A lot more senior high school students reported having experienced difficulty in English reading than junior high school students did. The English reading tasks of senior high school students are usually more complicated and thus require more strategies to solve reading problems. For example, the English reading materials for senior high school students may involve many words not in students' word bank, so that the students need to apply the strategy of guessing or word part analysis to make sense of the articles. The readings for junior high school students are, however, easier and involve less difficult words. The sentence structures involved in the English reading texts for junior high school students are usually easier as well. As a result, junior high school students may not need to apply English reading strategies to

analyze complex sentences so as to construct the meaning very often. On the other hand, the English reading materials for senior high school students are often longer and may contain complicated sentence structures and more complex information. Therefore, senior high school students need to apply such English reading strategies as taking notes, writing down key words, and analysis of the sentence structures to help them get the ideas.

The difference could also be explained by language proficiency. The senior high school participants in this study should get the PR rank of 85 to enter their school. That is, they had to be the top 15 percent students on the senior high school entrance examination, namely, the Basic Competence Test. Thus, they were likely to be high-achievers when they were junior high school students and possessed higher English language proficiency than their peers in junior high school. This higher language proficiency, according to previous research, can facilitate transfer of L1 reading strategies to L2 reading (Carrell, 1988; Kong, 2006; Yang, 2006). Likewise, researchers also found that proficiency level can affect readers' frequency and variety of L2 strategy use with high proficient readers using more cognitive and metacognitive strategies (e.g., Al-Nujaidi, 2003; Barnett, 1988; Carrell, 1989; Chuang, 2008; Ikeda & Takeuchi, 2006; Kamhi-Stein, 1998; Law, Chan, & Sachs, 2008; Mokhtari & Reichard, 2004; Peacock & Ho, 2003; Sheorey & Baroczky, 2008; Sheorey, Kamimura, & Freirmuth, 2008; Tsai, Ernst, & Talley, 2010; Vandergrift, 2003; Zhang, 2001; Zhang & Wu, 2009; Zimmerman, 2000).

### **Reading Anxiety Level of Junior and Senior High School Students**

This section presents findings from the English Reading Anxiety Scale used in the formal study. The participants' responses to the finalized scale were statistically analyzed. The results are presented below.

## Descriptive Statistics

Table 11 shows the mean scores and standard deviations of English reading anxiety levels across junior and senior high school students. As can be seen from the table, there appeared to be difference between junior and senior high school students' English reading anxiety levels. Specifically, senior high school students showed a higher English reading anxiety level than junior high school students ( $M_{\text{senior}} = 3.00$ ,  $M_{\text{junior}} = 2.83$ ).

Table 11

*Mean scores and standard deviations of reading anxiety across junior and senior high students*

	Junior High (N = 251)	Senior High (N = 235)
Mean	2.83	3.00
Std. Deviation	.86	.82

## Independent T-test Result

To examine statistical significance of this difference, independent t-test was performed. The difference reached a significant level according to the results obtained from the independent t-test. Specifically, senior high school students experienced significantly higher English reading anxiety than junior high school students ( $df = 483.92$ ,  $t = -2.18$ ,  $p = .030$ ). These results are shown on Table 12.

Table 12

*Summary of t-tests for the reading anxiety across educational levels*

Independent t tests	<i>df</i>	<i>t</i>	<i>p</i>
Junior anxiety vs. senior anxiety	483.92	-2.18	.030

## Discussion



The results of this study revealed that senior high school students possessed significantly higher English reading anxiety than their junior high school counterparts. This finding fills the research gap regarding the difference in L2 reading anxiety experienced by secondary school students and among different educational levels. This finding is in accordance with previous findings which indicated that course level was positively correlated with L2 reading anxiety (Kitano, 2001; Zhao, 2010).

There are a number of possible explanations for the higher L2 reading anxiety experienced by students at higher educational level. First, according to their responses to the background questionnaire, more senior high school students reported having English reading pressure than junior high school students (see Table 7). The higher English reading anxiety of senior high school students is thus natural because of the higher English learning pressure. In addition, Zhao (2010) argued that as students advanced into higher course level, the increasing difficulty of the L2 reading passages augmented their foreign language reading anxiety. Senior high school students are required to read longer and more difficult English texts than junior high school students. This requirement may cause higher English reading stress on senior high school students than junior high school students.

Second, senior high school students may also possess higher self-esteem in English learning. Based on their responses to the background questionnaire, senior high school students experienced more English reading pressure from their parents, peers and self-expectations than junior high school students (see Figure 2). They might thus be more concerned about other people's evaluation of their English reading performance and feel more anxious. Moreover, choosing the academic track rather than the vocational track, senior high school students of the present study are more likely to demand themselves to master school subjects. Because English is one of the major subjects in senior high schools, every dimension of English learning could

cause high tension especially to senior high school students. As a result, while reading in English, senior high school students would be more anxious about failure of comprehension than junior high school students.

### **The Relationship Between Reading Strategy Use and Reading Anxiety**

This section presents findings related to the investigation of relationships between students' English reading strategy use and English reading anxiety across two educational levels. As described in the previous chapter, two levels of analysis were conducted on the responses collected from the strategy and anxiety questionnaires across the two educational levels. First, the study examined the correlations among the means of strategy categories and anxiety in each educational level. Data collected from the whole sample group (N = 486) were analyzed using Pearson product-moment correlation.

Second, the study examined the strategy use of students classified as having distinctive anxiety levels across two educational levels. Based on their responses to the English Reading Anxiety Scale, the students were divided into high or low anxiety readers. To compare use of reading strategies reported by high and low anxiety readers across two educational levels, two-way ANOVA was performed.

### **Results of Pearson Product-Moment Correlation Analysis**

All the participants' responses to the ERSQ and ERAS were analyzed to find out the relationship between junior and senior high school students' English reading strategy use and English reading anxiety. Pearson product-moment correlations were performed to examine the correlations among the mean scores of the overall anxiety scale, two strategy subscales (General and Non-general), and the overall strategy scale. The results of Pearson product-moment correlations across two educational levels can

be found in Table 13.

Table 13

*Summary of Pearson product-moment correlations between reported strategy types and anxiety*

		G	Non-G	Overall
Junior	Pearson correlation	-.436	-.419	-.451
	sig. (2-tailed)	.000	.000	.000
	N	251	251	251
Senior	Pearson correlation	-.378	-.354	-.394
	sig. (2-tailed)	.000	.000	.000
	N	235	235	235
All	Pearson correlation	-.389	-.353	-.394
	sig. (2-tailed)	.000	.000	.000
	N	486	486	486

*Note:* Overall = Overall strategy use

G = General Reading Strategy

Non-G = Non-General Reading Strategy

Table 13 shows that for all the participants, English reading anxiety was moderately correlated with overall English reading strategy use as well as the two strategy subscales, with correlation coefficients ranging from -.353 to -.394 ( $p < .01$ ). Specifically, the correlation coefficients were at moderate levels for junior high school participants as well as their senior high school counterparts, with the correlation coefficients of these two groups ranging from -.419 to -.451 and -.354 to -.394 respectively. These results indicate that both groups of high school students' English reading anxiety were negatively correlated with their reported use of English reading strategies, with all the correlations of junior high school students slightly higher than those of senior high school students. In addition, for both groups of students, the highest correlation was found between reading anxiety and overall Reading Strategy ( $r_{\text{junior high}} = -.451$ ;  $r_{\text{senior high}} = -.394$ ) and the lowest, between reading anxiety and

Non-General Reading Strategy subscale ( $r_{\text{junior high}} = -.419$ ;  $r_{\text{senior high}} = -.354$ ). Likewise, the same order of correlation magnitude was found when the data gathered from these two educational levels were combined ( $r_{\text{Anxiety-to-Overall}} = -.394$ ;  $r_{\text{Anxiety-to-General}} = -.389$ ;  $r_{\text{Anxiety-to-Non-General}} = -.353$ ). These results suggest a relatively weaker connection between reading anxiety and the use of non-general reading strategies.

## **Discussion**

Previous studies have offered some support to the link between L2 reading strategy use and L2 reading anxiety (Hsu, 2004; Lee, 1999; Miyanaga, 2007; Oh, 1990; Sellers, 1998) as well as the correlation between L2 learning strategy use and L2 learning anxiety (Mihaljević Djigunović, 2000; Huang, 2001; Kostic-Bobanovic & Ambrosi-Randic, 2008; Mills, Pajares & Herron, 2006). Similar to the results obtained from most of the studies concerning the links between L2 reading anxiety and L2 reading strategies, the results of the present study also showed that English reading anxiety negatively correlates with English reading strategy use. To be more specific, the Pearson Product-moment tests revealed that correlations were significant at a moderate level between reading anxiety and overall reading strategies as well as each of two subcategories of reading strategies, namely, general and non-general strategies.

Although the educational levels of participants are different, the results of this present study are in accordance with previous studies. These results may suggest that the relationship between L2 reading anxiety and L2 reading strategy use exists across contexts. Specifically, the present study, along with previous studies, shows that the correlation between L2 reading anxiety and L2 reading strategy use exists for not only college students but also for secondary school students.

The negative correlations may be explained by the heavy mental burden of

high-anxiety readers. That is, the pressure high-anxiety readers feel is greater and thus takes them more energy to deal with, sparing less energy for coping with the difficulties they encounter. Therefore, they may not be able to take some methods to solve reading problems before they manage to ease their tension. Note that in the English Reading Anxiety Scale (Mills, Pajares & Herron, 2006), item 7 was also stated as “My mind goes blank and I am unable to think clearly when reading an English passage.” Hence, it is not easy for anxious readers to clearly identify the problems and apply the right strategies to solve them.

Likewise, as most of the items were stated, high-anxiety students experienced various negative feelings about reading an English passage, such as “uneasy,” “confused,” “uptight,” “afraid,” “nervous,” and “a sinking feeling.” These unhappy experiences may lead them to give up English reading more easily owing to the desire to stop these kinds of situations. They may not use the right strategies for their problems before surrender. On the other hand, low-anxiety students may be more willing to try different strategies because spending more time on English reading does not bother or confuse them.

The results also indicate a weaker connection between English reading anxiety and the use of non-general English reading strategies. One explanation for the results is the automaticity in lower-level processing. Based on Schmidt’s (1990) review, most skills begin as controlled processing and gradually become automatic processing through practice. Since participants in the current study demonstrated more than moderate use of non-general strategies (see Table 9,  $M_{\text{junior high}} = 3.17$ ,  $M_{\text{senior high}} = 3.57$ ), they might be able to use these lower-level strategies more automatically while reading in English. Although anxiety arousal would require certain amount of cognitive processing resources in earlier stage of learning (Eysenck, 1979; Schallert, 1991), skilled behaviors, such as use of non-general strategies by the participants in

the present study, may not require a large extent of attentional resources (Wickens, 1984). Therefore, anxiety would not compete with non-general reading strategy use for cognitive resources in processing reading materials; the effect of anxiety on non-general reading strategy use is thus not as great as that on the use of general reading strategies, which may not yet be well applied (see Table 9,  $M_{\text{junior high}} = 2.69$ ;  $M_{\text{senior high}} = 2.91$ ) or mastered.

### **The Interaction Effect of Reading Anxiety and Educational Level on Reading Strategy Use**

#### **Two-way ANOVA Results**

In order to further investigate the relationship between English reading anxiety and English reading strategy use across two educational levels, the study examined English reading strategies used by students from the two educational levels who were identified as having distinctive anxiety levels. Specifically, students were divided into high and low anxious readers based on whether their reported anxiety levels were above or below the mean score of the total sample. The English reading strategy use of high-anxiety and low-anxiety students was then scrutinized using t-tests. Furthermore, two-way ANOVA was employed to examine both the main effect and the interaction effect of educational level and English reading anxiety on English reading strategy use.

#### **Descriptive Statistics**

Table 14 shows the mean scores and standard deviations of the participants' use of English reading strategies across high-anxiety and low-anxiety groups.

Table 14

*Mean scores and standard deviations of strategy use across high-anxiety and low-anxiety groups*

	Low Anxiety (N= 279)			High Anxiety (N=207)		
	Overall	G	Non-G	Overall	G	Non-G
Mean	3.24	2.95	3.54	2.86	2.59	3.13
Std. Deviation	.73	.75	.82	.69	.70	.76

*Note:* Overall = Overall strategy use

G = General Reading Strategy

Non-G = Non-General Reading Strategy

As shown in Table 14, concerning the overall use of English reading strategies, low-anxiety students reported using more reading strategies than high-anxiety students ( $M_{\text{low-anxiety}} = 3.24$ ;  $M_{\text{high-anxiety}} = 2.86$ ). Similarly, there appeared to be differences in the mean scores of the two subscales between low-anxiety students ( $M_{\text{General}} = 2.95$ ;  $M_{\text{Non-general}} = 3.54$ ) and high-anxiety students ( $M_{\text{General}} = 2.59$ ;  $M_{\text{Non-general}} = 3.13$ ), with low-anxiety students reporting more frequent use of strategies.

### **Independent T-test Results**

To test whether these observed differences revealed in Table 14 reached a significant level, independent t-tests were conducted. Table 15 shows the results of the independent t-tests.

Table 15

*Summary of t-tests for the reported strategy use across high-anxiety and low-anxiety groups*

	<i>df</i>	<i>t</i>	<i>p</i>
Overall	484	5.80	.000
General	484	5.25	.000
Non-General	484	5.58	.000

The results show that as a whole, low-anxiety students used English reading

strategies significantly more frequently than high anxiety students ( $df = 484$ ,  $t = 5.80$ ,  $p = .000$ ). Regarding use frequency of general reading strategies, low-anxiety students also scored significantly higher than high-anxiety students ( $df = 484$ ,  $t = 5.25$ ,  $p = .000$ ). Likewise, in non-general reading strategy use, the score was found to be significantly higher for low-anxiety students than for high-anxiety students ( $df = 484$ ,  $t = 5.58$ ,  $p = .000$ ).

Table 16 shows the descriptive statistics of overall reading strategy use by anxiety and educational levels. As shown in Table 16, senior high school students with low English reading anxiety used English reading strategy most frequently ( $M = 3.36$ ) while junior high school students with high English reading anxiety, least ( $M = 2.63$ ).

Table 16

*Descriptive statistics of overall reading strategy use by anxiety and educational levels*

Educational level	Anxiety level			N
	Low <i>M (SD)</i>	High <i>M (SD)</i>	Total <i>M (SD)</i>	
Junior high				
<i>M (SD)</i>	3.14 (.80)	2.63 (.72)	2.93 (.81)	251
Senior high				
<i>M (SD)</i>	3.36 (.62)	3.09 (.58)	3.24 (.62)	235
Total				
<i>M (SD)</i>	3.24 (.73)	2.86 (.69)	3.08 (.74)	486
N	279	207	486	486

Two-way ANOVA results show that there were significant main effects of English reading anxiety level and educational level. Specifically, high anxiety students used overall reading strategies significantly less frequently than low anxiety students ( $M_{\text{high anxiety}} = 2.86$  vs.  $M_{\text{low anxiety}} = 3.24$ ); and senior high school students used overall reading strategies significantly more frequently than junior high school



students ( $M_{\text{junior high}} = 2.93$  vs.  $M_{\text{senior high}} = 3.24$ ). These results are in line with the independent t-test results reported earlier. However, there was no significant interaction effect of anxiety and educational level on overall reading strategy use ( $F = 3.50, p = .062$ ) (see Table 17).

Table 17

*Summary of Two-way ANOVA of reading anxiety and educational level on overall reading strategy use*

Source	SS	df	MS	F	<i>p</i>
Anxiety	18.06	1	18.06	37.51	.000
Educational level	13.65	1	13.65	28.34	.000
Anxiety * educational level	1.68	1	1.68	3.50	.062
Error	232.08	482	.48		

Table 18 shows the descriptive statistics of general reading strategy use by anxiety and educational levels. It appears that senior high school students with low English reading anxiety used general English reading strategies most frequently ( $M = 3.03$ ) while junior high school students with high English reading anxiety, least frequently ( $M = 2.43$ ).

Table 18

*Descriptive statistics of general reading strategy use by anxiety and educational levels*

Educational level	Anxiety level			N
	Low <i>M (SD)</i>	High <i>M (SD)</i>	Total <i>M (SD)</i>	
Junior high				
<i>M (SD)</i>	2.87 (.79)	2.43 (.73)	2.69 (.80)	251
Senior high				
<i>M (SD)</i>	3.03 (.69)	2.76 (.64)	2.91 (.68)	235
Total				
<i>M (SD)</i>	2.95 (.75)	2.59 (.70)	2.80 (.75)	486
N	279	207	486	486

Two-way ANOVA results show that there were significant main effects of anxiety and educational level. Like the results of independent t-tests shown above, high-anxiety students used general English reading strategies significantly less frequently than low-anxiety students ( $M_{\text{high anxiety}} = 2.59$  vs.  $M_{\text{low anxiety}} = 2.95$ ); senior high school students used general English reading strategies significantly more frequently than junior high school students ( $M_{\text{junior high}} = 2.69$  vs.  $M_{\text{senior high}} = 2.91$ ). However, there was also no significant interaction effect of anxiety and educational level on general reading strategy use ( $F = 1.62, p = .203$ ) (see Table 19).

Table 19

*Summary of Two-way ANOVA of reading anxiety and educational level on general reading strategy use*

Source	SS	df	MS	F	<i>p</i>
Anxiety	15.26	1	15.26	29.51	.000
Educational level	7.12	1	7.12	13.78	.000
Anxiety * educational level	.84	1	.84	1.62	.203
Error	249.18	482	.52		

Table 20 shows the descriptive statistics of non-general reading strategy use by anxiety and educational levels. The results show that senior high school students with low English reading anxiety used non-general English reading strategy most frequently ( $M = 3.69$ ) while junior high school students with high English reading anxiety, least frequently ( $M = 2.83$ ).

Table 20

*Descriptive statistics of non-general reading strategy use by anxiety and educational levels*

Educational level	Anxiety level			N
	Low <i>M (SD)</i>	High <i>M (SD)</i>	Total <i>M (SD)</i>	
Junior high <i>M (SD)</i>	3.41 (.93)	2.83 (.77)	3.17 (.91)	251
Senior high <i>M (SD)</i>	3.69 (.65)	3.42 (.63)	3.57 (.65)	235
Total <i>M (SD)</i>	3.54 (.82)	3.13 (.76)	3.36 (.82)	486
N	279	207	486	486

The results of two-way ANOVA provided in Table 21 shows that there was a significant interaction effect between anxiety and educational level on non-general reading strategy use ( $p=.029$ ).

Table 21

*Summary of Two-way ANOVA of reading anxiety and educational level on non-general reading strategy use*

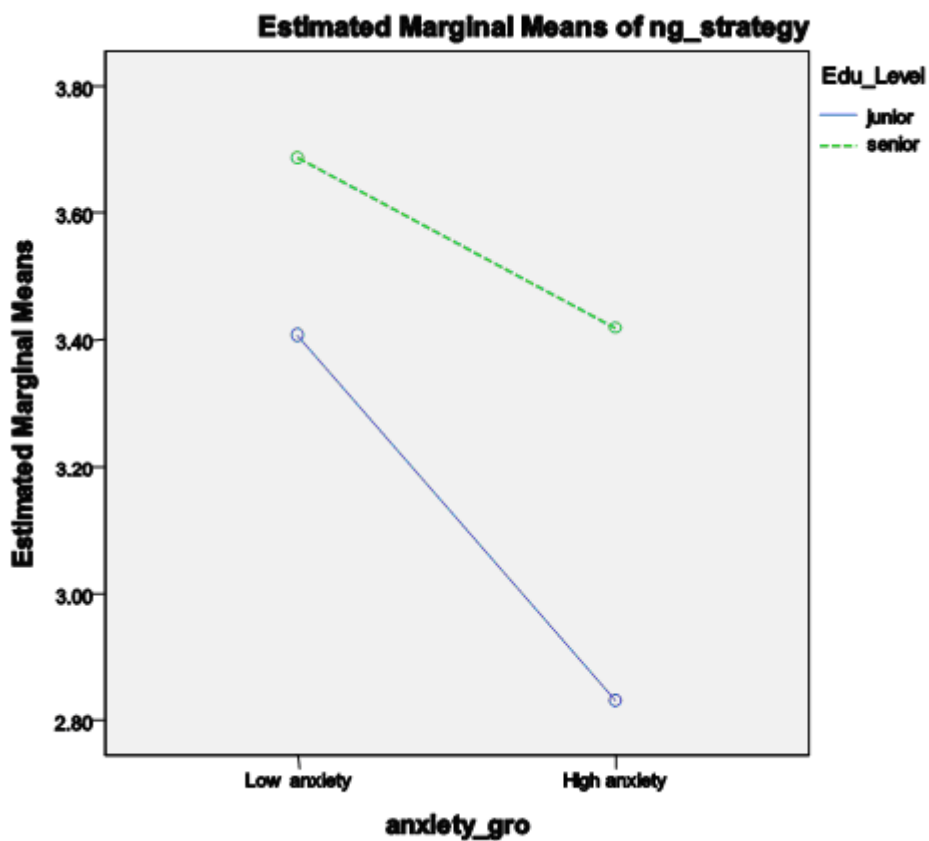
Source	SS	df	MS	F	<i>p</i>
Anxiety	21.10	1	21.10	35.81	.000
Educational Level	22.27	1	22.27	37.80	.000
Anxiety * Educational Level	2.82	1	2.82	4.79	.029
Error	283.96	482	.59		

As Figure 1 shows, regardless of anxiety level, senior high school students used non-general English reading strategies more frequently than junior high school students; but the difference in use frequency between junior and senior high school students was larger for the high-anxiety groups than for the low-anxiety groups. According to Schumacker and Marcoulides (1998), asymmetric graphs represent the

reinforcement effect. For the reinforcement effect in the present study, for students with low English reading anxiety, educational level did not seem to affect non-general English reading strategy use as greatly as for students with high English reading anxiety.

Figure 1

*Non-general reading strategy use of junior and senior high school students with high or low reading anxiety*

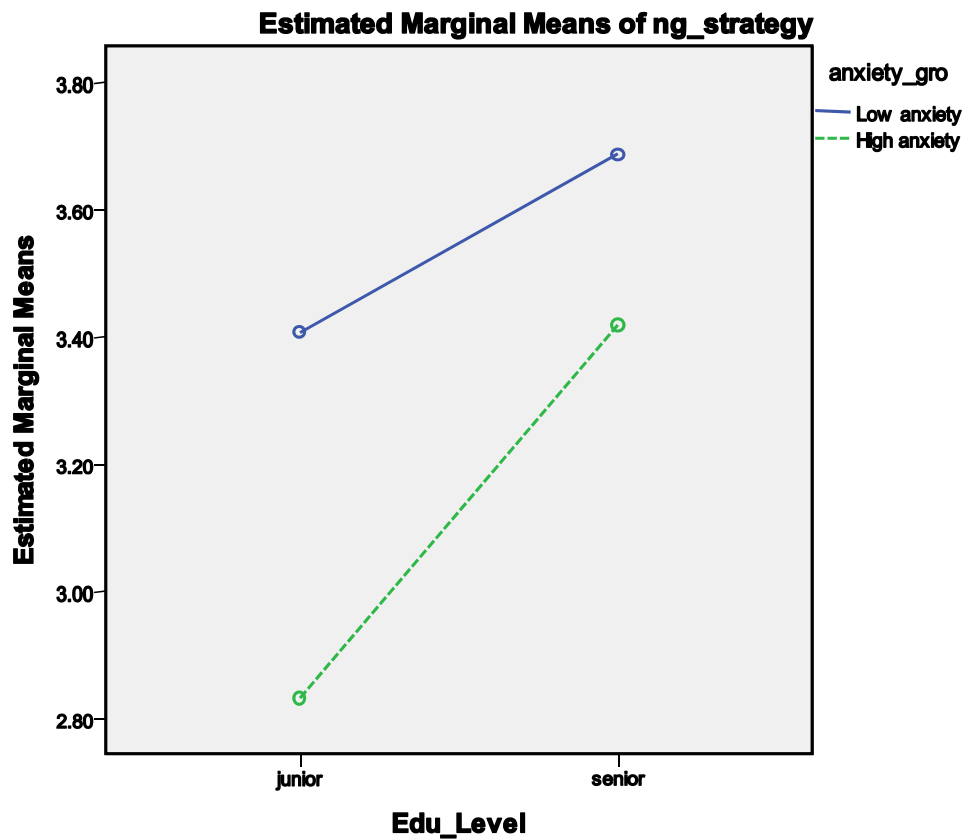


From another perspective, Figure 2 reveals that English reading anxiety did not appear to exert as much effect on the non-general English reading strategy use of senior high school students as it did on those of junior high school students. In other words, although low-anxiety students used non-general reading strategies more frequently than high-anxiety students regardless of educational level, the difference in

use frequency between the two anxiety groups was smaller for senior high school students than for junior high school students.

Figure 2

*Non-general reading strategy use of high and low anxious students from junior or senior high schools*



Due to the significant interaction effect, analyses of simple main effects of anxiety and educational level on non-general reading strategy use were further conducted. The results are summarized in Table 22. According to Table 22, the simple main effect of anxiety on non-general reading strategy use is significant for both junior high school students ( $p = .000$ ) and senior high school students ( $p = .008$ ). Again, the results indicate that low-anxiety group ( $M_{\text{junior high-low anxiety}} = 3.41$ ;  $M_{\text{senior high-low anxiety}} = 3.69$ ) used non-general reading strategies significantly more frequently

than high-anxiety group ( $M_{\text{junior high-high anxiety}} = 2.83$ ;  $M_{\text{senior high-high anxiety}} = 3.42$ ) across the two educational levels.

On the other hand, based on Table 22, the simple main effect of educational level on non-general reading strategy use is significant for both low-anxiety students ( $p = .003$ ) and high-anxiety students ( $p = .000$ ). The results reveal that senior high school students ( $M_{\text{senior high-low anxiety}} = 3.69$ ;  $M_{\text{senior high-high anxiety}} = 3.42$ ) applied non-general reading strategies significantly more frequently than junior high school students ( $M_{\text{junior high-low anxiety}} = 3.41$ ;  $M_{\text{junior high-high anxiety}} = 2.83$ ) across the two anxiety levels.

Table 22  
*Summary of Two-way ANOVA on the simple main effects of educational level and reading anxiety on non-general reading strategy use*

Source	SS	df	MS	F	<i>p</i>
Anxiety					
in junior high	20.09	1	20.09	34.05	.000
in senior high	4.16	1	4.16	7.05	.008
Educational Level					
in low-anxiety	5.41	1	5.41	9.17	.003
in high-anxiety	17.86	1	17.86	30.27	.000
Error	283.96	482	.59		

## Discussion

Few studies, if any, have examined the interaction effect of L2 reading anxiety and educational level on L2 reading strategy use. This study filled this research gap. According to the results, there were significant main effects of English reading anxiety and educational level on overall and general English reading strategy use. These significant main effects confirmed the results obtained from t-tests in the previous sections.

Moreover, the results show no significant interaction effects on overall and

general English reading strategy use. However, it was found that English reading anxiety and educational level exerted significant interaction effect on non-general English reading strategy use. Specifically, the effect of anxiety on non-general strategy use seemed to differ with educational level. An explanation for the significant interaction effect on non-general strategy use but not on overall and, in particular, general strategy use may be the difference in nature between general and non-general reading strategies. In Hsu's (2009) English Reading Strategy Questionnaire (i.e., the questionnaire used in this study to measure reading strategy use), general reading strategies basically correspond to the general reading strategies in Block's (1986) framework. These general strategies involve higher level of processing and are more difficult for readers to acquire and apply. Educational levels, indicative of English reading experiences, may thus have a more consistent effect on their use and the effect may not easily vary with different anxiety levels.

On the other hand, non-general reading strategies in Hsu's (2009) Questionnaire consist of items from both the general and local strategies in Block's (1986) framework. These strategies entail more basic decoding skills; they may thus be easier to acquire and use than general strategies. In fact, according to Table 9, the frequency of non-general strategy use went beyond the moderate level for both groups of students ( $M_{\text{junior high}} = 3.17$ ,  $M_{\text{senior high}} = 3.57$ ). Given the relatively fundamental nature of non-general reading strategies, the potentially detrimental effect of anxiety on their use might depend on English reading experiences, operationalized by education levels in this study. Therefore, a significant interaction effect of educational level and English reading anxiety on English reading strategy use is more likely to obtain for non-general strategy use than for general strategy use.

As Figure 1 shows, the difference in non-general English reading strategy use between junior and senior high school students was greater for high-anxiety students

than for low-anxiety students, with the high-anxiety students at junior high school showing a substantial drop in strategy use. On the other hand, as Figure 2 shows, the difference between high-anxiety and low-anxiety groups in non-general English reading strategy use was larger for junior high school students than for senior high school students. The obvious drop in strategy use among highly anxious junior high school students appears to play a significant role here. It seems that English reading anxiety arousal exerted greater inhibiting effect on non-general English reading strategy use for junior high school students than for senior high school students. These results may be explained by students' ability in self-control and mastery of English reading strategies at different educational levels. As younger learners, junior high school students tend to be more impulsive and less able to control their negative feelings, including English reading anxiety. As a result, junior high school students of high anxiety may easily lose their patience and concentration on English reading and thus may not apply reading strategies as frequently as their low-anxiety counterparts. In contrast, senior high school students are more mature and may be more capable of handling emotional disturbances. Besides, senior high school students may have a better mastery of these strategies than junior high school students due to more English reading experiences. They could thus use non-general reading strategies with greater automaticity. Therefore, differences in anxiety arousal may affect senior high school students' use of English reading strategies less markedly.

Finally, it should be noted that in spite of the findings of interaction effects of English reading anxiety and educational level, when examining the simple main effects, English reading anxiety and educational level were respectively found to significantly affect non-general English reading strategy use. These results reinforce the findings obtained from t-tests that revealed significant effects of anxiety and educational level on non-general reading strategy use.



## **Chapter Five Conclusion**

In this chapter, a summary of the study is first provided, followed by results relevant to the four research questions. Then, pedagogical implications will be provided. The limitations of the study will be designated and suggestions for future research will also be presented.

### **Summary of the Study**

The purpose of the present study is to investigate Taiwanese senior and junior high school students' English reading anxiety, their English reading strategy use, the relationship between English reading anxiety and English reading strategy use, and the interaction effect of educational level and English reading anxiety on English reading strategy use. A total of 486 secondary school students, 251 junior high school students and 235 senior high school students respectively, participated in the study. The participants completed a questionnaire consisting of the Background Questionnaire, the English Reading Strategy Questionnaire (Hsu, 2009), and the English Reading Anxiety Scale (Mills, Pajare & Herron, 2006). The collected data were analyzed with descriptive statistics, independent t-test, Pearson product-moment correlation, and two-way ANOVA. The major findings of the study are summarized as follows.

To begin with, there was a significant difference in overall English reading strategy use as well as the two subcategories of English reading strategy use between junior and senior high school students, indicating that the English learners' use of reading strategies was related to the duration of their reading instruction. In other words, senior high school students more frequently made use of English reading strategies than junior high school students did.

As regards the relationship between English reading anxiety and educational level, there was a significant difference in English reading anxiety between junior and

senior high school students. That is to say, as learners progress to the higher educational level, they experience more English reading anxiety.

Then, the participants' English reading anxiety was negatively correlated with their overall use of English reading strategies as well as the use of general and non-general English reading strategies. However, all of these correlations were only at a moderate degree.

Lastly, the interaction effect of English reading anxiety and educational level appeared to be non-significant on overall English reading strategy use and general English reading strategy use. However, the interaction effect was significant on the category of non-general English reading strategy use. To be specific, the difference between high-anxiety and low-anxiety groups in non-general strategy use was greater for junior high school students than for senior high school students. Besides, the difference between junior and senior high school students in non-general strategy use was greater for high-anxiety group than for low-anxiety group.

### **Pedagogical Implications**

Based on the results of the study, some suggestions for EFL reading instructions are offered.

First, the results show that students at higher educational level applied English reading strategies more frequently. It seems that education can be helpful in helping students learn to use reading strategies to solve English reading problems. Therefore, to reinforce the effect of education, students should be provided with more chances to learn how to read in English. More importantly, strategy instruction should also be included in English reading tasks. Students' reading problems and the reading strategies they have already used should be first identified. Then, reading strategies helpful in solving students' problems should be presented and practiced before reading

materials are offered. While reading, the teachers can ask students to check reading strategies they are using by doing think-aloud protocols. After the reading tasks, the teachers should discuss with students whether and how the reading strategies they use enhance their reading comprehension. Students should also be encouraged to share reading strategies they find useful. Explicit English reading strategy instruction like this should be conducted as early as possible so that it will not take many years of education for students to understand what they can do with an English reading passage.

Second, according to the present findings, senior high school students experienced higher English reading anxiety than junior high school students. This difference suggests that more reading instruction should be conducted to help students at higher educational level to get adapted to English reading tasks with increasing difficulty and thereby ease their English reading anxiety. Likewise, based on the results of the background questionnaire in the present study, secondary school students' English reading pressure mainly comes from difficult articles and testing. Pressure from parents, peers and teachers also induces anxiety. Specifically, senior high school students reported experiencing more pressure from parents, peers and self-expectations than junior high school students did. These findings offer some implications for reducing students' English reading anxiety.

To begin with, teachers should help ease anxiety coming from reading difficult English articles. One of the measures is that difficult articles can be divided into small pieces so that students can read a small part a time, thereby easing their burden. Teachers should also lead students to catch the gist of the article before they read for details. Besides, teachers should set reasonable expectations for students, such as getting a general understanding of the articles rather than comprehension of all details. Moreover, providing a word bank beside the reading materials can also help students

ease anxiety over reading difficult texts. To reduce the anxiety induced by testing, teachers may sometimes make reading assignments more game-like and more joyful. They can also engage students in team work or pair work, in which learners can support one another and feel a sense of security while reading in English. For removing the pressure from parents, peers and students' self-expectations, there is a lot of work for the teachers to do. For example, they have to communicate with learners' parents, inform them of their children's learning needs, and discuss with them a better way to help students learn, instead of giving pressure. Also, teachers should make the atmosphere of the whole class supportive. Each student should be empowered as an important member in the class. Furthermore, teachers should add themselves the role of a consultant, offering students support rather than pressure. Besides, since senior high school students may highly demand themselves in their schoolwork, teachers should provide them with more successful experiences or record their progress in English reading comprehension.

Finally, the interaction effect of English reading anxiety and educational level on English reading strategy use was found to be significant only for non-general reading strategies. Specifically, the difference between junior and senior high school students in non-general reading strategy use was greater for high-anxiety group than for low-anxiety group. On the other hand, the difference between high-anxiety and low-anxiety groups in non-general reading strategy use was larger for junior high school students than for senior high school students. The results suggest that it is more urgent for junior high school teachers to help high-anxiety students to deal with their English reading anxiety problems, thereby boosting their non-general English reading strategy use. Those anxiety-reducing measures mentioned above can be taken to help those students.

### **Implications for Future Research**

Although this study has provided some information about English reading strategy use and English reading anxiety of junior and senior high school students in Taiwan, some relevant research should be undertaken to gain more profound understanding on these aspects. Several suggestions for future research are recommended as follows.

First, the study only recruited students in rural areas in central Taiwan. The generalizability of the research findings might be doubtful due to this particular sample of subjects. With fewer reading experiences and less English input, English reading anxiety and English reading strategy use of learners in these rural areas are probably quite different from those in urban areas. Therefore, future studies can be carried out with students from various regions of Taiwan to broaden and deepen the understanding on Taiwanese English learners' reading anxiety and reading strategy use. Besides, more insight into the effect of educational levels on English reading anxiety and English strategy use might also be gained by expanding the range of grade level to include students of all six grade levels of secondary schools.

Secondly, thorough understanding on the relationship between English reading anxiety and English reading strategy use may not be obtained through the quantitative methods used in this study. The self-report information may only reflect the participants' subjective impression of their strategy use and reading anxiety. Besides, the 5-point Likert-scale format questionnaire leaves no room for free responses, thus, the participants' subtle feelings or other trivial yet valuable information may be missed out. In order to avoid these drawbacks, future research should also include qualitative instruments. For example, more concrete situations of how students' English reading anxiety influences their use of reading strategies can be obtained through interviews. Besides, more understandings on how anxious L2 student read in class can be gained

through classroom observation. In addition, more information about students' feeling of anxiety and use of reading strategies while they are reading in English can be gathered through think-aloud protocols.

Moreover, more research efforts can be made on the relationship between L2 reading anxiety and L2 reading strategy use. Researchers can focus on the relationship between reading anxiety and non-general reading strategies. The reason for this special attention to the relationship between reading anxiety and the particular category of non-general reading strategies lies in that only the category of non-general strategies, but not overall strategies or general strategies, is found to be interactively affected by educational level and reading anxiety. In addition, note that senior and junior high school students are found to be significantly different in their overall, general as well as non-general English reading strategy use, and these findings are in accordance with previous studies. Therefore, researchers are suggested to make more efforts on investigating variables other than educational level which could lead to different L2 reading strategy use. For example, previous research has found that text difficulty (Tsai, 2004) and self-efficacy (Schunk, 1991) significantly correlated with foreign language learning anxiety and reading anxiety respectively. Likewise, these two factors appeared to be also connected to L2 reading strategy use (Chularut & Debacker, 2004; Oxford, Cho, Leung & Kim, 2004; National Capital Language Resource Center, 2000; Shen, 2002). Besides, motivation has been found highly correlated with language learning strategy use as well (Rahimi, Riazi & Saif (2008). These research efforts provide the foundation of further investigation on how other variables may be related to L2 reading anxiety or reading strategy use. Likewise, the interaction effect of educational level and reading anxiety on reading strategy use can also be more thoroughly and clearly discussed. There is little, if any, research on this interaction effect. This obvious insufficient emphasis on the research issue may

deserve more attention and the effects can be clarified in future studies.

Furthermore, there should be a longitudinal study on L2 learners' reading strategy use and reading anxiety. In this way, researchers can probe into how learners' reading strategy use and reading anxiety develop as age or proficiency increases.

## References

- Afflerbach, P., Pearson, P. D., Paris, S. (2008). Skills and strategies: Their differences, their relationships and why it matters. In: Mokhtari, K., Sheorey, R. (Eds.), *Reading strategies of first- and second-language learners: See how they read*. Christopher-Gordon Publisher, Inc., Norwood, MA, pp. 11-24.
- Akamatsu, N. (1999). The effects of first language orthographic features on word recognition processing in English as a second language. *Reading and Writing: An Interdisciplinary Journal*, 11, 381-403.
- Alderson, J. C. (1984). Reading in a foreign language: A reading problem or a language problem? In J. C. Alderson & A. H. Urquhart (Eds.), *Reading in a foreign language* (pp. 1-24). London: Longman.
- Alderson, J. C. (2000). *Assessing reading*. Cambridge, England: Cambridge University Press.
- Almasi, J. F. (2003). *Teaching strategic processes in reading*. New York: Guilford.
- Al-Nujaidi, A. H. (2003). *The relationship between vocabulary size, reading strategies, and reading comprehension of EFL learners in Saudi Arabia* (Unpublished doctoral dissertation). Oklahoma State University, Stillwater.
- Alsamadani, H. A. (2009). The relationship between Saudi EFL college-level students' use of reading strategies and their EFL reading comprehension. *Dissertation Abstracts International, Section A, The Humanities and Social Sciences*, 70(04), 1214.
- Al-Tamimi, Y., & Rabab'ah, G. (2007). The relationship between phonological awareness and word reading. *Poznan Studies in Contemporary Linguistics*, 43(2), 5-21.
- Anderson, N. J. (1991). Individual differences in strategy use in second language reading and testing. *Modern Language Journal*, 75, 460-472.



- Anderson, N. J. (2005). L2 learning strategies. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning*. (pp. 757-772) Mahwah, NJ: Lawrence Erlbaum.
- Auerbach, E. R., & Paxton, D. (1997). It's not the English thing: Bringing reading research into the ESL classroom. *TESOL Quarterly*, 31, 237-261.
- Barnett, M. (1988). Reading through context: How real and perceived strategy use affects L2 reading comprehension. *The Modern Language Journal*, 72, 150-162.
- Bell, L. C., & Perfetti, C. A. (1994). Reading skills: Some adult comparisons. *Journal of Educational Psychology*, 86, 244-255.
- Bernhardt, E. B. (1991). *Reading development in a second language*. Norwood, NJ: Albex.
- Bernhardt, E. B. (2005). Progress and procrastination in second language reading. *Annual Review of Applied Linguistics*, 25, 133-150.
- Bernhardt, E. B., & Kamil, M. L. (1995). Interpreting relationships between L1 and L2 reading: Consolidating the linguistic threshold and the linguistic interdependence hypothesis. *Applied Linguistics*, 16, 15-34.
- Betz, N. E. (1978). Prevalence, distribution, and correlates of math anxiety in college students. *Journal of Counseling Psychology*, 25, 441-448.
- Block, E. (1986). The comprehension strategies of second language readers. *TESOL Quarterly*, 20, 463-494.
- Block, E. (1992). See how they read: Comprehension monitoring of L1 and L2 readers. *TESOL Quarterly*, 26, 319-343.
- Block, C., & Pressley, M. (2002). *Comprehension instruction: Research-based best practices*. New York: Guilford Press.
- Brantmeier, C. (2005). Anxiety about L2 reading or L2 reading tasks? A study with advanced language learners. *The Reading Matrix*, 5(2), 67-85.

- Bruen, J. (2001). Strategies for success: Profiling the effective learner of German. *Foreign Language Annals, 34*(3), 216-225.
- Carr, T. H., Brown, T. L., Vavrus, L. G., & Evans, M. A. (1990). Cognitive skill maps and cognitive skill profiles: Componential analysis of individual differences in children's reading efficiency. In T. Carr & B. Levy (Eds.), *Reading and its development: Component skills approaches* (pp. 1-55). San Diego, CA: Academic Press.
- Carr, T., & Levy, B. (Eds.) (1990). *Reading and its development: Component skills approaches*. San Diego, CA: Academic Press.
- Carrell, P. L., & Eisterhold, J. C. (1988). Schema theory and ESL reading pedagogy. In Carrell, P. L., Devine, J., & Eskey, D. E. (Eds.), *Interactive approaches to second language reading* (pp. 73-92). Cambridge: Cambridge University Press.
- Carrell, P. L. (1985). Facilitating ESL reading by teaching text structure. *TESOL Quarterly, 19*, 727-757.
- Carrell, P. L. (1988). SLA and classroom instruction: Reading. *Annual Review of Applied Linguistics, 9*, 223-242.
- Carrell, P. L. (1989). Metacognitive awareness and L2 reading. *The Modern Language Journal, 73*, 121-134.
- Carrell, P. L. (1991). Second language reading: Reading ability or reading proficiency. *Applied linguistics, 12*, 159-179.
- Carrell, P. L. (1998). Can reading strategies be successfully taught? *Australian Review of Applied Linguistics, 21*, 1-20.
- Carrell, P. L., Pharis, B.G., & Liberto, J.C. (1989). Meta-cognitive strategy training for ESL reading. *TESOL Quarterly, 23*(4), 646-678.
- Chamot, A. U., & El-Dinary, P. B. (1999). Children's learning strategies in immersion classrooms. *The Modern Language Journal, 83*(3), 319-341.

- Chamot, A. U., O'Malley, J. M., Küpper, L., & Impink-Hernandez, M. V. (1987). *A study of learning strategies in foreign language instruction: First year report*. Rosslyn, VA: InterAmerican Research Associates.
- Chen, L. C. (2007). *A study of the relationship between EFL reading anxiety and reading strategy use* (Unpublished master thesis). National Taiwan University of Science and Technology, Taipei, Taiwan.
- Chen, T. H. (2006). Grade level differences in perceptual learning style preferences and language learning strategies of grade seven to grade nine students learning English as a foreign language in Taiwan (China). *Dissertation Abstracts International: Section A, The Humanities and Social Sciences*, 67(02), 441.
- Chuang, M. T. (2008). Cross-language transfer: The strategic reading processes of eighth-grade Taiwanese readers in Chinese and English within a self-regulated learning framework. *Dissertation Abstracts International: Section A, The Humanities and Social Sciences*, 69(02), 0486.
- Clarke, M. A. (1978). Reading in Spanish and English: Evidence from adult ESL students. *Language Learning*, 29, 121-150.
- Clarke, M. A. (1980). The short circuit hypothesis of ESL reading-or when language competence interferes with reading performance. *The Modern Language Journal*, 64, 203-209.
- Cohen, A. D. (1990). *Language learning: Insights for learners, teachers, and researchers*. New York: Newbury House.
- Cotterall, S. (1990). Developing reading strategies through small group interaction. *RELC Journal*, 21(2), 55-59.
- Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research*, 49, 222-251.
- Cummins, J. (1991). Interdependence of first- and second-language proficiency in

- bilingual children. In E. Bialystok (Ed.), *Language processing in bilingual children* (pp. 70-89). Cambridge: Cambridge University Press.
- Cunningham, A., Stanovich, K., & Wilson, M. (1990). Cognitive variation in adult college students differing in reading ability. In T. Carr & B. Levy (Eds.), *Reading and its development: Component skills approaches* (pp. 129-159). San Diego, CA: Academic Press.
- Cziko, G. A. (1980). Language competence and reading strategies: A comparison of first and second language oral reading errors. *Language Learning*, 30, 101-114.
- Daneman, M. (1996). Individual differences in reading skills. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (Vol. 2, pp. 512-538). Hillsdale, NJ: Erlbaum.
- Day, R. R., & Bamford, J. (1998). *Extensive reading in the second language classroom*. Cambridge, England: Cambridge University Press.
- Day, R. R., & Bamford, J. (2002). Top ten principles for teaching extensive reading. *Reading in a Foreign Language*, 14, 136-141.
- Duke, N., & Pearson, P. D. (2002). Effective practices for developing reading comprehension. In A. Farstrup & S. Samuels (Eds.), *What research has to say about reading instruction* (3<sup>rd</sup> ed.) (pp. 205-242). Newark, DE: International Reading Association.
- Durgunoglu, A. Y. (1997). Bilingual reading: Its components, development, and other issues. In A. M. B. De Groot & J. F. Kroll (Eds.), *Tutorials in bilingualism: Psycholinguistic perspectives* (pp. 255-276). Mahwah, NJ: Erlbaum.
- Ehrman, M., & Oxford, R. L. (1990). Adult language learning styles and strategies in an intensive training setting. *Modern Language Journal*, 74, 311-326.
- Eysenck, M. W. (1979). Anxiety, learning and memory: A reconceptualization. *Journal of Research in Personality*, 13, 363-385.

- Fender, M. (2001). A review of L1 and L2/ESL word integration skills and the nature of L2/ESL word integration development involved in lower-level text processing. *Language Learning, 51*(2), 319-396.
- Flavell, J. (1979). Metacognition and cognitive monitoring: A new era of cognitive-development inquiry. *American Psychologist, 34*, 89-109.
- Fraser, C. (1999). Lexical processing strategy use and vocabulary learning through reading. *Studies in Second Language Acquisition, 21*, 225-41.
- Garcia, T., & Pintrich, P. R. (1994). Regulating motivation and cognition in the classroom: The role of self-schemas and self-regulatory strategies. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational application* (pp. 127-153). Hillsdale, NJ: Erlbaum.
- Garner, R. (1987). *Metacognition and reading comprehension*. Norwood, NJ: Ablex.
- Geva, E., & Yaghoub Zadeh, Z. (2006). Reading efficiency in native English-speaking and English-as-a-second-language children: The role of oral proficiency and underlying cognitive-linguistic processes. *Scientific Studies of Reading, 10*(1), 31-57.
- Gholamain, M., & Geva, E. (1999). Orthographic and cognitive factors in the concurrent development of basic reading skills in English and Persian. *Language Learning, 49*(2), 183-217.
- Ghrib Maamouri, E. (2004). Secondary school students' perceptions of learning difficulties and strategies. *The Reading Matrix, 4*(2), 63-84.
- Goodman, K. S. (1988). The reading process. In P. Carrell, J. Devine, & D. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 11-21). New York: Cambridge University Press.
- Goodman, K. S. (1996). *On reading*. Portsmouth, NH: Heinemann.
- Gottardo, A., Yan, B., Siegel, L. S., & Wade-Wooley, L. (2001). Factors related to

- English reading performance in children with Chinese as a first language: More evidence of cross-language transfer of phonological processing. *Journal of Educational Psychology*, 93, 530-542.
- Grabe, W. (1991). Current developments in second language reading research. *TESOL Quarterly*, 25(3), 375-406.
- Grabe, W., & Stoller, F. L. (2002). *Teaching and researching reading*. Essex, UK: Pearson.
- Green, J. M., & Oxford, R. L. (1995). A closer look at learning strategies, L2 proficiency, and gender. *TESOL Quarterly*, 29(2), 261-297.
- Griffiths, C. (2003). Patterns of language learning strategy use. *System*, 31(3), 367-383.
- Hayati, A. M., & Shariatifar, S. (2009). Mapping Strategies. *Journal of College Reading and Learning*, 39(2), 53-67.
- Haynes, M., & Carr, T. (1990). Writing system background and second language reading: A component skills analysis of English reading by native speakers of Chinese. In T. Carr & B. Levy (Eds.), *Reading and its development: Component skills approaches* (pp. 375-421). San Diego, CA: Academic Press.
- Honsefeld, C. (1977). A preliminary investigation of the reading strategies of successful and unsuccessful second language learners. *System*, 5, 110-123.
- Horiba, Y. (1996). Comprehension processes in L2 reading: Language competence, textual coherence, and inferences. *Studies in Second Language Acquisition*, 18, 403-432.
- Horiba, Y. (2000). Reader control in reading: Effects of language competence, text type, and task. *Discourse processes*, 29, 223-267.
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *Modern Language Journal*, 70, 125-132.

- Hsu, L. Y. (2009). *Chinese EFL college students' beliefs about reading and reading strategies in L1 and L2* (Unpublished doctoral dissertation). National Taiwan Normal University, Taipei, Taiwan.
- Hsu, Y. C. (2004). *A study on junior college students' reading anxiety in English as a foreign language* (Unpublished master thesis). National Chung Chen University, Chia-Yi, Taiwan.
- Huang, H. C., Chern, C. L., & Lin, C. C. (2006). EFL learners' online reading strategies: A comparison between high and low EFL proficient readers [Special issue]. *English Teaching and Learning, 30(4s)*, 1-22.
- Huang, H. -Y. (2001). *Chinese university foreign language students' anxiety about reading in English* (Unpublished doctoral dissertation). Washington State University, Washington.
- Huang, S. C. (2001). *Effects of language learning strategy training on English learning* (REP. ED461287). Retrieved from <http://0-www.eric.ed.gov.opac.lib.ntnu.edu.tw/PDFS/ED461287.pdf>
- Hudson, T. (2007). *Teaching second language reading*. Oxford, England: Oxford University Press.
- Ikeda, M., & Takeuchi, O. (2006). Clarifying the differences in learning EFL reading strategies. An analysis of portfolios. *System, 34*, 384-398.
- Iwai, Y. (2010). *Metacognitive awareness and strategy use in academic English reading among adult English as a Second Language (ESL) students*. *Dissertation Abstracts International: Section A, The Humanities and Social Sciences, 70(07)*, 2441.
- Jongejan, W., Verhoeven, L., & Siegel, L. S. (2007). Predictors of reading and spelling abilities in first- and second-language learners. *Journal of Educational Psychology, 99(4)*, 835-851

- Kahn-Horwitz, J., Shimron, J., & Sparks, R. L. (2006). Weak and strong novice readers of English as a foreign language: Effects of first language and socioeconomic status. *Annals of Dyslexia*, 56(1), 161-185.
- Kamhi-Stein, L. D. (1998). Profiles of underprepared second-language readers. *Journal of Adolescent and Adult Literacy*, 41, 610-619.
- Kaylani, C. (1996). The influence of gender and motivation on EFL learning strategy use in Jordan. In R. L. Oxford (Ed.), *Language learning strategies around the world: Cross-cultural perspectives* (pp. 75-88). Honolulu: University of Hawaii Press. : Second language teaching and curriculum center.
- Kitajima, R. (1997). Referential strategy training for second language reading comprehension of Japanese texts. *Foreign Language Annals*, 30, 84-97.
- Kitano, K. (2001). Anxiety in the college Japanese language classroom. *Modern Language Journal*, 85(4), 549-566.
- Koda, K. (1998). The role of phonemic awareness in second language reading. *Second Language Research*, 14, 194-215.
- Koda, K. (1999). Development of L2 intraword orthographic sensitivity and decoding skills. *Modern Language Journal*, 83, 51-64.
- Kong, A. (2006). Connections between L1 and L2 reading: Reading strategies used by four Chinese adult readers. *The Reading Matrix*, 6(2), 19-45.
- Kostic-Bobanovic, M., & Ambrosi-Randic, N. (2008). Languages learning strategies in different English as a foreign language education levels. *Drustvena Istrazivanja*, 17(93-94), 281-300.
- Krashen, S. (2002). Developing academic language: Early L1 reading and later L2 reading. *International Journal of Social Language*, 155/156, 143-151.
- Kusiak, M. (2001). *The effect of metacognitive strategy training on reading comprehension and metacognitive knowledge*. EUROSLA Yearbook: 255-74.



- Laufer, B. (1997). The lexical plight in second language reading: Words you don't know, words you think you know, and words you cannot guess. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition* (pp. 20-34). Cambridge: Cambridge University Press.
- Law, Y. -K., Chan, C. K. K., & Sachs, J. (2008). Beliefs about learning, self-regulated strategies and text comprehension among Chinese children. *British Journal of Educational Psychology*, 78, 51-73.
- Lee, J. F. (1997). Non-native reading research and theory. In K. Bardovi-Harlig & B. Hartford (Eds.), *Beyond methods: Components of second language teacher education* (pp. 152-171). New York: McGraw-Hill.
- Lee, J. F. (1999). Clashes in L2 reading: research versus practice and readers' misconceptions. In D. J. Young (Ed.), *Affect in foreign language and second language learning: A practical guide to creating a low-anxiety classroom atmosphere* (pp. 49-63). New York: McGraw-Hill.
- Lee, J. W., & Schallert, D. L. (1997). The relative contribution of L2 language proficiency and L1 reading ability to L2 reading performance: A test of the Threshold Hypothesis in an EFL context. *TESOL Quarterly*, 31(4), 713-739.
- Lin, L. (2005). Effects of culturally specific prior knowledge on Taiwanese EFL students' English reading comprehension. *Dissertation Abstracts International, Section A, The Humanities and Social Sciences*, 65(12), 4498-A.
- Macaro, E., & Erlar, L. (2008). Raising the achievement of young-beginner readers of French through strategy instruction. *Applied Linguistics*, 29, 90-119.
- MacIntyre, P. D. (1999). Language anxiety: A review of the research for language teachers. In D. J. Young (Ed.), *Affect in foreign language and second language learning: A practical guide to creating a low-anxiety classroom atmosphere* (pp. 24-45). New York: McGraw-Hill.

- MacIntyre, P. D. & Gardner, R. C. (1991). Methods and results in the study of anxiety and language learning: A review of the literature. *Language Learning*, 41(1), 85-117.
- Maghsudi M., & Talebi S. H. (2009). The impact of linguality on the cognitive and metacognitive reading strategies awareness and reading comprehension ability. *J Soc Sci*, 18(2), 119-126.
- Magogwe J. M., & Oliver R. (2007). The relationship between language learning strategies, proficiency, age and self-efficacy beliefs: A study of language learners in Botswana. *System*, 35, 388-352.
- Malcolm D. (2009). Reading strategy awareness of Arabic-speaking medical students studying in English. *System* 37, 640-651.
- Mangubhai, F. (1990). Towards a taxonomy of strategies used by ESL readers of varying proficiencies while doing cloze exercises. *Australian Journal of Reading*, 13, 128-139.
- Martinez, L., & Cristina, A. (2008). Self-reported reading strategy use among Spanish university students of English. *Revista Espanola de Linguistica Aplicada*, 21, 167-179.
- Mauricio, C. L. (2008). Delineating Latino student's reading strategies. *Literatura y Linguistica*, 19, 265-281.
- Mihaljević Djigunović, J. (2000). *Language learning strategies and affect*. (CLCS Report OP-59). Retrieved from <http://cat.inist.fr/?aModele=afficheN&cpsidt=1155625> CLCS Occasional Paper. Report: CLCS-OP-59. 32pp.
- Mills, N. A. (2004). Self-efficacy of college intermediate French students: Relation to motivation, achievement, and proficiency. *Dissertation Abstracts International: Section A, The Humanities and Social Sciences*, 65(2), 440-A.

- Mills, N., Pajares, F., & Herron, C. (2006). A reevaluation of the role of anxiety: Self-efficacy, anxiety, and their relation to reading and listening proficiency. *Foreign Language Annals*, 39(2), 276-295.
- Miyanaga, C. (2007). Anxiety, strategies, motivation, and reading proficiency in Japanese university EFL learners. *Dissertation Abstracts International: Section A, The Humanities and Social Sciences*, 68(06), [np].
- Mokhtari, K., & Reichard, C. (2000). Development of the metacognitive-awareness-of-reading-strategies inventory (MARSII) (Unpublished instrument). Oklahoma State University, Stillwater, Oklahoma, USA.
- Mokhtari, K., & Reichard, C. (2002). Assessing students' metacognitive awareness of reading strategies inventory. *Journal of Educational Psychology*, 94, 249-259.
- Mokhtari K., & Reichard, C. (2004). Investigating the strategic reading process of first and second language readers in two different cultural context. *System*. 32, 379-394.
- Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students' awareness of reading strategies. *Journal of Developmental Education*, 25(3), 2-10.
- Muljani, D., Koda, K., & Moates, D. R. (1998). The development of word recognition in a second language. *Applied Psycholinguistics*, 19, 99-113.
- Muter, V., & Diethelm, K. (2001). The contribution of phonological skills and letter knowledge to early reading development in a multicultural population. *Language Learning*, 51, 187-219.
- Nassaji, H. (2002). Schema theory and knowledge-based processes in second language reading comprehension: A need for alternative perspectives. *Language Learning*, 52(2), 439-481.
- Nassaji, H. (2003). Higher-level and lower-level text processing skills in advanced ESL reading comprehension. *Modern Language Journal*, 87(2), 261-276.

- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.
- National Reading Panel. (2000). *Teaching children to read: An evidence based assessment of the scientific research literature on reading and its implications for reading instruction* (National Institute of health Pub. No. 00-4769). Washington, DC: National Institute of Child Health and Human Development.
- Noormohamadi, R. (2009). On the relationship between language learning strategies and foreign language anxiety. *Journal of Pan-Pacific Association of Applied Linguistics*, 13(1), 39-52.
- Oh, J. (1990). On the relationship between anxiety and reading in English as a foreign language among Korean university students in Korea. *Dissertation Abstracts International: Section A, The Humanities and Social Sciences*, 52(05), 1660.
- Ok, L. Y. (2003). The relationship of school year, sex and proficiency on the use of learning strategies in learning English of Korean junior high school students. *Asian EFL Journal*, 5(3), 1-36.
- Olshavsky, J. E. (1977). Reading as problem solving: An investigation of strategies. *Reading Research Quarterly*, 12, 654-674.
- O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge, UK: Cambridge University Press.
- O'Malley, J. M., Chomot, A. U., Stewner-Manzanares, G., Küpper, L., & Russo, R. P. (1985). Learning strategies used by beginning and intermediate ESL students. *Language Learning*, 35, 21-46.
- Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. New York: Newbury House Publishers.
- Oxford R. L., Cho Y., Leung S., & Kim H. J. (2004). Effect of the presence and difficulty of task on strategy use: An exploratory study. *IRAL, International*

*Review of Applied Linguistics in Language Teaching*, 42, 1-47.

- Padron, Y. N., Knight, S. L., & Waxman, H. C. (1986). Analyzing bilingual and monolingual students' perceptions of their reading strategies. *The Reading Teacher*, 39(5), 430-433.
- Padron, Y. N., & Waxman, H. C. (2001). The reading strategies of bilingual and monolingual students. *The Journal of Social Psychology*, 128(5), 697-698.
- Paris, S. G., Byrnes, J. P., & Paris, A. H. (2001). Constructing theories, identities, and actions of self-regulated learners. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2<sup>nd</sup> ed., pp. 253-287). Mahwah, NJ: Erlbaum.
- Park, G. (1997). Language learning strategies and English proficiency in Korean university students. *Foreign Language Annals*, 30, 211-221.
- Peacock, M., & B. Ho. (2003). Student language learning strategies across eight disciplines. *International Journal of Applied Linguistics*, 13, 179-200.
- Perfetti, C. A. (1991). On the value of simple ideas in reading instruction, In S. A. Brady & D. P. Shankweiler (Eds.), *Phonological processes literacy* (pp. 211-218). Hillsdale, NJ: Erlbaum.
- Phakiti, A. (2003). A closer look at gender and strategy use in L2 reading. *Language Learning*, 53, 649-702.
- Pichette, F. (2009). Second language anxiety and distance language learning. *Foreign Language Annals*, 42(1), 77-93.
- Politzer, R. (1983). An exploratory study of self reported language learning behaviors and their relation to achievement. *Studies in Second Language Acquisition*, 6, 64-67.
- Poole, A. (2005). Gender differences in reading strategy use among ESL college students. *Journal of College Reading and Learning*, 36, 7-20.

- Pressley, M. (2002a). Metacognition and self-regulated instruction. In A. Farstrup & S. Samuels (Eds.), *What research has to say about reading instruction* (3<sup>rd</sup> ed.) (pp. 291-309). Newark, DE: International Reading Association.
- Pressley, M. (2002b). *Reading instruction that works* (2<sup>nd</sup> ed.). New York: Guilford Press.
- Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading*. Lawrence Erlbaum Associates, Hillsdale, NJ.
- Qian, D. D. (1999). Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *The Canadian Modern Language Review*, 56, 282-307.
- Rahimi M., Riazi A., & Saif S. (2008). An investigation into the factors affecting the use of language learning strategies by Persian EFL learners. *Canadian Journal of Applied Linguistics*, 11(2), 31-60.
- Ramirez, A. G. (1986). Language learning strategies used by adolescents studying French in New York schools. *Foreign Language Annals*, 19, 131-141.
- Raymond, M. (1993). The effects of structure strategy training on the recall of expository prose for university students reading French as a second language. *Modern Language Journal*, 77, 445-458.
- Rubin, J. (1975). What the “good language learner” can teach us. *TESOL Quarterly*, 9, 41-51.
- Rumelhart, D. E. (1977). Toward an interactive model of reading. In S. Domic (Ed.), *Attention and performance VI* (pp. 573-603). Hillsdale, NJ: Erlbaum.
- Saito, Y., Horwitz, E., & Garza, T. (1999). Foreign language reading anxiety. *Modern Language Journal*, 83, 202-218.
- Saito, Y., & Samimy, K. K. (1996). Foreign language anxiety and language performance: A study of learner anxiety in beginning, intermediate, and

- advanced-level college students of Japanese. *Foreign Language Annals*, 29(2), 239-251.
- Salataci, R. (2002). Possible effects of strategy instruction on L1 and L2 reading. *Reading in a Foreign Language*, 14(1), 1-17.
- Samimy, K. K., & Tabuse, M. (1992). Affective variables and a less commonly taught language: A study in beginning Japanese classes. *Language Learning*, 42, 377-398.
- Sas, M. M. (2002). *Reading anxiety's effects on incidental vocabulary acquisition: Are culturally relevant texts exempt?* (Unpublished doctoral dissertation). University of Nevada, Las Vegas.
- Sasaki, M. (2005). Acquisition of reading processes in the first and second writing systems. *Dissertation Abstracts International, Section C: Worldwide*, 66(2), 269-C-270-C.
- Schallert, D. L. (1991). The contribution of psychology to teaching the language arts. In J. Flood, J. M. Jensen, D. Lapp, & J. R. Squire (Eds.), *Handbook of research on teaching the English language arts* (pp. 30-39). New York: Macmillan.
- Schmidt, R. W. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11(2), 129-158.
- Schumacker R. E., & Marcoulides G. A. (1998). *Interaction and nonlinear effects in structural equation modeling*. Routledge Publication.
- Scovel, T. (1978). The effect of affect on foreign language learning: A review of the anxiety research. *Language Learning*, 28, 129-142.
- Segalowitz, N., Poulsen, C., & Komoda, M. (1991). Lower-level components of reading skill in higher-level bilinguals: Implications for reading instruction. *AILA*, 8, 15-30.
- Sellers, V. D. (1998). *On the relationship between anxiety and reading in Spanish as a*

- foreign language* (Unpublished doctoral dissertation). University of Pennsylvania, Pennsylvania.
- Sellers, V. D. (2000). Anxiety and reading comprehension in Spanish as a foreign language. *Foreign Language Annals*, 33(5), 512-521.
- Sheorey, R., & Baboczky, E. S. (2008). Metacognitive awareness of reading strategies among Hungarian college students. In: K. Mokhtari, R. Sheorey, (Eds.), *Reading strategies of first- and second-language learners: See how they read* (pp. 161-174). Norwood, MA: Christopher-Gordon.
- Sheorey, R., Kamimura, Y., Freirmuth, M. R. (2008). Reading strategies of the users of English as a library language: The case of Japanese ESP students. In K. Mokhtari, R. Sheorey (Eds.), *Reading strategies of first- and second- language learners: see how they read* (pp. 175-184). Norwood, MA: Christopher-Gordon.
- Sheorey, R., & Mokhtari, K. (2001). Differences in the metacognitive awareness of reading strategies among native and nonnative readers. *System*, 29(4), 431-449.
- Smith, F. (1971). *Understanding reading: A psycholinguistic analysis of reading and learning to read*. New York: Holt Rinehart and Winston.
- Smith, F. (1994). *Understanding reading: A psycholinguistic analysis of reading and learning to read* (5<sup>th</sup> ed.). Hillsdale, NJ: Erlbaum.
- Smith, M. W. (1991). Constructing meaning from text: An analysis of ninth-grade reader responses. *Journal of Educational Research*, 84, 263-271.
- Song, M. -J. (1998). Teaching reading strategies in an ongoing EFL university reading classroom. *Asian Journal of English Language teaching*, 8, 41-54.
- Sparks, R. L., Ganschow, L., & Javorsky, J. (2000). Déjà Vu all over again: A response to Saito, Horwitz, and Garza. *The Modern language Journal*, 84(2), 251-255.
- Spielberger, C. D. (1972). *Anxiety: Current trends in theory and research*. New York:



Academic Press.

Spielberger, C. D. (1983). *Manual for the state-trait anxiety inventory (STAI-FORMY)*.

Palo Alto, CA: Consulting Psychologists Press.

Stahr, L. S. (2008). Vocabulary size and the skills of listening, reading and writing.

*Language Learning Journal*, 36(2), 139-152.

Stanovich, K. E. (1980). Toward an interactive-compensatory model of individual differences in the development of reading fluency. *Reading Research Quarterly*, 16, 32-71.

Stanovich, K. E. (1981). Attentional and automatic context effects in reading. In A. Lesgold & C. Perfetti (Eds.), *Interactive processes in reading* (pp. 241-267). Hillsdale, NJ: Erlbaum.

Stanovich, K. E. (1982). Individual differences in the cognitive processes of reading I: Word decoding. *Journal of Learning Disabilities*, 15, 485-493.

Stanovich, K. E. (1986). Toward an interactive-compensatory model of individual differences in the development of reading fluency. *Reading Research Quarterly*, 16, 32-71.

Stanovich, K. E. (1991). Changing models of reading and reading acquisition. In L. Rieben & C. Perfetti (Eds.), *Learning to read: Basic research and its implications* (pp. 19-31). Hillsdale, NJ: Erlbaum.

Stanovich, K. E. (1993). The language code: Issues in word recognition. In S. R. Yussen & M. C. Smith (Eds.), *Reading across the life span* (pp. 111-135). New York: Springer-Verlag.

Stanovich, K. E. (2000). *Progress in understanding reading: Scientific foundations and new frontiers*. New York: Guilford.

Swaffar, J., Arens, K., & Byrnes, H. (1991). *Reading for meaning: An integrated-approach to language learning*. Englewood Cliffs, NJ: Prentice Hall.

- Taillefer, G. (1996). L2 reading ability: Further insights into the short-circuit hypothesis. *Modern Language Journal*, 80, 461-477.
- Talbot, D. C. (1995). Metacognitive strategy training for reading: Developing second language learners' awareness of expository text patterns. Unpublished doctoral dissertation. University of Hong Kong, Hong Kong, China.
- Talebi, S. H. (2009). An attempt towards learner autonomy in L2 (English) and L3 (Arabic) reading through cognitive and metacognitive reading strategy instruction (CMRSI) in L2. *Indian Journal of Applied Linguistics*, 35(2), 101-112.
- Trabasso, T., & Bouchard, E. (2002). Teaching readers how to comprehend text strategically. In C. Collins & M. Pressley (Eds.), *Comprehension instruction: Research-based best practices* (pp. 176-200). New York: Guilford Press.
- Tsai, Y., Ernst, C., & Talley, P. C. (2010). L1 and L2 Strategy Use in Reading Comprehension of Chinese EFL Readers. *Reading Psychology*, 31(1), 1-29.
- Tucker, G. R., Hamayan, E., & Genesee, F. H. (1976). Affective, cognitive, and social factors in second-language acquisition. *Canadian Modern Language Review*, 32, 214-226.
- Vongpumivitch, V. (2005). Measuring the knowledge of text structure in academic English as a second language. *Dissertation Abstracts International, Section A, The Humanities and Social Sciences*, 65(9), 3314-A-3315-A.
- Watanabe, Y. (1990). *External variables affecting learning strategies of Japanese EFL learners: Effects of entrance examination, years spent at college/university, and staying overseas* (Unpublished master's thesis). Lancaster University, Lancaster, UK.
- Wharton, G. (2000). Language learning strategy use of bilingual foreign language learners in Singapore. *Language Learning*, 50(2), 203-243.
- Wickens, C. D. (1984). Processing resources in attention. In R. Parasuraman, & D. R.

- Davies (Eds.), *Varieties of attention* (pp. 63–102). San Diego, CA: Academic Press.
- Wu, C. P. (2006). An investigation of metacognitive reading strategies used by EFL Taiwanese college students to comprehend familiar versus unfamiliar Chinese and English texts. *Dissertation Abstracts International: Section A, The Humanities and Social Sciences*, 66(11), 3970.
- Yamashita, J. (2002b). Reading strategies in L1 and L2: Comparison of four groups of readers with different reading ability in L1 and L2. *Review of Applied Linguistics*, 135-136, 1-35.
- Yang, Y. F. (2006). Reading strategies or comprehension monitoring strategies? *Reading Psychology*, 27(4), 313-343.
- Yang, Y.-H. (2004). The relationship between second language proficiency and content schemata in English reading comprehension among college EFL students in Taiwan. *Dissertation Abstracts International, Section A, The Humanities and Social Sciences*, 64(11), 3936-A-3937-A.
- Young, D. J. (2000). An investigation into the relationship between L2 reading anxiety and L2 reading comprehension, and self-reported level of comprehension, topic familiarity, features of a L2 text and reading ability in the L1 and L2. In R. P. Leow & C. Sanz (Eds.), *Spanish applied linguistics at the turn of the millennium* (pp. 141-156). Somerville, MA: Cascadilla Press.
- Young, D. J., & Oxford, R. L. (1997). A gender-related analysis of strategies used to process input in the native language and foreign language. *Applied Language Learning*, 8, 43-73.
- Zbornik, J. J. (1988). *Empirical and theoretical extension of a reading anxiety paradigm* (Unpublished doctoral dissertation). Kent State University, Ohio.
- Zbornik, J. J., & Wallbrown, F. H. (1991). The development and validation of a scale

- to measure reading anxiety. *Reading Improvement*, 28, 2-12.
- Zhang, L. J. (2001). Awareness in reading: EFL students' metacognitive knowledge of reading strategies in an acquisition-poor environment. *Language Awareness*, 10(4), 268-288.
- Zhang, L. J. (2002). Exploring EFL reading as a metacognitive experience: Reader awareness and reading performance. *Asian Journal of English Language Teaching*, 12, 69-94.
- Zhang, L. J. (2003). *Effects of three reading modes on Taiwanese junior high school EFL readers' anxiety and reading comprehension* (Unpublished master's thesis). National Taiwan Normal University, Taipei, Taiwan.
- Zhang, L. J. (2008). Constructivist pedagogy in strategic reading instruction: Exploring pathways to learner development in the English as a second language (ESL) classrooms. *Instructional Science: An International Journal of the Learning Sciences*, 36, 89-116.
- Zhang, L. J., & Annul, S. (2008). The role of vocabulary in reading comprehension: The case of secondary school students learning English in Singapore. *RELC Journal: A Journal of Language Teaching and Research*, 39, 51-76.
- Zhang, L. J., Gu, Y. P., & Hu, G. (2008). A cognitive perspective on Singaporean bilingual children's use of reading strategies in learning to read in English. *British Journal of Educational Psychology*, 78, 245-271.
- Zhang, L. J., & Wu, A. (2009). Chinese senior high school EFL students' metacognitive awareness and reading-strategy use. *Reading in a Foreign Language*, 21(1), 37-59.
- Zhao, A. (2010). Foreign language reading anxiety: Investigating English-speaking university students learning Chinese as a foreign language in the United States. *Dissertation Abstracts International: Section A, The Humanities and Social*

*Sciences*, 70(09), 3316.

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts & P. R. Pintrich (Eds.), *Handbook of self-regulation* (pp. 13-39). San Diego, CA: Academic Press.

## Appendixes

### Appendix A: The Background Questionnaire

Dear Participants,

The purpose of this questionnaire is to understand the learning experience, English reading strategy use and English reading anxiety of junior and senior high school students. The answers to the following questions will not be judged as correct or incorrect, so please answer these questions according to your real situation. Your answers will offer very precious information to English instruction. Please answer each question honestly.

The information obtained from collected questionnaires will be used only for research analysis.

Thanks for your help and wish you progress in schoolwork.

#### **【Part 1 Background Information】** (Please check on the right option)

1. Sex :  (1) Male                       (2) Female
2. When to start English learning :  (1) Before elementary school  
 (2) 1<sup>st</sup> or 2<sup>nd</sup> grade     (3) 3<sup>rd</sup> or 4<sup>th</sup> grade     (4) 5<sup>th</sup> or 6<sup>th</sup> grade
3. Pass GEPT  
 (1) No  
 (2) Yes, have passed  
     1<sup>st</sup> stage of elementary level                       2<sup>nd</sup> stage of elementary level  
     1<sup>st</sup> stage of intermediate level                       2<sup>nd</sup> stage of intermediate level  
     1<sup>st</sup> stage of high-intermediate level     2<sup>nd</sup> stage of high-intermediate level
4. Attend English cram school :  (1) No                       (2) Yes, for \_\_\_\_\_ year(s)
5. Attend English tutoring :     (1) No                       (2) Yes, for \_\_\_\_\_ year(s)
6. Other extracurricular English learning activities :  
 (1) No  
 (2) Yes, it is (they are) : \_\_\_\_\_

7. Is English reading hard for you?  
 (1) No  
 (2) Yes, difficulty source(s):  (a) vocabulary  (b) phrase  (c) grammar  
 (d) article length  (e) article subject  (f) others \_\_\_\_\_
8. Does reading English cause pressure on you?  
 (1) No  
 (2) Yes, pressure source(s) :  (a) parents  (b) teacher  (c) peer  
 (d) test situation  (e) article difficulty  (f) others  
\_\_\_\_\_
9. What will you do to help yourself understand English articles when you feel they are difficult?

- 
10. What will you do to help yourself ease English reading anxiety when you feel anxious in reading in English?
-

## Appendix B: 基本資料問卷

各位同學，您好！

這份問卷者主要目的在瞭解國中及高中學生的英語文學習經驗、英文閱讀策略使用情形、以及閱讀焦慮感。下列問題的答案沒有對或錯之別，請依照您自己的真實情況作答。您的答案對英語文教學將提供十分寶貴的資訊，請您認真、誠實地填答每一題。

本問卷填答資料僅作研究分析之用，除學術參考外不作其他用途，請您安心作答。

謝謝您的協助！敬祝

學業進步

### 【第一部分：基本資料】（請在適當之選項上打✓）

一、您的性別： (1)男       (2)女

二、您從何時開始學習英文： (1)上小學前     (2)國小一、二年級  
 (3)國小三、四年級     (4)國小五、六年級

三、您是否通過全民英檢：

(1)否

(2)是，已經通過

初級第一階段

初級第二階段

中級第一階段

中級第二階段

中高級第一階段

中高級第二階段

四、您是否在校外補習班上英文課： (1)否       (2)是，補過約 \_\_\_\_\_ 年

五、您是否請家教老師補習英文： (1)否       (2)是，補過約 \_\_\_\_\_ 年

六、您是否從事其他課外活動學習英文(如閱讀課外英文讀物、聽英文廣播或看英文節目等)：

(1)否

(2)是，您所從事的課外英語學習活動為：\_\_\_\_\_

七、您是否覺得英文閱讀很困難：

(1)否

(2)是，您的困難主要來自： (a)單字       (b)片語       (c)文法

(d)文章長度     (e)文章主題     (f)其他 \_\_\_\_\_



八、閱讀英文是否對您造成很大的壓力：

(1) 否

(2) 是，您的壓力主要來自： (a) 父母  (b) 老師  (c) 同儕

(d) 測驗情境  (e) 文章難度  (f) 其他 \_\_\_\_\_

九、您覺得英文文章很困難時，您會做什麼來幫助自己理解英文文章：

---

十、您閱讀英文時，若感到很焦慮，您會做什麼來幫助自己減輕英文閱讀焦慮：

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### Appendix C: English Reading Strategy Questionnaire

**Directions:** The purpose of the following questions is to understand your reading strategy use. Please check the number (1, 2, 3, 4, 5) which conforms to your real situation in English reading according to each statement.

**English reading strategies** : Please check the frequency you use the following English reading strategies.

	Never	Seldom	Sometimes	Usually	Always
	1	2	3	4	5
01. While reading in English, I take notes while reading to help understand what I'm reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02. While reading in English, I use background knowledge to guess the meanings of unknown words.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03. While reading in English, I use tables and pictures in the text to increase my understanding.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04. While reading in English, I question the importance or veracity of the information in the article.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05. While reading in English, I go back and forth in the text to find relationships among ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06. While reading in English, I link the content of the text with what I already know.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
07. While reading in English, I underline or circle information in the text to help me remember it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
08. While reading in English, I go back to the previous sentences in the text and re-read them if I'm having trouble.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
09. While reading in English, I summarize what I read in my own words.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. While reading in English, I write down key words to help increase my understanding.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. While reading in English, I read slowly and carefully to be sure I understand what I'm reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Never	Seldom	Sometimes	Usually	Always
	1	2	3	4	5
12. While reading in English, I have a purpose in mind when I read.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. While reading in English, I use word-parts to help me understand meaning of a word.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. While reading in English, I read aloud to help me understand when texts become difficult.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. While reading in English, I think about whether the content fits my purpose or expectation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. While reading in English, I try to understand the meaning of every word when I read.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. While reading in English, I skim the text first by noting characteristics like length and organization.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. While reading in English, I try to get back on track when I lose concentration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. While reading in English, I predict what the text is about when reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. While reading in English, I decide what to read closely and what to ignore.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. While reading in English, I use reference materials such as dictionaries to help me understand what I'm reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. While reading in English, I analyze every word to construct the meaning of a sentence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. While reading in English, I stop from time to time to think about what I'm reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. While reading in English, I paraphrase (restate ideas in my own words) to better understand what I'm reading.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. While reading in English, I critically analyze and evaluate the information presented in the text.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. While reading in English, I react emotionally to information in the text.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Never	Seldom	Sometimes	Usually	Always
	1	2	3	4	5
27. While reading in English, I check my understanding when I come across conflicting information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. While reading in English, I ask myself questions I like to have answered in the text.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. While reading in English, I check to see if my guesses about the text are right or wrong.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix D: 英文閱讀策略問卷

**填 答 說 明：**以下問題旨在了解您所使用的閱讀策略情形，請依據您閱讀英文時的實際狀況，針對每一題所述，勾選符合您情形的答案。

**英文閱讀策略：**請勾選您使用以下各閱讀策略的頻率

	從 來 沒 有	很 少 如 此	偶 爾 如 此	經 常 如 此	總 是 如 此
	1	2	3	4	5
01. 閱讀英文時，我會做筆記，來幫助了解我所閱讀的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02. 閱讀英文時，遇到不認識的字或詞彙，我會運用與文章主題有關的知識來猜測字義。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03. 閱讀英文時，我會運用文章內的表格及圖片，來增進了解程度。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04. 閱讀英文時，我會對文章內容的重要性或正確性提出疑問。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05. 閱讀英文時，我會來回重讀，以找尋文章中概念之間的關聯。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06. 閱讀英文時，我會將文章的內容與已知的事物做連結。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
07. 閱讀英文時，我會將文章裡的資訊劃底線或圈起來，以幫助記憶。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
08. 閱讀英文時，遇到困難的地方，我會重讀先前看過的句子。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
09. 閱讀英文時，我會將文章的內容，用自己的話來做總結。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. 閱讀英文時，我會寫下文章裡的關鍵字來增進理解。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. 閱讀英文時，我會慢慢地和仔細地讀，確保我了解所讀的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. 閱讀英文時，我心裡面會有某種目的或期待。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. 閱讀英文時，我會運用拆字的方式，幫助了解生字的意義。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. 閱讀英文時，遇到困難的文章，我會大聲朗讀，幫助了解我所讀的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. 閱讀英文時，我會思考文章的內容是否符合我個人的閱讀目的或期待。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. 閱讀英文時，我會試圖了解文章裡每一個字的意義。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. 閱讀英文時，我會先瀏覽一下文章的特點，比如說它的長短以及架構。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. 閱讀英文時，我會在分心時，試著快點把心拉回到書本上。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	從 來 沒 有	很 少 如 此	偶 爾 如 此	經 常 如 此	總 是 如 此
	←—————→				
	1	2	3	4	5
19. 閱讀英文時，我會預測文章的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. 閱讀英文時，我會決定什麼地方該仔細讀，什麼地方可忽略。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. 閱讀英文時，我會使用參考資料像是字典，來幫助了解我所讀的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. 閱讀英文時，遇到看不懂的句子，我會逐字分析來建構句義。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. 閱讀英文時，我會不時停下來，思索我所讀的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. 閱讀英文時，我會用自己的話來重述某些部分，使我更加了解所讀的內容。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. 閱讀英文時，我會批判地分析和評斷文章所呈現的資訊。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. 閱讀英文時，我會對文章內容有情緒上的反應。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. 閱讀英文時，碰到內容有互相矛盾的資訊，我會檢視自己是否了解多少。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. 閱讀英文時，我會問自己有關文章裡我想要回答的問題。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. 閱讀英文時，我會檢查自己對文章內容猜測是否正確。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix E: Strategy Classification Scheme

(Adapted from Hsu, 2009)

	Strategies
General	<p>04. I question the importance or veracity of the information in the article.</p> <p>12. I have a purpose in mind when I read.</p> <p>14. I read aloud to help me understand when texts become difficult.</p> <p>15. I think about whether the content fits my purpose or expectation.</p> <p>17. I skim the text first by noting characteristics like length and organization.</p> <p>18. I try to get back on track when I lose concentration.</p> <p>19. I predict what the text is about when reading.</p> <p>20. I decide what to read closely and what to ignore.</p> <p>23. I stop from time to time to think about what I'm reading.</p> <p>25. I critically analyze and evaluate the information presented in the text.</p> <p>26. I react emotionally to information in the text.</p> <p>28. I ask myself questions I like to have answered in the text.</p> <p>29. I check to see if my guesses about the text are right or wrong.</p>
Non-general	<p>01. I take notes while reading to help understand what I'm reading.</p> <p>02. I use background knowledge to guess the meanings of unknown words.</p> <p>03. I use tables and pictures in the text to increase my understanding.</p> <p>05. I go back and forth in the text to find relationships among ideas.</p> <p>06. I link the content of the text with what I already know.</p> <p>07. I underline or circle information in the text to help me remember it.</p> <p>08. I go back to the previous sentences in the text and re-read them if I'm having trouble.</p> <p>09. I summarize what I read in my own words.</p> <p>10. I write down key words to help increase my understanding.</p> <p>11. I read slowly and carefully to be sure I understand what I'm reading.</p> <p>13. I use word-parts to help me understand meaning of a word.</p> <p>16. I try to understand the meaning of every word when I read.</p> <p>21. I use reference materials such as dictionaries to help me understand what I'm reading.</p> <p>22. I analyze every word to construct the meaning of a sentence.</p> <p>24. I paraphrase (restate ideas in my own words) to better understand what I'm reading.</p> <p>27. I check my understanding when I come across conflicting information.</p>

**Appendix F: The English Reading Anxiety Scale**

**English Reading Anxiety** : Please check the extent of agreement to each statement based on your true feeling.

	<i>Completely disagree</i>	<i>Disagree</i>	<i>Somewhat agree</i>	<i>Agree</i>	<i>Completely agree</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
01. Taking English reading comprehension tests does not scare me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02. Reading in English makes me feel uneasy and confused.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03. I have usually been at ease when reading in English.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04. I almost never get uptight while taking English reading comprehension tests.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05. I get really uptight during English reading comprehension exams.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06. I get a sinking feeling when I think of trying to read a difficult English reading comprehension passage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
07. My mind goes blank and I am unable to think clearly when reading an English passage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
08. I am afraid of doing an English reading comprehension exercises when I know that they will be graded.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
09. Just thinking about doing an English reading comprehension exercise makes me feel nervous.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



### Appendix G: 英文閱讀焦慮量表

**英文閱讀焦慮**：請依據您的實際感受，勾選您對以下各敘述的同意程度

	非 常 不 同 意	不 同 意	中 立	同 意	非 常 同 意
	←—————→				
	1	2	3	4	5
01. 做英文閱讀測驗不會令我害怕。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02. 閱讀英文使我覺得不自在而且困惑。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03. 閱讀英文時，我通常覺得很自在。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04. 在做英文閱讀測驗時，我幾乎不會煩躁不安。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05. 在英文閱讀考試當中，我真的非常煩躁不安。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06. 當我想到要讀一段困難的英文文章時，我會感到憂慮或不安。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
07. 在閱讀英文段落時，我的腦袋一片空白而無法清楚思考。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
08. 當我知道英文閱讀習題要打分數時，我會害怕去做。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
09. 光是想到要做英文閱讀習題，就令我緊張。	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>