

**The Effects of Graphic Organizers on Taiwanese Tertiary Students’
EFL Reading Comprehension and Attitudes
Towards Reading in English**

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ABSTRACT

The present study was a one sample pre- and post-session, quasi experimental design, conducted during an intensive English course in 2003 in Taiwan. Participants were fifty tertiary level freshmen from a medical college in Southern Taiwan. In order to understand the effects of graphic organizers on participants' EFL reading comprehension and attitudes towards reading in English, quantitative and qualitative data were gathered.

Research has shown that the graphic organizer is effective in facilitating reading comprehension and learning attitudes when students construct their own graphic organizers cooperatively in group-work in the post-reading session. The purpose of the present study was three-fold. First, the study investigated the effects of two different types of graphic organizer strategies, teacher- and student-generated on Taiwanese TVES (Technological and Vocational Education System) tertiary freshmen's EFL reading comprehension achievement. Secondly, the study explored participants' attitudes towards EFL reading after the use of the two types of organizer strategies. Thirdly, the study examined the participants' attitudes towards the use of the two types of organizer strategies.

The study was conducted in two stages. During the first stage, the teacher-generated graphic organizer strategy was employed. In the second stage, participants generated graphic organizers in a group-work setting. Two comprehension tests generated by the researcher as a pre- and post-test were administered.

Following analysis of the qualitative and quantitative data three important conclusions can be made. First, the student-generated graphic organizer strategy had significantly positive impact on the students' reading comprehension. However, the ceiling effect of language proficiency inhibited low-scorers' comprehension performance. Secondly, the use of student-generated graphic organizers in a group-work setting had a significantly positive impact on students' attitudes towards EFL reading, particularly those of the low-scorers.

Thirdly, students' attitudes towards the use of two graphic organizer strategies did not show any significant differences.

Although these conclusions are based on a small sample, the findings of this study suggest that the use of graphic organizers is an effective pedagogical tool for promoting EFL reading comprehension and improving attitudes toward EFL reading, particularly when students generate their graphic organizers cooperatively,

Key words: EFL reading, tertiary students, graphic organizers, reading comprehension, attitudes towards reading.

DECLARATION OF ORIGINAL AUTHORSHIP

I declare that this thesis contains no materials that have been published previously or extracted in whole or in part from any thesis that has been submitted for any diploma or awarded for any degree before. Furthermore, all the material used in the main text of this thesis has been duly acknowledgement. Finally, the research procedures reported in this thesis have received Ethics Approval from the relevant Ethics/Research Committee of the Australian Catholic University.

Chiu-ling Chiang

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CHAPTER 1

INTRODUCTION

“Much as with any language skills, the teaching of reading is a complex matter.”
(Grabe, 2004, p. 44)

After learning English for more than six years, tertiary students in Taiwan are expected to be able to read and understand great amounts of academic information written in English to fulfill their academic requirements (Chern, 2003; Jia, 1996; Lin, 1996; Shih, Lin, Huang, & Yeh, 2000; Yang, 1996a). Acquiring this information efficiently requires abundant English language knowledge and good learning strategies. Hence, how to promote the ability to read in English has been an important task for instruction and learning in school settings and at the tertiary level.

In a second or foreign language (L2) context, there has been increasing recognition that reading is probably the most important language skill required by college students for academic success (Alderson, 1984; Anderson, 1999, 2003; Grabe, 1991). Anderson (1999) summarizes these positions when he writes that:

Reading is an essential skill for English as a second/foreign language (ESL/EFL) students; and for many, reading is the most important skill to master. With strengthened reading skills, ESL/EFL readers will make greater progress and attain greater development in all academic areas. (p. 1)

In recent years, successful L2 learning has been viewed as “a complex and dynamic interplay of internal cognition and emotion, external incentive, and social context” (Gan, Humphreys, & Hamp-Lyons, 2004). L2 reading theory emphasizes three important dimensions of teaching and learning—cognitive, affective, and social-cultural (Bernhardt, 1991, 2005; Eskey, 2002; Grabe, 2004; Oxford, 1994), and urges teaching productive reading

strategies to motivate and facilitate reading (Anderson, 1991, 1999, 2001, 2003b; Arden-Close, 1993; Carrell, Pharis, & Liberto, 1989; Chern, 1993; Eskey, 2002; Farrell, 2001; Grabe, 2004; Oxford, 1994).

Scarcella and Oxford's (1992) tapestry analogy stresses that reading involves various strands that need to be interwoven tightly to achieve reading comprehension. These strands involve the reader's knowledge and experience (Alderson, 2000; Bernhardt, 1991; Carrell, 1983, 1984a, 1987a; Carrell & Eisterhold, 1988; Razi, 2004), the materials (Carrell, 1984b; McDonough, 2002; Nuttall, 1982, 1996), as well as the reading strategies (Anderson, 2003; Eskey, 1988; Grabe, 1991; Rumelhart, 1980, 2004). With regard to L2 learning, the process can be much more complex as more variables are involved when the learner is approaching a reading task in an L2 (Bernhardt, 2005; Chern, 1993; Grabe, 1991, 2004).

EFL Reading Problems in the Context of English Education in Taiwan

In Taiwan, tertiary students are grouped into two different educational systems—the General Education System (GES) and Technological Vocational Education System (TVES). The differentiation of the two different educational systems begins at high school. In other words, the majority of GES tertiary students graduate from general high schools, while most TVES tertiary students graduate from vocational high schools. In 2004, the percentage of student number of general high school and vocational high schools was 54.7% and 47.3% respectively, with populations of 393,689 and 325,996 (Ministry of Education, 2004a, p. 22).

In recent years, many studies have reported that TVES tertiary students' English reading competence is less proficient than that of their counterparts, GES tertiary students (Lin, 1992, 1994, 1996; Lin & Ou, 1996; Language Learning and Testing Center, 2001, 2002, 2004; Ou, 1997a, 1997b).

"The Initiative For Year 2007", a document policy issued by the Ministry of Education in Taiwan in 2004 (Ministry of Education, 2004b), proposed that by 2007 more than 50% of

university students in the General Education System (GES) will be required to pass the intermediate level of the General English Proficiency Test (GEPT) (Language Learning and Testing Center, 2003), whereas 50 % of college/university students in the Technological Vocational Education System (TVES) will be required to pass the elementary level of GEPT. The issue of this document indicates that the English proficiency of TVES college students is lower in comparison with that of GES college students.

Prior to the policy announcement, the Ministry of Education conducted a three-year English Proficiency Assessment Program, from 2001 to 2003. Its purpose was to investigate TVES college students' English competence. The test was based on the elementary level of GEPT, including listening and reading comprehension.

In three successive years, 2001, 2002, and 2003, TVES college students were randomly selected from all TVES colleges/universities throughout Taiwan (Language Learning and Testing Center, 2001, 2002, 2004). As shown in Table 1.1, the results indicated that most TVES students did not pass the tests in English reading performance, which means their proficiency had not reached the elementary level of GEPT. The results indicated the TVES tertiary students' proficiency level was lower than the level of junior high school students, who had undertaken six years of English language instruction, including three years in junior high and three years in vocational high schools.

In addition to the GEPT tests, You (2004) showed that the average score of English tests of the Joint College Entrance Examination (JCEE) also indicated the low English proficiency of TVES college students. The English written test, which is one of the required modes for testing for the JCEE, contains language components and reading comprehension that focus on testing the students' global and literal comprehension (Chang, Joe, You, & Wu, 2000). The average score in the JCEE English test of the TVES college freshmen was 35 points, 33 points and 37 points in 2001, 2002, and 2003 respectively, and in 2004 the average score was still lower than 40 points (You, 2004).

Table 1.1

GEPT Test Scores of TVES Tertiary Students in Taiwan in 2001, 2002, and 2004

| GEPT Level | Year | N | Listening Score | Reading Score | Passing Rate |
|------------|------|-------|-----------------|---------------|--------------|
| Elementary | 2001 | 7131 | 46.47 | 47.74 | 15.8% |
| Elementary | 2002 | 9527 | 46.57 | 47.54 | 14.9% |
| Elementary | 2003 | 11205 | 46.46 | 48.69 | 18.1% |

Language Learning and Testing Center (2001, 2002, 2004)

The major causes of TVES students' reading difficulties were indicated as insufficient linguistic knowledge, including limited vocabulary and grammar knowledge (Joe, 1996a). Recent research has reported that TVES non-English-major students possessed fewer than 2,000 sight words (Huang, 2001; Lee, 2004; Lin, 2003; Yang, 1997; You, Tsai, Chuang, Kuo & Lu, 2000). This insufficiency of vocabulary has been considered as one of the major factors causing TVES students' EFL reading problem at tertiary level when reading academic texts (Huang, 2001, 2004; Huang, Wu, Joe, 2004; Lee, 2004; Lin, 1996, 2003).

Research into the complex issue of reading has emphasized the critical role of vocabulary in reading comprehension of both a first language (L1) (Alderson, 2000; American Reading Panel, 2000; Hayes, 1991; Pressley & Hilden, 2002) and a second language (L2) (Eskey, 2005; Grabe, 2002, 2004; Koda, 1992, 1996; Nassaji, 2002, 2003a; Scarcella & Oxford, 1992). Studies conducted by reading experts such as Hsueh-chao and Nation (2000) have found that if those who are reading in their first language have a language threshold of known vocabulary lower than 80%, then comprehension of that extract or whole text will be very difficult.

In Taiwan, researchers have suggested that for students of the Technical Vocational Education System (TVES), the English language threshold was 3,500 common vocabulary words (Chang et al., 2000; Lu, 2004). This suggestion was based on the classification of words in the well-known Collins-Cobuild English Dictionary (1995). According to this research, TVES tertiary students who possessed fewer than 2,000 English sight words would necessarily face great difficulties when reading in English.

It is not surprising, therefore, to find that TVES college students tend to utilize text-bound and local reading strategies rather than global strategies (Carrell, 1989; Carrell & Eisterhold, 1988; Field, 1984; Joe & Chiang, 1996; Chuang & Yang, 1996a, 1997; Lin, 1996; Yang, 2000; You et al., 2000). Research has suggested that limited language proficiency can produce the “language competence ceiling” (Clarke, 1979, p. 138), thereby exerting a powerful effect on reading in a second language and may “short-circuit” the transfer of L1 “top-down” reading strategies to the target language (Alderson, 1984, 2000; Bernhardt & Kamil, 1995; Clarke, 1980; Cziko, 1980). Research findings in Taiwan have shown that TVES college students’ EFL reading tended to be word-bound and considered translation as an effective reading strategy (Yang, 1996b, 2000, 2002).

English reading difficulties have not only caused TVES tertiary students to experience barriers to academic success (Hung & Lou, 1998; Lin, 1996, 2003; Yang, 1995a; 1995b), but also disadvantaged them in their career performance (Lin, 1996; Jia, 1996). Generally, TVES college students felt reluctant and held less positive attitudes towards reading in English, even though they considered English important at the tertiary level (Hung, 1996a, 1996b, 2000; Lin, 2003; Liu, 1995).

Hung’s qualitative study (2000) may lead us to a deeper understanding to TVES tertiary students’ previous experience of EFL learning in secondary schools. The interview data in Hung’s study was summarized as follows:

1. The majority of students had had unpleasant English learning experiences in the

past. They felt frustrated at junior high schools when they started learning English. The emphasis on memorizing text content, monotonous teaching methods, and the teachers' unapproachable attitude made the students feel unmotivated and even averse to English learning.

2. Additionally, English was treated as a less important subject in vocational high schools. The students failed to have a second chance to improve their English proficiency. Not surprisingly, they found it difficult to read academic textbooks written in English at colleges.
3. The examination- or test-driven teaching methods in junior high and vocational high schools led students to focus on memorizing to obtain high scores or to pass tests. However, the students realized that this sort of teaching and learning did not help much with the learning of English.
4. Under the pressure of passing the Joint College Entrance Examination in order to enter colleges, the students went to cram schools for extra learning in order to improve their English proficiency. The students' opinions of the effects of learning at cram schools were not consistent. Some stated that teaching at cram schools focused on grammar and memorization that was continuously emphasized in an arbitrary way. This was a negative way of learning English. Yet some students felt that this extra learning was beneficial.

From Hung's (2000) research findings, possible factors influencing TVES students' reading ability were generated based on the relevant literature.

Factors Influencing TVES Tertiary Students' English Proficiency

The review of the literature suggests that TVES tertiary students' English reading difficulties may be due to the educational system and English learning environment. The four

major, influential factors suggested by the relevant literature were the grammar-translation method (GTM), insufficient English instruction hours, the examination-driven teaching/learning style, and the large classes at secondary schools.

Grammar-translation Method

A great number of studies indicated that the grammar-translation method may be the crucial factor influencing students' English learning. The grammar-translation method has been reported as the dominant teaching method at most high schools in Taiwan (Hung, 1994, 1996a, 1996b; Lin, 1996; Shih et al., 2000). According to Cook (2001), typical activities in an English classroom include the teacher explaining vocabulary and idioms, analyzing grammatical rules, translating and explaining the texts in the mother tongue. The acquisition of language knowledge is emphasized and the teacher is the source of this knowledge. This turns out to be the activities of rehearsing or practicing test items in preparation for the English test in the Joint College Entrance Examination (JCEE) (Hung, 1996c).

“With accuracy in translation being the first importance of Chinese EFL classes, it is not surprising to see Chinese characters scribbled between the lines of students' English textbooks” (Chern, 1993, p. 68). Arden-Close (1999) also observes that, “Reading lessons [in Taiwan] had been used as a means to an end—the end being the learning of grammar or vocabulary, not learning to read in a foreign language” (p. 343). Findings in Chia and Chia (2001) suggest that the over-reliance on Chinese translation may not only hinder the students' English reading abilities but also decrease their interest in reading English.

Oxford (1990) points out that due to the cultural and educational system, many language learners in the L2 context are passive and used to being “spoon-fed”. She states:

They like to be told what to do, and they do only what is clearly essential to get good grades—even if they fail to develop useful skills in the process. Attitudes and behaviors like these make learning more difficult and must be changed, or else any

effort to train learners to rely more on themselves and use better strategies is bound to fail. (p. 10).

Nuttall (1996) made an important point about the translation provided by teachers in L2 learning. He comments that it is a wrong kind of help if teachers explain or translate and students view their role as being that of passive receivers. “When the meaning is obtained largely through the intervention of the teacher (especially if she translates it into the mother tongue), the printed text almost becomes redundant” (Nuttall, 1996, p. 39).

Swain (2005) and Pica (2005) argue that even though comprehensible language input is crucial, as asserted by Krashen (1984), the process of modifying the input by generating new linguistic information and existing knowledge to produce language output has also played a critical role for comprehension and second language acquisition. Therefore, it is suggested that English learning in Taiwan should support students so that they can assimilate and encode visual information into an organized semantic structure rather than “cram” information into their mind (Tiangco, 2005).

Examination-driven

Another possible factor reported by this body of studies is that English learning has been examination/test-driven (Chen, 2002; Chuang & Yang, 1997; Hsu, 2003; Hung, 1996c; Hung & Luo, 1995; Hung, Joe, & Wu, 1998; Lin, 2000; Tang, 1993; Wang, 2003). English has become one of the crucial subjects to be tested by all yearly national entrance examinations in Taiwan (Chern, 2003). Entrance Examinations play a predominant role in English education in Taiwan. Since English proficiency tests have appeared in a written form, teachers have focused on teaching and testing students’ linguistic knowledge and reading comprehension. These tests inevitably result in a “washback effect” (Krashen & Terrell, 1983) in the methodology as well as in English teaching practice in Taiwan (Hsu, 2003; Hung, 1996c; Lin, 2000; Shih et al., 2000).

Fotos (2005) remarks that in English as foreign language settings, it is common to have “a centrally controlled educational system with a set curriculum, prescribed textbooks, and highly competitive nationwide examinations determining admission to middle, secondary, and tertiary institutions” (pp. 665-666). Fotos states further that such examinations usually include an English test checking students’ reading comprehension, linguistic knowledge and translation skills. Consequently, English teaching often focuses on mastery of the points tested in such examinations. Therefore, it is not surprising that traditional EFL instruction has been popular in such EFL institutions (Chern, 2003).

Similarly, Hsu (2003) has found that the pressure of the Joint College Entrance Examination has received great attention and formed the major purpose of English teaching and learning for students of TVES colleges and universities. As a result, students’ performance in EFL learning, from secondary school onwards, has often been measured by all sorts of tests, which have focused mainly on language aspects such as memorizing grammatical and vocabulary knowledge at the expense of learning other reading strategies (Hung, 1996a, 1996b, 2000).

Before 2001, the English tests of the Joint College Entrance Examination (JCEE) emphasized single language abilities, such as phonics, spelling and grammatical knowledge, and included only a small amount of reading comprehension (Hung, 1996d; Shih et al., 2000; Tang, 1993). As a result, memorizing grammatical rules and vocabulary taught by the teacher and learned from the textbooks were the major tasks of learning English (Sharp, 2003; Shih, Lin, Joe, & Huang, 1999).

Research has pointed out that knowledge learned by rote will be forgotten easily (Goetz, 1984; Wittrock, 1990). When students adopt rote learning to memorize a text, word by word, no schema about the text is constructed. The information will be stored in the short-term memory and is not effective for long-term retention (Kirylo & Millet, 2000). Furthermore, it has been suggested that memorization can be ineffective and inflexible in EFL learning (Sharp, 2002).

In order to reduce the “washback effect” on EFL teaching in Taiwan, the focus of the English test in the Joint College Entrance Examination has shifted from testing linguistic knowledge to examining students’ overall use of language knowledge and global comprehension abilities. This has been emphasized since 2001 (Chang et al., 2000). The purpose is to examine students’ abilities to utilize contextual clues in comprehending the meaning contained in the text. However, the change of the English test content seems to have produced little effect on the teaching/learning methodology in the English classroom at vocational high schools (You, 2004).

Large Classes

The third possible factor suggested by studies was class size (Hung, 1996b; Jia, 1996). Large classes seem to play a significant role in determining the incorporation of the grammar-translation method (Chern, 1993; Saito & Ebsworth, 2004). In the case of EFL teaching to a regular class in Taiwan, it is typical for a class to have 50 students. Lin and Warden (1998) comment, “Only those who have actually taught English in Taiwan can visualize the scene of forty, fifty, even sixty students learning together in a single classroom” (p.1). They point out that very few of the English teaching/learning theories, approaches or methodologies developed in the West have taken large class numbers into consideration. Therefore, the applicability of these theories and approaches has “little credit” in such a classroom settings (p. 2).

Lin and Warden’s (1998) perspective gained support from Blatchford, Moriarty, Edmonds, and Martin (2002). The study of Blatchford et al. provides insight into the difficulties teachers face in large classes. Their observations indicated that in a large-class setting, classroom activities tended to involve teaching telling and management activities. Edmonds et al. note “classroom interaction tended to involve the teacher’s telling the children things rather than sustained or meaningful interaction about tasks or concepts” (p. 118). As a

result, the students lacked opportunities to discuss and practise what they learned in the classroom.

Fewer Weekly English Hours

The final factor contributing to TVES college students' low English proficiency was indicated by studies as insufficient English hours/week at vocational high schools (Hung, 1996a, 1996b; Lin, 1994, 1996; Shih, Huang, & Lin, 1997). Because the major objective of technological and vocational education has been to focus on theory and practice regarding the learners' specialized fields, English has been viewed as a second-class subject (Jia, 1996; Ou, 1997a). Accordingly, English is taught for an average of two hours per week at vocational high schools compared with four to five hours at general high schools. As a result, students at vocational high schools learned fewer lessons, took fewer assessments, learned less vocabulary, and experienced fewer reading strategies than students at general high schools (Jia, 1996; Lin, 1994, 1996).

In 2005, in responding to the relevant previous research findings, the Ministry of Education issued the Temporary Curriculum Guidelines for Technological and Vocational Education to improve the English teaching and learning at vocational high schools. In the new curriculum guidelines, English language learning remains at two hours per week. However, officially regulated, compulsory subjects and credits have been largely reduced; while school regulated subjects have increased from 32% to 54%. That means each school has more discretion with regard to the management of its own curriculum according to the students' needs (Ministry of Education, 2005).

In summary, a vast body of research has reported that tertiary students of Technological Vocational Education System (TVES) in Taiwan have insufficient English reading proficiency. Possible factors, all of which were interdependent, influencing TVES tertiary students' English proficiency have been suggested to be due to both the educational system and the

educational environment. These include examination-driven focus, fewer English hours/week, the use of the grammar-translation method and large-class sizes.

The Call for Effective Reading Strategies

In recent years, there has been a call for the introduction of global reading strategies to interact with the teaching of local reading strategies to foster reading comprehension among students of Technological Vocational Education System (TVES) rather than the pursuit of language knowledge and proficiency such as word recognition and grammar analysis. English educators in the TVES colleges have called for an interactive approach to English teaching and learning so that active meaning construction by students can be encouraged (Chu, 2000; Hsu & Chu, 1996; Hung et al., 1998; Joe, 1994, 1996a, 1996b; Joe & Chiang, 1996; Ou, 1997a; Yang, 2000; You et al., 2000) in order to foster motivation in, and nurture positive attitudes towards, English reading (You, 2004).

L2 learning specialists assert that teaching reading strategies can be valuable for general English language acquisition (Anderson, 2003; Barnett, 1988; Devine, 1984; Hamp-Lyons, 1985; Kern, 1989; Oxford, 2001). Carrell, Gajdusek, and Wise (1998) note that reading strategies are important not only for the interactions between the reader and the written text, but also in relation to reading comprehension. Therefore, how to assist students to incorporate interactive processes involving both top-down and bottom-up strategies while fostering success and positive attitudes toward EFL reading has become one of the most pressing tasks facing teachers who teach reading in English at TVES colleges throughout Taiwan.

Contemporary L2 reading specialists support the interactive view of reading comprehension, which involves both bottom-up and top-down processing. In an interactive process, L2 readers actively construct meaning by utilizing their background knowledge and the information in the text simultaneously, rather than receiving information passively (Alderson, 2000; Anderson, 2001; Barnett, 1988; Bernhardt, 1986; Carrell, 1988a, 1988b;

Eskey, 2005; Eskey & Grabe, 1988; Haynes, 1993; Oxford, 1990).

Furthermore, current EFL teaching/learning has emphasized understanding both the main ideas and supporting details contained in a text (Sola, 1996). Anderson (2001) points out that L2 teachers need to keep two perspectives regarding the evaluation of reading in mind: the big picture and the minor details. Anderson made a further point by stating that:

[students] need to monitor their comprehension when they are reading and recognize when comprehension breaks down. The breakdown cannot be a lack of vocabulary knowledge. Students need to focus on the differences among main ideas, supporting ideas, and details as they read. (p. 4)

Proficient comprehension requires identifying the main ideas and making connections between relevant information (Dickson, Simmons, & Kameenui, 1995). Knowledge of the contextual clues indicating important ideas or phrases, and how these ideas connect to supporting details, helps readers comprehend more efficiently. This allows readers to create a macrostructure of what they are reading and they remember that, rather than the entire text (Berkowitz, 1986).

This practice helps readers to engage in high-level thinking about what they are reading. One of the most widely used methods is the graphic organizer. As Long and Aldersley (1984) have suggested, good readers automatically abstract main ideas and build connections between the main ideas when encountering an aural or written message, while less successful students do not. A number of studies have indicated that the graphic organizer can be beneficial for students who are struggling with reading (Dickson et al., 1995; Johnson-Glenberg, 2000; Long & Aldersley, 1984; Mastropieri, Scruggs, & Graetz, 2003).

Graphic Organizers

The graphic organizer is a strategy that “embraces a variety of strategies designed to

display graphically information with categories related to a central concept” (Johnson, in the foreword in Heimlich & Pittleman, 1986, p. v). Based on that, a graphic organizer is a representation of knowledge structure depicting key ideas and their relationships in an organized pattern (Bromley, Irwin-DeVitis, & Modlo, 1995; Irwin-DeVitis, Bromley, & Modlo, 1999).

The graphic organizer is a schematic device which enables students to integrate background knowledge, experiences, and new information into a coherent and complete picture (Holley & Danesereau, 1984). Alderson (2000) notes that schema has a strong effect on reading as comprehension depends on how a reader’s schema provides a conceptual framework for assimilating and accommodating new information. Graphic organizers have been empirically supported as one of the most effective strategies for promoting comprehension (Connor, Morrison, & Petrella, 2004; Gardill & Jitendra, 1999; Schorzman & Cheer, 2004; Willerman, & Mac Harg, 1991).

Graphic organizers contain both verbal information and visual images. Thus, the use of graphic organizers is facilitative for learners of various levels and with different needs. Graphic organizers and have been studied with students across a range of grade levels, including elementary (Barton, Freeman, Lewis, & Thompson, 2001; Connor et al., 2004; Griffin, Malone, & Kameenui, 1995; Prater & Terry, 1988), secondary (Alvermann, 1988; Schorzman & Cheer, 2004), and university (Hall, Hall, & Saling, 1999; Robinson & Kiewra, 1995). It has also been argued that graphic organizers improve students’ learning attitudes (Bromley et al., 1995; Irwin-DeVitis et al., 1999; Strangman, Hall, & Meyer, 2002).

In a graphic organizer, important ideas and their relationships are highlighted. On one hand, the organized knowledge structure helps learners focus on important information in the text. On the other, the omission of unimportant information reduces language barriers. Therefore, graphic organizers have been found to be beneficial for learning by disabled students (Boyle & Weishaar, 1997; DiCecco & Gleason, 2002; Kim, Vaughn, Wanzek, & Wei, 2004; Long & Aldersley, 1984), and for L1 and L2 learning (Grabe, 2004; Huang, 2003; Jau,

1998; Kuo, 2003; Oxford, 1990; Scarcella & Oxford, 1992; Tang, 1992).

Research suggests that teachers should pay attention to two important issues involving graphic organizers. These are *when* to use a graphic organizer and *who* constructs it. Graphic organizers can be used before, during, and after instruction (Strangman et al., 2002). Graphic organizers can be constructed by the teacher, the learners, or by teachers and learners. The point of implementation and the generating types may produce different learning outcomes. It has been reported that the use of student-generated graphic organizers as a post-reading activity seems to yield greater positive impact on students' learning (Barron & Schwartz, 1984; Hall, Hall, & Saling, 1999; Moore & Readence, 1984). It has also been suggested that when students generate graphic organizers in groups, this enhances cooperative learning (Bromley et al., 1995; Irwin-Deities et al., 1999; Strongman et al., 2002) and, in turn, promotes positive students' learning attitudes (Governale, 1997; Gunner, Smith, & Smith, 1999).

Summary

Oxford (1990) notes that, in recent years, the focus of learning language has shifted from the student being instructed by the teacher to the student being encouraged to "learn how to learn" (Novak & Gowin, 1984). L2 learning has been viewed as a highly complex process influenced by multiple variables, including individual and social-cultural factors (Chern, 1993). In spite of this complexity, researchers believe that mastering effective learning strategies can bring all these strands together. The graphic organizer is one of most widely recommended strategies in both L1 and L2.

Purpose of the Present Study

The effect of graphic organizers has been extensively investigated by studies on L1 learning. However, few studies have been conducted on EFL learners. Several studies in

Taiwan have confirmed the value of graphic techniques as effective strategies for activating learners' prior knowledge and fostering their metacognitive learning (Chiu, 1999; Hsu, 2003). Taiwanese studies of the use of graphic organizers on the EFL reading proficiency of senior high school students (Kuo, 2003) and tertiary students of the General Education System (GES) (Huang, 2003; Jau, 1998) have also been conducted. Unfortunately, college students of Technological Vocational Education System (TVES) have been neglected. Hence, the purpose of the present study has been to explore the effects of graphic organizers on TVES students' learning of EFL reading.

The present study explored three major questions.

1. Could graphic organizers generated by students as post-reading activity facilitate TVES tertiary students' EFL reading comprehension?
2. Could the incorporation of graphic organizers improve the TVES tertiary students' attitudes towards English reading if they found graphic organizers effective on fostering their reading abilities?
3. What were the students' attitudes towards the use of teacher- and student-generated graphic organizers?

The first purpose of this study was to investigate the different effects of teacher-generated and student-generated graphic organizers as post-reading activities on TVES students' reading comprehension in English as foreign language (EFL). The second purpose was to explore the participants' attitudes towards EFL reading both before and after the use of graphic organizers in EFL reading. In addition, as the present study was also interested in the students' attitudes to the use of teacher- and student-generated graphic organizers: the students' perceptions of the two types of graphic organizers were also probed.

In summary, the present study focuses on the following issues:

1. The influence of teacher-generated and student-generated graphic organizers as a post-reading activity on Taiwanese TVES students' EFL reading comprehension.
2. The influence of teacher-generated and student-generated graphic organizers as a post-reading activity on Taiwanese TVES students' attitudes towards EFL reading.
3. The participants' attitudes towards the use of the two types of graphic organizers, teacher- and student-generated, as a post-reading activity in EFL reading class.

Research Questions

In order to explore the issues listed above, three sets of major research questions were generated. The questions 1.1 to 1.5 concern the participants' reading comprehension achievement. The questions 2.1 to 2.9 focus on participants' attitudes towards EFL reading. The questions 3.1 to 3.5 refer to participants' attitudes towards the use of teacher- and student-generated graphic organizers.

- 1.1. Will student-generated graphic organizers have a significantly positive impact on all participants' EFL reading comprehension achievements when compared to teacher-generated graphic organizers as a post-reading activity?
- 1.2. Will student-generated graphic organizers have a significantly positive impact on the high-scorers' EFL reading comprehension achievements when compared to teacher-generated graphic organizers as a post-reading activity?
- 1.3. Will student-generated graphic organizers have a significantly positive impact on the low-scorers' EFL reading comprehension achievements when compared to teacher-generated graphic organizers as a post-reading activity?
- 1.4. Will there be a significant difference between the high- and low-scorers' EFL reading comprehension achievements after the use of teacher-generated graphic organizers as a post-reading activity?

- 1.5. Will there be a significant difference between the high- and low-scorers' EFL reading comprehension achievements after the use of student-generated graphic organizers as a post-reading activity?
- 2.1. Will teacher-generated graphic organizers have a significantly positive influence on all participants' attitudes towards EFL reading when compared to non-use of graphic organizers at the initial stage of the research?
- 2.2. Will student-generated graphic organizers have a significantly positive influence on all participants' attitudes towards EFL reading when compared to teacher-graphic organizers?
- 2.3. Will teacher-generated graphic organizers have a significantly positive influence on the high-scorers' attitudes towards EFL reading when compared to non-use of graphic organizers at the initial stage of the research?
- 2.4. Will student-generated graphic organizers have a significantly positive influence on the high-scorers' attitudes towards EFL reading when compared to teacher-generated graphic organizers?
- 2.5. Will teacher-generated graphic organizers have a significantly positive influence on the low-scorers' attitudes towards EFL reading when compared to non-use of graphic organizers at the initial stage of the research?
- 2.6. Will student-generated graphic organizers have a significantly positive influence on the low-scorers' attitudes towards EFL reading when compared to teacher-generated graphic organizers?
- 2.7. Will there be a significant difference between the high- and low-scorers' attitudes towards EFL reading at the initial stage with non-use of graphic organizers?
- 2.8. Will there be a significant difference between the high- and low-scorers' attitudes towards EFL reading after the use of teacher-generated graphic organizers?

- 2.9. Will there be a significant difference between the high- and low-scorers' attitudes towards EFL reading after the use of student-generated graphic organizers?
- 3.1 Will there be a significant difference in all participants' attitudes towards the use of teacher- and student-generated graphic organizers?
- 3.2 Will there be a significant difference in the high-scorers' attitudes towards the use of teacher- and students-generated graphic organizers?
- 3.3 Will there be a significant difference in the low-scorers' attitudes towards the use of teacher- and students-generated graphic organizers?
- 3.4 Will there be a significant difference between the high- and low-scorers' attitudes towards the use of teacher-generated graphic organizers?
- 3.5 Will there be a significant difference between the high- and low-scorers' attitudes towards the use of students-generated graphic organizers?

Significance of the Present Study

The study was undertaken in part to determine whether student-generated graphic organizers as a post-reading activity could have a significantly positive impact on TVES tertiary students' EFL reading comprehension. While, traditionally, reading instruction has emphasized deciphering language units and memorization, there is a persuasive theoretical basis for the view that the incorporation of the graphic organizer as a teaching and learning strategy, specifically when small groups of students generate cooperatively their own, will make significant differences to EFL reading comprehension and to their attitudes towards English reading. Therefore, the results will not only be of interest to reading teachers at TVES colleges in Taiwan but will also encourage them to incorporate graphic organizers as a reading strategy to provide instruction and to actively involve students in the process of reading

comprehension. The results will also be of great interest to all those interested in the complex issues of learning to read in a second or foreign language.

Definition of Key Terms

1. English as foreign language where English is not the major language in the community and is primarily learnt only in the classroom (Ellis, 1994). For example, people learn English as a foreign language in Taiwan, Japan, or Korea.
2. English as second language where people use English, other than their mother tongue, as a recognized means of communication among members in the community (Ellis, 1994). For example, immigrants in the USA, Canada, or Australia use English as their second language but live in an English language dominant environment.
3. Expository texts are subject-oriented and consist of facts and information using little dialogue (Tonjes, Wolpow, & Zintz, 1999). The text structures of expository texts include definition, description, process, classification, comparison, analysis, and persuasion (Heller, 1995).
4. Graphic organizer According to Bromley, Irwin-DeVitis, and Modlo (1995), a graphic organizer is a “visual representation of knowledge. It is a way of structuring information, of arranging important aspects of a concept or topic into a pattern using labels” (p. 7).
5. L2 generally refers to a language people acquire other than their mother tongue (Cook, 2001), whether a language learned in a classroom through instruction or used due to living in a country where the language is spoken (Ellis, 1997).
6. Reading Attitude According to Gan, Humphreys, and Hamp-Lyons (2004), attitudes consist of three components—cognitive, affective, and behavioral. Mathewson (2004), McKenna (1994), and Day and Bamford (1998) suggest that

attitudes are not set in concrete. In other words, attitudes can be changed.

7. Reading comprehension is defined by National Reading Panel (2000) as an interaction between the reader and the text. This process requires readers' active meaning construction that in turn involves intentional thinking and problem-solving rather than receiving information passively.
8. Student-generated graphic organizer requires learners to be actively involved in the process of constructing a map in a hierarchical or non-hierarchical fashion based on a reading passage (Sinatra, 2000).
9. Teacher-generated graphic organizer is prepared by the instructor for the learners with a map where some of the concepts and/or the linking words are left out. The learners fill in the blanks with appropriate words or phrases indicating nodes or linking lines (Anderson & Huang, 1989).
10. High-scorers In the present study, the students' English proficiency was divided into two different levels based on their English score obtained as a result of sitting the Joint College Entrance Examination (JCEE) in 2003. The students, who were scored higher than 46% of all participants, that is higher than 38 in the English test, were classified as the high-scorer group.
11. Low-scorers describes the students whose JCEE English score was lower than 38.

Structure of the Present Study

This thesis consists of seven chapters. The first chapter introduces the study and presents the background of the present study. It also includes research questions, the purpose and the significance of this study, as well as the operational definitions of the terms used in this study.

The second chapter, Literature Review, consists of two major sections. The first section discusses contemporary reading comprehension models—bottom-up, top-down, and

interactive models. The second section deals with arguments regarding graphic organizers and relevant studies in the field.

The third chapter, entitled Theoretical and Methodological Framework, contains two major sections. The first section refers to the theoretical basis of the graphic organizer and explores schema theory. The second section describes the methodological basis of this study and quantitative and qualitative methodology in second language (L2) research.

The fourth chapter, The Present Study, reports on the participants and the research methods, which include one questionnaire and three measuring instruments as well as the interviews that were conducted in the present study for data collection.

The fifth chapter, Quantitative Results, reports the findings obtained from the questionnaire and measurements, while the sixth chapter Qualitative Results reports the results analyzed from the interview data.

The final chapter, Discussion and Conclusion, presents the findings of the present study in terms of reading theory and previous studies. Additionally, this chapter offers some pedagogical implications and recommendations for future research that may be of interest to educators, policy makers and English language students.

CHAPTER 2

LITERATURE REVIEW

“Students who understand how to create a graphic organizer have a new and valuable tool for planning, understanding, remembering, and assessing knowledge.”

(Bromley, Irwin-DeVitis, & Modlo, 1995, p. 26)

This chapter consists of two major sections. In the first section, contemporary theories of L2 reading are briefly summarized and related studies are discussed. The focus of the first section will be on reading in a second language (L2), including a foreign language. In the second section, the arguments regarding graphic organizers in relation to learning and research findings in the field are dealt with. There are two foci in the second section, namely the use of graphic organizers as a post-reading activity and the use of graphic organizers as language learning strategy, particularly in L2 contexts and classrooms.

Reading Comprehension Models

Current reading comprehension research supports the notion that both L1 and L2 readers seem to go through similar cognitive processes (Alderson, 1984; Bachers, 1998; Day & Bamford 1998; Eskey, 2005; Grabe, 1991, 2004; Nunan, 1999; O'Donnell & Wood, 2004; Taguchi & Gorsuch, 2002). “We do not, and indeed find it difficult to, draw a clear distinction between first and foreign language reading” (Alderson, 1984, xv).

The literature suggests three reading comprehension models have been influential in both L1 and L2 reading research. Firstly, the bottom-up model refers to processing guided by print in the text. The reader decodes the printed data quickly and automatically to obtain meaning, while the top-down model refers to processing guided strongly by the reader's past experience and prior knowledge. The interactive model refers to processing guided by an interaction

between the text information and the reader's previous knowledge and an interaction between reading strategies (Brunning, Shraw, & Ronning, 1999).

Bottom-up Model

The bottom-up model assumes that the process is one "from text to brain" (Eskey, 2005, p. 564). The bottom-up model, proposed by Gough (1972), emphasizes that reading is a linear and sequential decoding of individual language units from the smallest to the largest, i.e. from sounds and letters to words, then from words to phrases or sentences, to paragraph, and finally to the entire text (Aebbersold & Field, 1997; Nunan, 1999; Rumelhart, 2004). In this view, "readers are passive decoders of sequential graphic-phonemic-syntactic-semantic systems, in that order" (Alderson, 2000, p. 17).

However, although this model is convincing, an important body of research does not support this view of reading process. It has been pointed out that the spelling-sound correspondence is complex and unpredictable, and, in particular, that English pronunciation is complex and irregular (Chen, 2002; Devine, 1988; Johnson, 2001; Nunan, 1991). Rumelhart (2004) argues that the perception of letter and the interpretation of word meaning are highly correlated with syntactic and semantic context existing in the whole reading text.

In addition, a serious word-by-word decoding process causes slow and laborious reading because of short-term memory overload, and readers forget easily what they have read when reading comes to an end (Adams, 1990; Bachers, 1998; Brunning et al., 1999; Nunan, 1991; Nuttall, 1996). Day and Bamford (1998) point out that if a reader cannot keep a sentence long enough in the short-term memory, comprehension will be less satisfactory. "Overreliance on text-based or bottom-up processing will be referred to as *text-biased* processing or *text-boundedness*" (Carrell, 1988a, p. 102). As a result, readers may remember only isolated facts without integrating them into a cohesive understanding (Pehrsson & Denner, 1989). In other words, the reader may focus on "trees" rather than paying attention to the whole "forest"

(Askov, 1991; Cook, 2001; Zhang, 1997).

Further, the limitation of this linear processing model is that the information contained in a lower level is not able to interact with the information obtained at the higher level (Rumelhart, 1977). Grabe & Stoller (2002) state that, “bottom-up models suggest that all reading follows a mechanical pattern in which the reader creates a piece-by-piece mental translation of the information in the text, with little interference from the reader’s own background knowledge” (p. 32).

Nevertheless, in his “One second of reading: Postscript”, Gough (2004) argues that although the model of bottom-up processing may have been criticized as having covered only unilateral aspects of the reading process, its contribution, on one hand, to reading research can not be neglected. On the other hand, Gough continuously stresses the significant role of word recognition in the reading process even for skilled and fluent readers.

This view has been confirmed by many researchers, including Adams (1990), Alderson (1984, 2000), Clarke (1979, 1980), Fielding and Pearson (1994), Gibbons (2002), Hsueh-chao and Nation (2000), Lipson and Cooper (2002), National Reading Panel (2000), Perfetti (1991), and Pressley and Hilden (2002). Hsueh-chao and Nation investigated whether the density of unknown words would influence comprehension. The participants were sixty-six English native speakers attending a pre-university English course in an English speaking country. A narrative text was chosen for the study. The findings suggested that around 98% coverage of vocabulary seemed to be necessary for learners to gain adequate comprehension. With respect to the threshold issue, the results suggested that it was likely to be between 80% to 90% vocabulary coverage. If the threshold level was below 80% vocabulary coverage, comprehension would be difficult. If the learner’s vocabulary level was high, he/she did not need to rely on background knowledge and reading skills. However, if the learner’s vocabulary coverage was below the 80% threshold, no skills or background knowledge could make up for the lack of vocabulary. Hsueh-chao and Nation concluded in their study that vocabulary knowledge was a critical component in reading. As the density of unknown words

increased, comprehension dropped. However, in addition to the vocabulary knowledge, Hsueh-chao and Nation indicated that a broad knowledge of grammar, background knowledge and reading skills also contributed to text comprehension.

L2 Perspectives

A growing body of research in L2 (Bernhardt, 1986; Birch, 1998; Carrell, 1988b; Clarke, 1979; Eskey, 1988, 1997, 2005; Grabe, 1988, 1991, 1995, 2002, 2004; Koda, 1992, 1996; Nassaji, 2002, 2003a; Park, 2004; Scarcella & Oxford, 1992) supports the critical role of lower-level processing in reading comprehension. This body of research asserts that rapid, accurate, and automatic vocabulary processing is vital for fluent reading in both L1 and L2. Grabe (1988) indicates that the lack of vocabulary “may be the greatest single impediment to fluent reading by ESL students” (p. 63).

Evidence from several important studies on L2 reading has emphasized the critical role of vocabulary knowledge in L2 reading comprehension. These include Haynes and Baker (1993), Hunt and Beglar (2005), Koda (1992, 1996), Nassaji (2003a), and Park (2004).

Koda (1992) conducted a study of fifty-eight American college students studying Japanese. The reading comprehension measures included cloze, paragraph comprehension, and sentence comprehension. The results indicated that efficient lower-level verbal processing was vital to the participants’ performance in foreign language reading comprehension, especially when the target language had a different orthographic system from the L1. In her comprehensive review of L2 word-recognition research, Koda (1996) again stressed the very significant role of word recognition in L2 reading comprehension.

Nassaji (2003a) examined the role of higher-level syntactic and semantic processes and lower-level word recognition and graphophonic process of sixty adult ESL learners, who were graduate students at a university in Ontario, Canada. The Nelson-Denny reading test, a standardized L1 reading test, was employed in the study. The findings indicated that

lexical/vocabulary knowledge was strongly correlated with L2 reading comprehension, even though semantic processing was a crucial factor. Furthermore, the study suggested that efficient lower-level processing of lexical knowledge was also essential, not only for less-skilled readers, but also for fluent and skilled EFL readers.

With respect to EFL learners in Asian settings, two significant studies will now be discussed.

Haynes and Baker (1993) studied the reading processes involving L1 and L2 learners. The L2 learners were two groups of twenty-five college freshmen and twenty-nine seniors in Taiwan, who came from a background of learning English through the grammar-translation teaching method. The other group of L1 learners consisted of nine American undergraduates from a western university in the United States. The study involved three meetings with each participant. The first meeting involved a group L1 reading test. In the second meeting, measures of reading speed and comprehension were administered. The third meeting involved a reading and guessing interview. The results demonstrated that the major factor hindering the Chinese students' comprehension was limited vocabulary knowledge when compared to their counterparts. For American students, their prior vocabulary knowledge was helpful for comprehending new concepts.

Park's (2004) study compared L2 listening comprehension with L2 reading comprehension in terms of the roles of linguistic knowledge, background knowledge and question types among one hundred and sixty-eight EFL university students in Korea. The analyses of the data found that with regard to L2 reading comprehension, linguistic knowledge played a significant role, while background knowledge played only a moderate role. These findings show that L2 reading comprehension is a more complex process than the interactive process model suggests.

Even though ample research and studies in both L1 research and L2 research have emphasized the significant role of language knowledge in reading comprehension, some researchers claim that vocabulary knowledge is a necessary, but not sufficient condition for

successful reading to happen. This view holds that the reader needs to possess other knowledge sources (Bernhardt, 1991; Carrell, 1988b; Chikalanga, 1993; Chen & Graves, 1995; Devine, 1987; Nassaji, 2003b) and develop appropriate strategies (Anderson, 1991, 2001; Carrell, Pharis, & Liberto, 1989; Farrell, 2001; Hamp-Lyons, 1985; Kern, 1989; Stanovich, 1991) to increase word knowledge, reading comprehension and the ability to read “between the lines”—a ability that many L2 readers of English find very difficult indeed.

Top-down Model

In contrast to the bottom-up model, top-down approaches to reading emphasizes the process “from brain to text” (Eskey, 2005, p. 564). This model emphasizes what the reader brings to the text (Goodman, 1967; Smith, 1971). This approach suggests that reading is a process in which a reader utilizes background knowledge and linguistic cues to interact with the text to derive meaning (Goodman, 1988). The main characteristic of this model is that the reader relies more on existing knowledge and makes minimal use of written information (Hayes, 1991; Samuels & Kamil, 1984; Smith, 1971, 2004).

The reader, according to this processing model, reads in a cyclical process, making guesses about the message of the text and checking the text for confirming or rejecting cues, based on individual prior knowledge and contextual clues (Goodman, 1988). During the top-down reading process, readers fit the text information into their existing knowledge structure (Carrell & Eisterhold, 1988). Alderson (2000) summarizes and articulates such a position when he writes:

In this view, readers activate what they consider to be relevant existing schemata and map incoming information onto them. To the extent that these schemata are relevant, reading is successful. Top-down approaches emphasize the importance of these schemata, and the reader’s contribution, over the incoming text. (p. 17)

Based on this point of view, the reader brings a great amount of knowledge to the text. During reading, the reader understands ideas encountered in the text on the basis of what he/she already knows. This includes a basic understanding of the vocabulary in the text, the reader's general world knowledge and knowledge about the topic and genre (Aebbersold & Field, 1997; Anderson & Pearson, 1984). Hence, Grabe and Stoller (2002) point out, "Inferencing is a prominent feature of top-down models, as is the importance of the reader's background knowledge" (p. 32)

Even though the top-down model has caused radical influence in both L1 and L2 teaching, particularly in promoting the importance of prediction, guessing from context, and getting the gist (Davies, 1995), few reading researchers support top-down models (Grabe & Stoller, 2002).

L2 Perspectives

Carrell and Eisterhold (1988) note that L2 learners' background knowledge tends to be culture-specific, and they may fail to understand a text if they do not possess or cannot access the appropriate cultural knowledge. Constraints on cultural knowledge may cause distortion of the text meaning if the reader relies on guessing from context and testing predictions (Carrell, 1983; Eskey, 1988; Grabe, 1991; Pehrsson & Denner, 1989), and such reading processes may result in "*knowledge-biased* processing or *schema-interference*" (Carrell, 1988a, p. 102).

It has long been argued, that during the reading process, the reader's language knowledge, personal experiences and knowledge of the textual structure mesh interactively to achieve comprehension. Most L2 reading researchers advocate a balanced view between language and reasoning process (Carrell, 1988c, 1989, 1991; Devine, 1988, 1993; Eskey & Grabe, 1988; Eskey, 2005). Alderson (2000) notes that reading process is not an "Either/Or" selection between the bottom-up and top-down models, but involves the interaction between

both approaches (Alderson, 2000, p. 38). Grabe (2004) remarks, “Text comprehension requires both (a) language knowledge and (b) recognition of key ideas and their relationships (through various comprehension strategies)” (p. 50).

Interactive Model

The interactive model, currently the most accepted processing approach, argues that both top-down and bottom-up processes occur alternately or simultaneously during the reading process. The interactive model consists of two conceptions of interaction: (a) an interaction between the reader and the text and (b) an interaction between bottom-up and top-down approaches (Barnett, 1988; Carrell, 1988b; Eskey, 1988; Grabe, 1991; Pressley, 1998; Rumelhart, 1977, 1985, 2004).

Rumelhart (2004) points out that reading is a “perceptual” and “cognitive” process in which a reader utilizes orthographic, lexical, syntactic and semantic information to accomplish the reading task. These various sources of information are interdependent. Rumelhart (1977) states that information “both sensory and nonsensory, come together at one place and the reading process is the product of the simultaneous joint application of all the knowledge sources” (p. 735). Therefore, comprehension is the result of meaning construction rather than simple transmission of the graphic information to the reader’s mind (Eskey, 2005; Gillet, Temple, Crawford, Mathews, & Young, 2000).

L2 Perspectives

The reading processes in L1 and L2 appear similar. Both L1 and L2 readers have to draw on various sources of knowledge simultaneously to comprehend a reading passage (Bachers, 1998; Day & Bamford, 1998). L2 readers not only need to make sense of the words and sentences in the text, but also need to draw on the prior knowledge and personal experience

evoked by the words to comprehend the meaning of the text and to solve problems during the reading process (Bachers, 1998; Bernhardt, 1991; O'Donnell & Wood, 2004; Schoenbach, Greenleaf, Cziko, & Hurwitz, 1999).

As L2 learners' try to understand the context with their disadvantages of language and cultural unfamiliarity, most L2 reading specialists support the interactive process of reading (Barnett, 1989; Bernhart, 1986; Davies, 1995; Eskey, 1997, 2005; Grabe, 1991, 2002; 2004; Nuttall, 1996; Scarella & Oxford, 1992).

According to Bernhardt (1990), in L2 reading, both text-driven and knowledge-driven processes operate simultaneously with varying degrees of success. The text-driven factors consist of word-recognition, phonemic/graphemic decoding, and syntactic feature recognition. The knowledge-driven operations involve intratextual perception, metacognition, and prior knowledge. All these factors contribute to successful L2 reading. Inadequate knowledge of the target language may cause reading problems (Devine, 1988).

Background knowledge has been viewed as another critical factor in reading, in addition to the lower-level processing. In the reading process, the reader integrates the new information with the existing schemata (Anderson & Pearson, 1984, 1988; Carrell, 1983, 1984a, 1987a; Carrell & Eisterhold, 1983, 1988; Cook, 2001; Nuttall, 1996). Schemata not only influence how a reader recognizes information but also how he/she stores it in the memory (Razi, 2005; Steffenson, Joag-Dev, & Anderson, 1979). "The background knowledge effect is strong" (Alderson, 2000, p. 43).

Cook (2001) and Nassaji (2003b) point out that even though readers may know all the vocabulary and grammar, they still cannot understand the text meaning. The difficulty seems due to the lack of social-cultural knowledge as the comprehension is based on linguistic data (Bernhardt, 1991). Grabe (2004) comments:

It is well documented that readers comprehend texts better when texts are culturally familiar or they relate to well-developed disciplinary knowledge of a reader. More generally, background knowledge is essential for all manner of inferences and text

model construction during comprehension. It is also important for disambiguating lexical meanings and syntactic ambiguities. (p. 50)

Razi (2005) conducted a study to investigate the influence of cultural schema and reading activities on EFL reading comprehension of English short stories. The participants were sixty third-grade university students in Turkey. The results indicated that cultural schema seemed to have a significant effect on comprehension. The students could use top-down processing when the text was culturally familiar. Another important finding in Razi's study was that reading activities also had an effect on reading comprehension and could make up for the lack of cultural schema.

Similarly, Pritchard (1990) examined the effects of cultural schemata on both comprehension and strategy use. The participants were thirty Americans and thirty natives from Palau. The participants were asked to read two different letters, describing funerals, reflecting each culture. The results showed that relevant cultural schemata obviously facilitated the reading process. In line with previous studies, Chan (2003) and Papalia (1987) found that successful foreign language students used concept and schemata already possessed to guide the processing of new information and thereby enhance comprehension.

In addition to relevant content knowledge, familiarity with text structure is another factor affecting comprehension. Formal schema (Carrell, 1983, 1985) refers to the reader's expectation about how information parts in a text are organized (Barnett, 1989; Carrell, 1987a). Knowledge of text types has been recognized as an important factor in comprehension. This knowledge facilitates readers "knowing where to look for the main idea in a paragraph, and being able to identify how subsidiary ideas are marked, ought in principle to help a reader process information" (Alderson, 2000, p. 40).

Carrell (1984b) found that students from different language backgrounds were more able to recall information depended on text structures being closer to those of their own languages. Carrell concluded that different cultures may have different ways of organizing information

and therefore comprehension of text seems to be culturally dependent. In 1985, Carrell conducted another study to investigate the effects of teaching text structure on ESL students' reading comprehension. The results indicated explicit teaching of text structure improved both reading comprehension and the learning of expository texts. Taking the investigation a step further, Carrell (1987a) tested the effects of both content and formal schemata on ESL students' comprehension. The results showed that familiar content and form were much easier to comprehend than unfamiliar content and text structure.

Accordingly, Finocchiaro (1989) suggests that, regarding L2 reading, "the reader's background knowledge must act with his or her innate conceptual abilities, as well as his or her mental processing strategies, in order to ensure comprehension of the text" (p. 113). These are the three factors that the reader must develop. Carrell (1991) notes that schema theory has provided a strong rationale for L2 comprehension strategy training.

Oxford (2001) compares L2 reading to weaving a tapestry. The strands consist of vocabulary, spelling, pronunciation, grammar, meaning and usage. All these strands support and interact with each other (Scarella & Oxford, 1992). Reading teachers need to develop the students' abilities to analyze top-down and bottom-up components of the reading process (Aebbersold & Field, 1997). Fielding and Pearson (1994) assert that reading comprehension strategies can be taught and is especially effective for less skilled readers who use fewer strategies by themselves, and they "need to be taught *how*, *where*, and *when* to consistently carry out such procedures" (Swanson & De La Paz, 1998, p. 209).

In summary, reading comprehension is a complex cognitive process, and it seems more complex in an L2 context. Clearly, reading in an L2 is an active process involving various sources of knowledge such as relevant language knowledge, appropriate background knowledge and knowledge of text structure. In addition to the relevant linguistic, content, and formal schemata, L2 learners need to be equipped with effective strategies when approaching a reading task.

The Graphic Organizer

Research has shown that certain learning strategies seem to provide readers with a procedure to successfully extract, remember and retrieve information from written information (Holley & Dansereau, 1984). One such learning strategy, which has received much attention by both researchers and practitioners, is the use of graphic organizers (National Reading Panel, 2000; Griffin et al., 1995).

Graphic organizers are useful in organizing information to make information easier to understand and learn (Ben-David, 2002). Constructing a graphic organizer helps learners discover how knowledge is related to prior knowledge in content areas. This has been viewed as an important part of reading comprehension (Dye, 2000; Holley & Dansereau, 1984; Moore & Readence, 1984; Simmons, Griffin, & Kameenui, 1988). The visual display of the knowledge organization helps with understanding and recall (Robinson, 1998; Slavin, 1991).

Graphic organizers have their roots in Ausubel's meaningful reception learning (Ausubel, 1963, 1968). According to Ausubel (1963), reception learning can be meaningful when: (a) the learner relates new information to individual prior knowledge; and (b) when learning materials are relevant to the learner's prior knowledge. Clearly, prior knowledge plays a central role in Ausubel's meaningful learning.

Advance Organizers

Advance organizers were used to provide a framework at the introductory stage of a learning task. Ausubel (1968) defined advance organizers as text-relevant "introductory material written at a higher level of abstraction, generality, and inclusiveness than the learning passage itself" (p. 148). The principle function of the advance organizer was to "bridge the gap between what the learner already knows and what he needs to know before he can meaningfully learn the task at hand" (Ausubel, Novak, & Hanesian, 1978, p. 171-172).

The fundamental concept in Ausubel's (1963) cognitive psychology was that learning takes place by assimilating new concepts and propositions into the learner's existing conceptual frameworks. Learning new knowledge is based on the learner's prior knowledge a learner and the use of this prior knowledge. Ausubel believes that meaningful learning takes place when new information is linked to the learner's prior knowledge in a non-arbitrary and substantive way.

Graphic Organizers

The graphic organizer, also called the structured overview, was developed by Barron (1969) and based on the concept of the advance organizer of Ausubel (1968). It uses key vocabulary from the learning material as introductory prose to enhance the reader's acquisition of new knowledge. Bromley et al. (1995) define graphic organizers as:

a visual representation of knowledge. It is a way of structuring information, of arranging important aspects of a concept or topic into a pattern using labels. (p. 7)

Differences Between Graphic Organizers and Advance Organizers

Even though the graphic organizer has its origin in Ausubel's advance organizers (1968), a graphic organizer is different from an advance organizer in four major ways. First, unlike the abstract language used in advance organizers (Robinson & Kiewra, 1995), graphic organizers use the vocabulary in the text to be learned (Alvermann, 1981b). Moore and Readence (1984) point out that the use of the language of the text makes the language of the graphic organizer more familiar to the learners.

The second difference lies in the fact that, in contrast to the linear prose format of advance organizers, graphic organizers use lines, arrows and spatial arrangement to depict text structure and relationships among key vocabulary terms (Alvermann, 1981b; Berkowitz, 1986;

Simmons et al., 1988). It is this two-dimensional spatial arrangement that sets the graphic organizer apart from outlines (Alverman, 1986). A graphic organizer provides both written and visual information (Tang, 1992).

The third difference is that the graphic organizer can be teacher-created, student-created, or teacher- and student-created. This allows interaction between the teacher and the students, whereas the advance organizer is teacher-created (Moore & Readence, 1984). The fourth difference is that the graphic organizer can be presented as a pre-, during- and/or post-reading activity (Merkley & Jefferies, 2000), whereas the advance organizer is used only as a pre-reading activity (Simmons et al., 1988). Table 2.1 summarizes the differences between a graphic organizer and an advance organizer.

Table 2.1
Differences Between Graphic Organizers and Advance Organizers

| | Advance Organizers | Graphic Organizers |
|----------------------------|--------------------|---|
| Language Used | Abstract | Vocabulary in the Text |
| Format | Prose | Two-dimensional |
| Constructed By | Teacher | Teacher/Student and/or Teacher and Student |
| Point of Implementation | Pre-reading | Pre-, During- and/or Post-reading |

Common Formats of Graphic Organizer

The term graphic organizer is generalized to include several mapping strategies, such as semantic organizers, semantic maps, concept maps, networking, diagrams, flow charts, and

other various schematic designs (Bromley et al., 1995; Clarke, 1991; Eagan, 1999; Strangman, Hall, & Meyer, 2002). In spite of the different terms, they are conceptually similar (Anderson & Armbruster, 1984).

There are four basic organizer formats: the hierarchical or network tree; the conceptual or spider map; the sequential or fishbone map; and the cyclical or cycle map (Baxendall, 2003; Bromley et al., 1995; Sinatra, 2000; Strangman et al., 2002). Stragman et al. recommend that both teachers and students select the format that most effectively highlights the features of the text structure.

Each map format and its purpose will now be described.

1. A hierarchical map corresponds with the hierarchical structure of most expository texts (Anderson & Armbruster, 1984; Sinatra, 2000). A hierarchical organizer consists of nodes and labeled links. The nodes represent concepts or key words, while the labeled links identify the relationships between the nodes. In the hierarchical structure, the most important topic concept is placed at the top, followed by the secondary sub-topic ideas and the supporting details (Barron, 1969; Novak & Gowin, 1984). The levels continue until all of the important ideas are included in the map (Beissner, Jonassen, & Grabowski, 1993).
2. In a conceptual or spider map, the main concept is placed in the center with related or subordinate ideas related to the central idea like a cluster. The spider map was developed by Hanf (1971) as an alternative to traditional note-taking. Information types such as description, collection, problem and solution and compare and contrast are examples of conceptual formats (Bromley et al., 1995).
3. A sequential or fishbone map has a linear format. This pattern is useful for events arranged in chronological order or for cause and effect (Bromley et al., 1995), which is a common topic across all subject studies and stories (Baxendell, 2003).
4. The cyclic format includes information in a cyclical or circular process, with no

beginning or ending (Bromley et al., 1995; Strangman et al., 2002).

The use of graphic organizers is widespread (Egan, 1999) and beneficial for all levels of learning (Alvermann, 1986; Bromley et al., 1995; Heimlich & Pittleman, 1986). According to Long and Aldersley (1984), networking can be viewed as a text analysis procedure that involves breaking down of text into individual key ideas. The learner has to organize these key ideas logically, according to their relationships. As a result, the network of linked ideas becomes a visual representation of the original material. Numerous studies have supported the idea of networking as a reorganization strategy that can facilitate knowledge acquisition, storage, and retrieval (Day & Park, 2005; Holley, Dansereau, McDonald, Garland, & Collins, 1979; Shimmerlik, 1978).

As such, graphic organizers “are both language and cognitive tools” (Pehrsson & Denner, 1989, p. 4). As language tools, they emphasize semantic relationships; as cognitive tools, they organize information and ideas. This mapping strategy involves both bottom-down and top-down processing to aid reading comprehension (Anderson & Armbruster, 1984; Breuker, 1984; Goetz, 1984). Through bottom-up processing the reader finds the information needed to fill out the higher-order schemata and through top-down processing the reader can find and assimilate information in an efficient manner (Adams & Collins, 1979). Not surprisingly, Nunan (1999) recommends that English language teachers frequently transfer text into a visual diagram to aid learning.

The Implementation Point of Graphic Organizers

Graphic organizers can serve different instruction purposes. Graphic organizers can be used at the introductory stage at the beginning of the learning task as advance organizers, or during the instruction to monitor students’ understanding, or as post-learning activity for summarizing, discussion or assessment.

A review of the research from 1980-1991 (Hudson, Lignugaris-Kraft, & Miller, 1993) concludes that visual displays can be successfully implemented at different phases of the instructional cycle as pre-reading, during-reading, and post-reading tasks (Dunston, 1992; Griffin, Simmons, & Kameenui, 1991; Merkley & Jefferies, 2000). Positive outcomes have been reported when graphic organizers are used as advance organizers (Bos & Anders, 1990; Davis, 1995; Hayes, 1991; Sinatra, Stahl-Femake, & Berg, 1984), during-reading activity (Bos & Anders, 1990; Boyle, 1996), and post-reading activity (Alvermann & Boothy, 1986; Boyle & Weishaar, 1997; Sinatra et al., 1984; Willerman & Mac Harg, 1991).

Moore and Readence (1984) and Strangman et al. (2002) suggested that the implementation point has an important impact on the effectiveness of graphic organizers. Moore and Readence reported that when graphic organizers were used as a pre-reading activity, average effects were small. In contrast, graphic organizers used as a follow up to reading yielded somewhat larger improvements in learning outcomes. Hence, it is suggested that efforts to improve learning outcomes may be more successful when graphic organizers are introduced after the learning material has been taught (Strangman et al., 2002).

As Pre-reading Activity

A considerable body of research supports the use of graphic organizers that assist students to build an overview or reference when approaching new material (Clarke, 1991; Robinson, 1998). The teacher can present a graphic organizer as an overview, highlighting the major ideas and their relationships in a text, to students in advance of the learning material (National Reading Panel, 2000).

There are two purposes of driving the use of graphic organizers as pre-learning activities. First, the preview provides an opportunity to link the concepts of the new material to the students' prior knowledge of the topic (Barron & Earle, 1973; Carrell, 1988a; O'Donnell & Wood, 2004). Secondly, the pre-organizer introduces key vocabulary and related concepts in

the text (Barron & Earle, 1973; Carrell, 1988a; Clarke, 1991; Hayes, 1991). Diekhoff and Diekhoff (1982) suggest that the presentation of an instructor's map provides insights into thought processes and presents students with a graphic synopsis of the inter-relationships of the ideas in the map. This can result in discussion that is missing from traditional instruction.

As During-reading Activity

Graphic organizers can be used as new content is being studied. During the process of reading, the graphic organizer strategy facilitates understanding. Moreover, it enhances students' ability to deal with information presented in the text (Horton, Lovitt, & Bergerud, 1990), and clarifies confusing points during the reading (Barron & Earle, 1973). During instruction, graphic organizers can optimize the learning situation by assisting students to find key points and note information in the text and actively process and reorganize information (Culbert, Flood, Windler, & Work, 1998; Griffin et al., 1995; Simmons et al., 1988). In addition, students can use the graphic organizers to support note-taking and summarizing. Arnaudin, Mintzes, Dunn, and Shafer (1984) suggest that, for teachers, the graphic organizer is a useful tool for organizing and sequencing instruction.

As Post-reading Activity

Graphic organizers can also be used as an after reading activity to provide a format for the summary and review of information (Abraham, 2000; Anderson & Armbruster, 1984; Barron & Earle, 1973; Dunston, 1992; Hall et al., 1999; Moore & Readence, 1984; O'Donnell & Wood, 2004) and also to assess students' understanding (Ben-David, 2002; Carrell et al., 1989; Novak & Gowin, 1984).

In the literature, Barron (1969) is reported as the first one to propose that students generate their graphic organizers as a post-reading activity. In the later years Barron

conducted three successive studies on the effects of graphic organizers as post-reading activities. In 1974, Barron and Stone studied the effects of graphic post-organizers on the learning of vocabulary relationships in a passage of social science material for over a two-day period. One hundred and forty-one tenth- and eleventh-grade students were arranged in three groups: graphic advance organizer group, graphic post-organizer group, and control group. The results indicated a statistically significant difference in favor of the graphic post-organizer group.

In 1980, Barron and Schwartz conducted a study to investigate whether or not graphic post-organizers facilitated the learning of vocabulary relationships in a complex, long-term learning task for 9 weeks. Sixty-four graduate students were divided into an experimental and control group. Again, the comparison indicated a significant difference in favor of the graphic post-organizer group.

In 1984, Barron and Schwartz suspected that schema or prior knowledge was not sufficient to explain the strong effects of the graphic post-organizers in their study in 1980, as the two group students had had equal experience with the course content. Barron and Schwartz suggested that the situation might be explained by Ausubel's (1968) concept of two learning sets. Working with conditions of meaningful learning sets, the students consciously and actively attempted to relate and incorporate the new information into the prior knowledge framework.

According to the concept of cognitive learning, meaningful learning takes place when a student consciously chooses to learn in a meaningful way (Ausubel, 1968; Ausubel, Novak, & Hansian, 1978; Ekhaml, 1998; Novak & Gowin, 1984). If a student chooses to learn by rote, information is processed in an arbitrary and less substantive manner (Novak, 1998; Novak & Gowin, 1984). As a result, information is less linked to the existing knowledge and the forgetting rate is rapid (Goetz, 1984).

Based on this notion, Barron and Schwartz (1984) suggested that the effect of the graphic post-organizers in their study was perhaps partly due to the use of the strategy of assisting or

forcing learners to adopt a meaningful learning set by integrating the new knowledge with the existing knowledge framework, and partly because the post-organizer provided a review of the key vocabulary. Similarly, a body of research suggests the facilitative effects of graphic organizers as a post-reading activity on the recall, organization, and the pertinent information in the text (Alvermann, 1981b; Anderson & Armbruster, 1984; Barry, 2002; Hoffman, 2003; Moore & Readence, 1984; Heimlich & Pittleman, 1986; Strangman et al., 2002).

In order to follow up some of the findings contained in earlier research, Spiegel and Braufaldi (1994) investigated the effect of graphic post-organizers on students' recall and retention of science knowledge. The study was conducted as a pre- and post-test quasi-experimental design. According to the result of the pre-test, which was employed after teacher-generated pre-reading graphic organizers, no significant difference was shown between the control and experimental groups. However, the result of the immediate post-test, which was conducted after student-generated graphic organizers, was in favor of the experimental group. Spiegel and Braufaldi suggested that post-reading graphic organizers involved students more actively in the learning situation and thereby led to a deeper processing of the text.

Hoffman's (2003) study reported congruent results. He examined the effect of graphic organizers on graduate students with diverse language and cultural orientations studying in the College of Education in the United States. To help students comprehend the theories presented in the text and build requisite structural knowledge, he used a graphic organizer assignment. Each student's organizer had to have the theories presented and the important information described for each theory/theorist, including valid connections among them. Students' informal and written comments from course evaluation demonstrated favorable results. Many students attributed their improved performance in the final exam to the graphic organization of the course material. Some students stated that the organizer was a very good study tool, and they felt that the graphic organizer assignment was relevant and appropriate for the course.

Generating Types of Graphic Organizers

A review of the literature indicates that graphic organizers were originally teacher-directed, and the students were not involved in the map construction process (Barron, 1969; Moore & Readence, 1984). Even though a body of research indicated that both teacher- and student-generated graphic organizers could be effective in increasing student achievement (Bos & Anders, 1990; Boyle & Weishaar, 1997), the literature suggests that the level of student involvement in the construction of a graphic organizer appears to be an important variable influencing learning.

Teacher-generated Graphic Organizers

The early graphic organizers were used as teacher-directed activities, not only to present students with a graphic representation of the relationships among the ideas in the text, but also to activate and organize learners' prior knowledge (Moore & Readence, 1984). Using a teacher-generated graphic organizer not only reduces the learner's cognitive load, but also focuses the learner's attention on the content rather than the strategy (Holley et al., 1979). Horton et al. (1990) reported in their study that both remedial and regular students in the teacher-directed graphic organizers group performed better than those in the self-study group.

Other possible advantages of teacher-generated organizers have been reported. First, the teacher organizers show important ideas from the content and thereby assist the students' acquisition of concepts and promote concept assimilation (Boyle & Weishaar, 1997; Rewey, Danesereau, Hall, & Pitre, 1989). Secondly, the simplified graphic format helps student comprehension. Thirdly, teacher organizers can be used whenever there is need during the lecture (Boyle & Weishaar, 1997). Finally, teacher organizers can not only save time but also arouse discussion that is missing from traditional instruction (Diekhof & Diekhof, 1982).

However, teacher-generated organizers may have disadvantages, however. The students

may not understand the process of information construction and they may learn in a rather passive way. Simmons et al. (1988) reported in their study that the comparison of pre- and post-graphic organizers provided by the teachers did not show any significant difference. Simmons et al. suggest that the results suggest that: (a) teacher-provided graphic organizers may “have oversimplified the comprehension process”; and (b) the teachers “spoon-fed” the students the important information that they summarized from the text (p. 20).

Student-generated Graphic Organizers

Barron (1969) was the first one to propose the idea of student-generated graphic organizers. The review of the relevant literature demonstrates that the benefits seem to be greater when learners generate their own graphic organizers (Armbruster & Anderson, 1984; Barron & Stone, 1974; Holley & Dansereau, 1984; Horton et al., 1990; Katayama & Robinson, 2000).

An ample body of research has pointed out the positive effects of using student-generated graphic organizers on students' learning. This body of research has suggested having students generate their own organizers rather than providing them with organizers to learn from (Alvermann & Boothy, 1986; Barron & Stone, 1974; Boyle & Weishaar, 1997; Gobert & Clement, 1999; Horton et al., 1990; Moore & Readence, 1984). “Students who understand how to create a graphic organizer have a new and valuable tool for planning, understanding, remembering, and assessing knowledge” (Bromley et al., 1995, p. 26).

Alvermann and Boothy (1986) reported that the effects upon comprehension were increased when graphic organizers were partially constructed by students as a during-reading or post-reading activity since the organizer may have influenced the reader's encoding process by forcing the individual to analyze and attend to semantic content, in effect to process it more deeply (Alvermann, 1981b; Anderson & Armbruster, 1984; Barron & Schwarz, 1984). Barron and Stone (1974) also concluded in their study that it was more effective to have

students generate their own knowledge of vocabulary.

Boyle and Weishaar (1997) reported in their study that both groups trained with teacher- and student-generated organizers strategy outperformed the control group in literal comprehension. The student organizer group also significantly outscored the control group in inferential comprehension, whereas the teacher organizer group did not. Little difference was found between the two strategy groups in the measure of literal comprehension, and no significant difference was found between the two strategy groups. Regarding the implication of this for classroom teachers, Boyle and Weishaar suggest that the use of graphic organizers helped students to become active and independent learners. Student-generated graphic organizers were strongly recommended as strategies to strengthen students' metacognitive skills in inferential comprehension.

The Effects of Graphic Organizers

During the past decades, the facilitative effects of graphic organizers on learning have been reported on extensively. The use of graphic organizers has yielded promising results in: enhancing reading comprehension; retention and recall; promoting learning performance; improving learning and thinking skills; and increasing learning attitudes. Graphic organizers were found to be beneficial in learning various subjects for learners across a wide range of levels, from kindergarten children to university students and for students of different abilities, including regular and disabled students.

Promoting Reading Comprehension

An extensive body of research addresses the impact of graphic organizer on students' reading comprehension and information organization (Bachers, 1998; Baxendell, 2003; Ben-David, 2002; Berkowitz, 1986; Bertelsen & fisher, 2003; Boyle & Weishaar, 1997;

Bowman, Carpenter, & Rose, 1998; Culbert et al., 1998; Holley et al., 1979; Griffin et al., 1995; Kyrlo & Millet, 2000; National Reading Panel, 2000; Prater & Terry, 1988; Robinson & Kiewra, 1995; Sinatra & Pizzo, 1992; Trabasso & Bouchard, 2002).

The National Reading Panel (2000) cited graphic organizers as one of the seven categories of instruction that are the most effective in the improvement of reading comprehension. Sinatra and Pizzo (1992) point out that students usually possess fragmented pieces of knowledge instead of overall understanding of the text. The organized information in a graphic organizer shows students how to explore the interrelationships between ideas and display information in chunks (Crandall, Ann-Olsen, Peyton, & Joy, 2002; DiCecco & Gleason, 2002). Understanding the relations among key concepts helps students not only to grasp concepts efficiently and effectively but also to develop well-structured mental pictures about the content they are learning (Goldman & Rakestraw, 2000; Marchand-Martella, Miller, & MacQueen, 1998).

The visual display of content key ideas can benefit learners who have difficulties organizing information (DiCecco & Gleason, 2002; Fisher & Shumaker, 1995) as graphic organizers “minimize comprehension barriers imposed by content area text” (Simmons et al., 1988, p. 15). Successful learning outcomes have been demonstrated for students with learning disabilities (Boyle & Weishaar, 1997; Boyle & Yeager, 1997; Bulgren, Schumaker, & Deshler, 1988; Griffin & Tulbert, 1995; Sinatra et al., 1984) and without (Alverman & Boothy, 1986; Bulgren et al., 1988; Willerman & Mac Harg, 1991) across a range of grade levels, including elementary, junior and high schools. On average, the largest effects of graphic organizers on learning effects have been reported for university students (Moore & Readence, 1984).

Long and Aldersley (1984), Boyle and Weishaar (1997), Griffin et al., (1991), Sinatra et al. (1984) among others have studied the use of graphic organizers by students with learning disabilities. These studies found that mapping strategies were effective in helping students comprehend content area materials, organize information, and retain and recall content. In addition, these studies also found out that graphic organizers helped students to link new

knowledge with the existing schemata. Robinson, Katayama, Dubois and Devancy (1998) suggested that when students viewed text and a graphic organizer, they were more likely to use non-memorizing strategies and commit the information to the long-term memory rather than memorizing for the sake of tests.

Enhancing Retention and Recall

Retention and recall are closely related to reading comprehension. A great number of studies have found that graphic organizers are an advantageous teaching and learning strategy across different schooling levels (Alverman, 1981b; Bos & Anders, 1992; Griffin et al., 1995; Kulhavy, Lee, & Caterino, 1985; Simmons et al., 1988; Willerman & Mac Harg, 1991). Findings also indicated that the graphic organizers promote students' performance and achievement in the content assessments (Guastello, Beasley, & Sinatra, 2000; Robinson et al., 1998; Simmons et al., 1988; Willerman & Mac Harg, 1991).

Improving Learning Attitudes

Graphic organizers can be used to motivate and improve students' attitudes to learning (Egan, 1999; Governale, 1997; Gunner et al., 1999; Rose, 2000; Strangman et al., 2002). Egan states that, "Graphic organizers are a means to an end, that of enhanced motivation and greater satisfaction and success in learning" (p. 644). Governale reported in her study that the use of graphic organizers, one of four intervention activities, had a significantly positive impact on participants' engagement in the learning of social studies. On the contrary, Alvermann's (1981a) study reported that the students' post-treatment attitude outcome did not show a significant difference. Alvermann suggested that the reason might be due to the short training period (one week) and unskilled learners needed more time to learn how to use the strategy.

Using Graphic Organizers as a Language Learning Strategy

Educators and teachers of language learning suggest that an effective way to teach students to summarize and interpret text is to use visuals and graphics, which demonstrate key ideas in connected relationships and thereby reduce language barriers in both L1 and L2 (Farnan, Flood, & Lapp, 1994; Kuo, 2003; Long & Aldersley, 1984; Oxford, 1990; Tang, 1992).

Oxford (1990) notes that mapping techniques can be used for memorizing vocabulary. Mapping strategies can be related to psychological concepts about how knowledge is stored as a network. Oxford states that mapping is:

actually a way of contextualizing a word or concept in an expanding network of related words or concepts, and that such a strategy helps learners make important linkage that carries over into more richly contextualized communication situations. (p. 241)

Long and Aldersley (1984) studied the facilitative effects of networking on hearing-impaired students with deficient English language ability. The students had difficulty with vocabulary and syntax and processed text in a bottom-up fashion. They also failed to identify important concepts when reading and summarizing the gist of a passage. The findings reported that the incorporation of a networking strategy enabled the hearing-impaired students to select the main ideas from a passage and to summarize the gist. Long and Aldersley concluded that student populations with English language deficiencies could benefit from training in spatial learning strategies.

In ESL context

Several studies have been conducted in ESL/EFL contexts (Carrell et al., 1989; Huang,

2004; Jau, 1998; Kuo, 2003; Tang, 1992). These are now discussed.

Carrell et al. (1989) studied the effect of semantic mapping and experience-text-relationship (ETR) on the metacognitive strategy training of students of English as second language (ESL). The results showed that both the semantic mapping group and the ETR group outperformed the non-strategy group. On the measures of open-ended questions and open-ended semantic maps, the semantic mapping group scored significantly higher than the other two groups, while the ETR group made the only significant gain on the cloze semantic measure. Carrell et al. concluded that semantic mapping and ETR were effective metacognitive strategies in promoting second language learning.

Tang (1992) examined the effectiveness of a teacher-constructed tree-graph on students' comprehension of content knowledge and acquisition of a second language for academic purposes. Forty-five seventh-grade ESL students participated. The study was based on a pre-test/post-test, nonequivalent-control group quasi-experiment, research design. The findings indicated that the use of a teacher-provided tree diagram as a teaching strategy facilitated comprehension. In addition, the treatment group students agreed that graphics foster learning. Tang concluded that a likely explanation for the vocabulary advantage is that graphic organizers are skeletal arrangements showing the key terms. As a result, the learners' attention may be devoted more to the key terms rather than to the entire passage.

In her study, Tang (1992) pointed out that the dual coding function of graphics provided learners with visual and verbal information. The visual information contained the knowledge of the content while the verbal information promoted language acquisition. Tang noted that:

Graphics have the potential for lowering the language barrier and making the input of content knowledge more comprehensible. They can also be used to highlight the linguistic devices of knowledge structure, which is a step toward academic second language acquisition. (p. 178)

In EFL Context

In Taiwan, several studies have been conducted to examine the effects of graphic organizers on students' EFL learning (Chiang, 2004; Huang, 2003; Jau, 1998; Kuo, 2003).

Jau's (1998) study examined the effects of teacher-generated graphic organizer on one hundred and three college students' vocabulary learning. The results indicated that the organizer strategy group outscored the question-answer group in reading comprehension, particularly in vocabulary development. In addition, students in the experimental group showed positive attitudes regarding the application of the graphic technique in reading.

Huang (2003) used student-generated concept maps to investigate eighty-six college freshmen's English reading comprehension. The pre-test/post-test, nonequivalent control group quasi-experiment, research design was adopted. The findings reported that the reading comprehension performance of the experimental group surpassed the control group on description, exposition, and persuasion texts. Furthermore, the graphic strategy slightly promoted the motivation of the experiment group students. The students showed a positive attitude toward the use of concept mapping in the English class.

Kuo (2003) examined the effects of semantic mapping instruction on the reading comprehension of eighty-four high-school students as well as on their attitudes towards the use of semantic mapping in reading English. The study was a one group, pre- and post-research design. Three cloze-semantic maps and multiple-choice tests were used to examine the effects of teacher- and student constructed semantic mapping on the students' EFL reading comprehension after 6-weeks intervention. The findings indicated a significant improvement between pre- and post-test in both cloze semantic map and multiple-choice tests. In addition, the students showed positive attitudes toward the use of semantic mapping instruction in reading in English. However, the students' attitude toward the teacher- and student-generated semantic mapping was not investigated.

In summary, the benefits of graphic organizers to learning have been reported across

various content area studies, in a wide range of grade levels and with students of different learning abilities. Studies have shown extensively that the use of graphic organizers improved students' performance when compared with traditional instruction methods.

Steps in Constructing a Graphic Organizer

Graphic organizers can improve learning when there is a substantial instructional context, such as explicit instruction incorporating the teaching of modeling (Boyle & Weishaar, 1997; Eagan, 1999; Johnes, Pierce & Hunter, 1988; Mastropieri et al., 2003; Strangman et al., 2002; Willerman & Mac Harg, 1991) and independent practice with feedback (Anderson-Inman, Knox-Quinn, & Horney, 1996; Boyle & Weishaar, 1997; Scanlon, Deshler, & Schumaker, 1996).

In reviewing eleven years of research, Hudson et al. (1993) noted that effective teaching practice is fundamental for positive learning outcomes. Accordingly, the instructional context is another determinant of the effectiveness of graphic organizers for improving learning. Without teaching instruction on how to use them, graphic organizers may not be effective learning tools (Clements-Davis & Ley, 1991).

Step 1: Modeling

Research on effective teaching emphasizes the importance of teacher modeling during the learning of a new strategy (Brown, Pressely, Meter, & Schuder, 1996; Griffin et al., 1995; Jones et al., 1988). "In order to acquire proficiency at virtually any task or skill, it is necessary to have a clear notion of 'how experts do it'" (O'Donnell & Wood, 2004, p. 256). The teachers should first show students how a strategy is employed and why the strategy is worth learning. Teachers present the prepared graphic organizers in front of the class demonstrating the organized information of the reading passage before having students engaged in the

mapping process (Jones et al., 1988; Strangman et al., 2002).

Step 2: Guided Practice

After having completed several modeling lessons, students can be led to the next stage of mapping. In “scaffolding” terms, this stage is known as “guided practice,” in which students practise the strategy under the guidance of the teacher (Pearson & Gallagher, 1983). By means of the scaffolding design, the teacher can provide systematic training in using the graphic organizer. The students have concrete tools for independently seeing patterns in information (Hyerle, 1996).

It has been suggested that students’ first attempts should begin with the participation of the whole group in advance of the individual application of the new strategy (Bromley et al., 1995; O’Donnell & Wood, 2004). Guided practice is therefore crucial for successful application. In addition, feedback from the teacher and peers is also important.

Step 3: Independent Application

Even after students are trained to use the new strategy independently, the teacher continues to play an important role. The students must have the opportunity to use the strategies that have been taught. In addition, the teacher should continue to give feedback on students’ use of the strategy (O’Donnell & Wood, 2004).

At the stage of independent application, students apply the graphic organizer strategy in group-work and individual work. When students work in groups, they construct graphic organizers via cooperative learning and the teacher acts as a facilitator. When students do the mapping individually, each student constructs graphic organizers on his or her own (Egan, 1999). At this stage, teacher’s feedback is important (Tilestone, 2004).

Bromley et al. (1995) suggested that graphic organizers should be first generated in

groups and then independently. They pointed out that, based on the Vygotskian view (1962), “learning is first, social; only after working with others does the student gain the ability to understand and apply learning independently” (Bromley et al., 1995, p. 28). “The discussion that accompanies the creation or interpretation of a graphic organizer is crucial to the learning process” (Bromley et al., 1995, p. 28). Egan (1999) also pointed out that graphic organizers are particularly useful when students work in pairs or groups.

In summary, the graphic organizer has a sound theoretical underpinning and solid empirical support. Researchers and practitioners have shown that graphic organizers are an effective learning strategy in enhancing comprehension, retention and recall and on learning attitudes. Graphic organizers can be constructed either by instructors or by students and can be flexibly implemented at any stage during instruction. In recent years, graphic organizers have been used to promote language learning in support of a variety of ESL and EFL contexts.

Summary

Contemporary reading theory supports the interactive view of the reading process in both L1 and L2. By means of this process, readers utilize various sources of knowledge at different levels, alternately or simultaneously, to achieve comprehension. Hence, the reader’s language knowledge, world knowledge, cultural knowledge and knowledge of strategies are all crucial in the reading process. In other words, reading is an active and constructive process of meaning making, conducted by the reader.

Graphic organizers have been proven to be an effective strategy in promoting reading comprehension by visually presenting knowledge in an organizational structure. Thus, the literature surveyed in this chapter suggests that when graphic organizers are used in classroom settings, they promote cognitive, metacognitive, cooperative, and affective learning.

CHAPTER 3

THEORETICAL AND METHODOLOGICAL FRAMEWORK OF THE PRESENT STUDY

“Because of the complexity of second language acquisition, it is not possible to investigate it from any single perspective.” (Seliger & Shohamy, 1989, p. 22)

A clear theoretical framework and an equally clear methodological framework are essential for high quality research. According to Neuman (1997), the theoretical framework guides researchers conceptually so that they can set up clear relationships among a number of variables, while the methodological framework provide guidelines on how to gather and examine data. Hence, in such a framework, theory and practice cannot be treated separately (Pehrsson & Denner, 1989).

The theoretical and methodological frameworks that support this study are discussed in this chapter. The theoretical framework is based on cognitive learning theories and takes the following perspectives regarding graphic organizers into consideration: schema theory, dual coding theory, cooperative learning and the affective dimension of teaching and learning. In the section on the methodological framework, an overview of methodologies recommended by research specialists in terms of L2 acquisition is described. In addition, the application of these methods to the present study is discussed.

Theoretical Framework

According to Alderson (2000), researchers who are interested in investigating reading must first and foremost try to understand the construct of reading. A construct of reading refers to the concept of understanding the meaning of reading (Alderson, 2000, p. 1). Current

L2 learning theories have had broad applications in the field of cognitive psychology (Grabe, 1991; O'Malley & Chamot, 1990). Cognitive learning theories focus on the learner and explain learning in terms of cognitive processes, structures and representations that are believed to operate within the learner (Ausubel, 1968; Ausubel, Novak, & Hanesien, 1978; Smith & Ragan, 1999). This perspective dovetails with Ausubel's (1968) argument that what is important in the context of education is what students bring with them to the classroom. In recent years, the learner's prior knowledge has been viewed from a broader perspective so that the students' knowledge, experience, motivation, and learning strategies are all seen to be crucial in learning (Alderson, 2000; Wittrock, 1990).

Schema Theory

Rumelhart (1980, 2004) argues that all knowledge is cognitively organized as schemata. Schemata are viewed as "various kinds of abstract mental structure that enable us to make sense of the world and participate appropriately in it" (Smith, 2004, p. 243). These are the frameworks of interpreting, storing, and retrieving information and experience. Hence, schemata are viewed as the "building blocks of cognition" upon which all information processing depends (Rumelhart, 1980, p. 33).

Based on this view, schema theory views reading as a complex and dynamic process in which learners draw on background knowledge to construct meaning (Bachers, 1998; Landry, 2002; Rumelhart & Ortony, 1977; Wittrock, 1990). Alderson (2000) remarks:

The knowledge the readers have will influence not only what they remember of the text . . . but the product—their understanding of the text—and the way they process it. Schemata are seen as interlocking mental structures representing readers' knowledge. When readers process text, they integrate the new information from the text into their pre-existing schemata. More than that, their schemata influence how they recognize information as well as how they store it". (p. 33)

This, in turn, facilitates recall and comprehension (Holly & Danesereau, 1984; Pehrsson, & Denner, 1989; Rumelhart, 1980). Comprehension depends on how readers relate new information in the text to the information stored in memories (Bernhardt, 1986; Carrell, 1985; Grabe, 1991; Rumelhart, 1977; Rumelhart & Ortony, 1977; Smith, 2004). Anderson and Pearson (1984) highlight the significant role of schemata in reading comprehension pointing out that

schemata, or knowledge already stored in memory, function in the process of interpreting new information and allowing it to enter and become part of knowledge store. Whether we are aware it or not, it is this interaction of new information with old knowledge that we mean when we use the term comprehension. (p. 255)

A schema is an abstract, conceptual representation of a person's knowledge and experience in the memory structure (Novak & Gowin, 1984; Rumelhart, 1980; Smith, 2004). "A schema is abstract in the sense that it summarizes what is known about a variety of cases that differ in many particulars. A schema is structured in the sense that it represents the relationship among its component parts" (Anderson & Pearson, 1988, p. 42). Schema is formed and used without conscious awareness (Anderson, 1978, 2004; Anderson & Pearson, 1984).

According to cognitive learning theory, schema anchors or subsumes the new knowledge by providing "ideational scaffolding" for assimilation of the new information through associations with existing knowledge structure (Ausubel, 1963). By using existing schema, new information that fits in readers' schema can be learned with less effort (Anderson, 2004). Wittrock (1990) suggests that if a learner can provide relevant schemata to link the new knowledge, this knowledge will be incorporated into the existing structure effectively. Once the incorporation is completed, the new knowledge will be placed in the schematic network for retention and retrieval (Rumelhart & Ortony, 1977). Extensive research has shown that if

the reader lacks schemata or fails to activate appropriate schema, comprehension will be impeded (Bensoussan, 1998; Eskey, 2005; Grabe, 2004; McDonough, 1995; O'Donnell & Wood, 2004; Scarcella & Oxford, 1992).

Schema theory accounts for the way “in which how human beings store and recognize information in networks of related notions called schemata” (Eskey, 2005, p. 565). Schema theorists suggest that human memory may be organized as a network consisting of concepts and relationships between the concepts in a two-dimensional manner (Holley & Dansereau, 1984; Kintsch & van Dijk, 1978; Novak & Gowin, 1984). A schema can be differentiated into subschemata. Subschemata are thought to be interrelated and hierarchically organized (Adams & Collins, 1979; Anderson, 1978, 2004; Kintsch & van Dijk, 1978; Rumelhart, 1980).

The advantage of the propositional network is that contextual clues facilitate association and inference (Anderson, 1978, 2004; O'Malley & Chamot, 1990). Schema guides the readers to allocate their attention to selecting important text elements and skipping unimportant information (Anderson, 2004; Brunning et al., 1999). Rumelhart (1980) points out that comprehension and remembering is “presumed to be identical to the process of selecting and verifying conceptual schemata to account for the situation to be understood” (p. 50).

As a reader gains new knowledge and information, the mind creates a new schema or links pre-existing schemata in new way (Anderson & Pearson, 1984; Rumelhart, 1977, 1980). New information may be assimilated and acquired quickly through inferential elaboration (Anderson, 1978, 2004). Beissner et al. (1993) state that, “Elaboration strategies are an important part of learning because as new information is linked to prior knowledge it becomes embedded in existing knowledge structures, making it easier to recall and use the information” (p. 9).

According to Carrell and Eisterhold (1988), this principle results in two modes of information processing, often referred to as the terms “bottom-up” and “top-down”. Carrell and Eisterhold state that

Bottom-up processing is evoked by the incoming data; the features of the data enter the system through the best fitting, bottom-up schemata. Schemata are hierarchically organized, from most general at the top to most specific at the bottom. As these bottom-level schemata converge into higher level, more general schemata, these too become activated. (p. 76)

Therefore, the existing knowledge structure (schema) is dynamic and flexible (Anderson, 1978, 2004; Anderson & Pearson, 1984, 1988; Eskey, 2005; Pehrsson & Denner, 1989).

Schemata can be revised and developed to include more specific concepts when an individual gains more experience and knowledge (Anderson, 1978; Ausubel, 1968; Ausubel, Novak, & Hanesian, 1978). It has been pointed out that learners not only actively relate schema to the new information, but also modify the existing schemata to accommodate the new knowledge (Ausubel, 1968; Anderson & Pearson, 1984, 1988; Eskey, 2005; Rumelhart, 1980). Therefore, reading involves active mental activity—thinking (Smith, 2004).

In summary, schema theory describes how the human mind interprets and stores information. Schemata are believed to be organized in propositional networks. Such networks facilitate selecting, organizing, and integrating important information into a coherent state (Mayer, 1989, 1996). Although there has been much debate about schema theory (Anderson, 2000; Grabe, 1995), schema theory is useful in understanding how we interpret information (Nuttall, 1982).

Graphic Organizers and Schema Theory

According to cognitive psychologists, graphic organizers have their root in schema theory (Anderson & Armbruster, 1984; Barron, 1969; Dye, 2000; Long & Aldersley, 1984; Pehrsson & Denner, 1989). The graphic representations mimic the cognitive view of how information is structured in a networking fashion in the memory (Bromley et al., 1995; Holley & Dansereau, 1984). This network helps a learner conceptualize a word or a concept through the related words or concepts (Oxford, 1990; Rumelhart & Ortony, 1977). The linking of the

words or concepts makes a learning task easier by focusing on important information and omitting extraneous information (Bromley et al., 1995).

Graphic organizers are often used to assist readers to organize their ideas with graphic representations of what they read (Harris & Hodges, 1995). Graphic organizers have been viewed as both cognitive tools and language tools. As cognitive tools, a graphic organizer organizes information and ideas (Pehrsson & Denner, 1989). As readers are not able to remember everything they read, it is important to identify the most important ideas (Abraham, 2000; Pressley, 1998). Therefore, summarizing text information is an important and useful strategy. O'Donnell and Wood (2004) assert that "one of the major principles of comprehension is that organizing and classifying new information facilitates understanding and remembering" (p. 190).

As language tools, the graphic organizer not only emphasizes semantic relationships, but also offers opportunities for the learners to exercise the use of language (Pehrsson & Denner, 1989). It requires the learner's active interaction with information and explicit examination of what he/she knows and does not know (Bromley et al., 1995). Hence, it has been suggested that less successful learners seem to obtain greater benefit from graphic representations (Holley et al., 1979; Holley & Dansereau, 1984; Long & Aldersley, 1984; Mayer, 1989; Sinatra et al., 1984).

In summary, studies show that active engagement and interaction with material enhances learning. In addition, studies point out that a clear organization of knowledge promotes retention. Finally, studies suggest that converting prose presentations into visual displays facilitates comprehension.

Dual Coding Theory

The strengths of graphic representations have been supported by dual coding theory. Dual coding theory, proposed by Paivio (1971), assumes that the human cognition consists of

sub-systems for the representing and processing of information in the brain. One of the systems directs verbal processing and deals with linguistic information (words) in the long-term memory, which is stored in a linear fashion (Rieber, 1994). The other system governs non-verbal processing and deals with visual (mental-picture) information, which is believed to be holistic (Rieber, 1994). These two systems can be activated independently, but they are interrelated and process information simultaneously. The connection of the two systems allows the dual coding of information. Paivio (1986) summarizes these ideas in the following passage:

Human cognition is unique in that it has become specialized for dealing simultaneously with language and with nonverbal objects or events. Moreover, the language system is peculiar in that it deals directly with linguistic input and output (in the form of speech and writing) while at the same time serving a symbolic function with respect to nonverbal objects, events, and behaviors. Any representational theory must accommodate this dual functionality. (p. 53)

Research in educational and cognitive psychology has revealed that learning will be easier when information is coded by using both visual and verbal modes (Darch & Carnine, 1986; Mastropiero & Scruggs, 1997; Mayer, Bove, Bryman, Mars, & Tapango, 1996). In their review of “best practice” in reading comprehension for students with learning difficulties, Mastropiero and Scruggs (1997) suggest that visual spatial organization provides additional visual codes for the organization and presentation of information, which results in reading comprehension. “The more we use both systems of representation the better we are able to think about and recall knowledge . . . the effects on achievement are strong” (Marzano, Pickering, & Pollock, 2001, p. 73).

In summary, research in both educational and cognitive psychology, supports the use of graphic organizers in reading. Visual learning techniques stimulate a dual coding effect, which allows students to comprehend more information, associate it with other ideas, and incorporate new insights into their prior knowledge.

Cooperative Learning

In recent years, the incorporation of cooperative learning and graphic organizers has been strongly supported by a wide range of researchers (Avery & Avery, 1994; Baxendell, 2003; Bromley et al., 1995; Irwin-DeVitis et al., 1999; Egan, 1999; Scarcella & Oxford, 1992). The pedagogical premise underlying this notion is that cognitive psychology views learners as being placed in the center of learning and emphasizes the learner's active engagement with the learning process. "The responsibility for success rests with individual learners and with their ability to take full advantage of opportunity to learn" (Oxford, 1990, p. 11). Hence, students should gradually view themselves "not as an empty vessel to be filled, but explorers, perhaps, as information-seekers" (Day & Bamford, 1998, p. 166).

Graphic organizers can be constructed individually, in pairs and in group-work under various learning conditions. However, research suggests that pair- and group-work, in particular, should be encouraged (Avery & Avery, 1994; Egan, 1999). When students map in small groups, it promotes active engagement, reduces class tension, enhances learning, and promotes social interaction (Bromley et al., 1995; Egan, 1999; Irwin-DeVitis et al., 1999; National Reading Panel, 2000; Novak & Gowin, 1984). Bromley et al. suggest that students first generate a graphic organizer in groups, and then apply it independently. Hence, a graphic organizer can be seen as a highly effective tool for improving social interaction because it facilitates group work between students and teachers and among collaborative peers (Bromley et al., 1995, p. 6). Through collaborative activity, students learn how to organize their knowledge and, eventually, can use the graphic organizer independently as a learning strategy.

From the Vygotskian point of view, social interaction plays a significant role in individual cognitive development (Vygotsky, 1978). Students not only learn from the textbooks, but also benefit from some more knowledgeable peers to provide scaffolding to support their understanding (Marzano, Pickering, & Pollock, 2001; Pehrsson & Denner, 1989; Pressley & Hilden, 2002). Students learn to participate in learning activities that fall within

their zone of proximal development (Vygotsky, 1962). “In the group work mode of organization, much of the guidance comes from fellow students. The effort to understand the text is made jointly—that is, individual efforts are pooled and discussed in the hope of arriving together at the best interpretation” (Nuttall, 1996, p. 162).

Even though there are drawbacks to cooperative learning, for instance, some students do not work, or some keep providing wrong ideas, or students may get stuck sometimes, or this approach does not suit everyone, the advantages are great, particularly in terms of students’ motivation (Nuttall, 1996).

Bromley et al. (1995) claim that when used in group-work, graphic organizers enhance cooperation and that in turn facilitates discussion and sharing of ideas and information. This is important for the development of social skills in learning. “The process of creating, discussing, sharing, and evaluating a graphic organizer is more important than the organizer itself” (Bromley et al., 1995). As a result, linking cooperative learning and graphic organizers enhances reading comprehension and motivates students to learn (Avery & Avery, 1994; Bromley et al., 1995). “Students develop more positive attitudes toward the subject and the experience of learning because of the social aspect of working cooperatively. They are motivated to learn about the subject and are more actively engaged in their own learning” (Bromley et al., 1995, p. 42).

In recent years, the use of cooperative learning has been proven to have facilitative effects on EFL reading from secondary schools to colleges (Ghaith, 2003; Wang, 2003). However, as the use of graphic organizers in EFL reading is new, few studies have provided empirical evidence for the use of linking cooperative learning and graphic organizers in the EFL context.

Affective Learning

Research has shown that having learners generate their own graphic organizers improves

their learning attitudes (Governale, 1997). Brown (1994) suggests that if learners in classrooms have opportunities to “do” language to achieve competence and autonomy, learners have better chance of success. Additionally, Brown further points out that comprehending the big picture, learning cooperatively, and risk-taking can foster intrinsic motivation. Intrinsic motivation can be developed as an “internal process—a desire to learn because learning is a satisfying process for its own sake and is useful and applicable to many analogous situations” (Pehrsson & Denner, 1989, p. 203).

According to Alderson (2000), the reader’s motivation can relate to the quality of the outcome of reading. He points out that students who are extrinsically motivated tend to read “at a surface level, paying attention to facts and details rather than to the main ideas” (p. 53). However, more proficient students are generally intrinsically motivated to focus on higher-level understanding of how information parts in the text are related and how the information relates to the relevant knowledge structures.

In his book *A Theory of Education* (1977), Novak states:

Cognitive learning is accompanied by emotional experience, therefore affective development will be a necessary concomitant of cognitive learning. Emotional experience is most likely to be positive when instruction is planned to maximize cognitive learning, and hence positive affective development is greater when conditions that favor cognitive growth are present” (p.158).

In summary, cognitive learning theory emphasizes not only learners’ cognitive development, but also the role of emotional experience in learning. Learning will be enhanced when there is a positive interaction of cognition and affect.

The Drawbacks of Constructing a Graphic Organizer

As mentioned above, the effects of graphic organizers on promoting learning are due to the students’ active involvement in the mapping process. Accordingly, considerable effort and

time need to be invested (Jones et al., 1988). Therefore, in spite of the advantages of constructing a graphic organizer, there can be some drawbacks. First of all, constructing a graphic organizer consumes a great deal of time, since students must spend time and effort to think about what to include in the map (Anderson & Armbruster, 1984). McKeachie (1984) describes both the “drudgery” (p. 308) and the struggle that take place when students think about what ideas to include and what relationships to involve in order to portray them in a map.

Wandersee (1990) points out that when students identify relationships among the ideas, they sometimes need to paraphrase or create words or phrases to label these relationships appropriately. This may increase the difficulty students have when mapping.

Research has suggested that constructing a graphic organizer may increase cognitive load (Novak & Gowin, 1984). Nevertheless, McKeachie (1984) argues that it is this process of thinking and analyzing which leads to deep process and elaboration. This is important for comprehension, summarizing, and synthesizing. Therefore, Jones et al. (1988) argue that less successful students, in particular, derive greater benefit.

In summary, as Jones points out in the foreword to Heimlich and Pittleman (1986), semantic mapping “embraces a variety of strategies designed to display graphically information within categories related to a central concept” (p. v). Hence, while the graphic organizer promotes multi-faceted learning, research has also indicated there are some drawbacks when students are encouraged to generate their own graphic organizers.

Methodological Framework

In this section, the methodological framework based on second language (L2) acquisition research methods is discussed. This section consists of three parts. The first part addresses the complexity of conducting research on L2 acquisition. The second part discusses an overview of the methodological framework regarding L2 acquisition research. The final part focuses on

a personal account of the methods used in the present study.

According to Seliger and Shohamy (1989), the complexity of L2 acquisition makes it almost impossible to investigate L2 learning from a single perspective. The same writers argue that L2 research needs to consider many interrelated issues, including circumstances, research methods, tools, and measurements. The researcher's philosophy, the theoretical basis, research questions and research conditions may influence the selection of research methods. The tools used for data collection include observation, tests, interviews and measuring instrumentation (Brown, 1989).

Accordingly, it has been suggested that researchers need to draw on multiple-disciplinary knowledge to provide insights into the phenomena of L2 teaching and learning in order to consider appropriate methods and tools to explore different perspectives of L2 acquisition (Brown & Rogers, 2002; Seliger & Shohamy, 1989).

An Overview of Research Methods

Typical of the methods used in social studies, L2 acquisition research generally consists of both quantitative and qualitative research methods depending on the data collection, data analysis, and the degree to which the factors involved are controlled or manipulated (Bloland, 1992).

Quantitative Research Methods

Quantitative research design is based on the guidance of theory and explicates the results in precise detail (Neuman, 1997; Seliger and Shohamy, 1989). The researcher first decides on the topic, forms research questions and hypotheses, and then tests the hypotheses (Seliger & Shohamy, 1989). According to Dörnyei (2003), the main characteristic of quantitative research is that "it employs categories, viewpoints, and models that have been precisely

defined by the researcher in advance and numerical or directly quantifiable data are collected to determine the relationship between these categories and to test the research hypotheses” (p. 14). In other words, the researcher elucidates relationships among a number of variables statistically and is concerned with facts, prediction, and causation rather than the subjective nature of the participants (Bloland, 1992).

Seliger and Shahomy (1989) argue that experimental research controls or manipulates three factors: population, treatments and measurements of the treatments. The population and the treatment are viewed as independent variables. The population includes the types and number of participants. The treatment refers to controlled or intentional experience, such as teaching methods. The measurements of the treatments, which are considered as dependent variables, involve how the effects of the treatments will be assessed. The focus of quantitative research is on investigating specific aspects of L2 acquisition by means of tests or other measurements.

Wisker (2001) points out that quantitative research methods are a logical and easy option for data collection. These methods are generally used to investigate people’s attitudes, behavior, activities, or attitudes to a specific event. According to Dörnyei (2003), surveys regarding L2 research generally involve three categories: personal data, behavior, and attitudes. The personal data involves participants’ personal background relevant to the goals of the research, such as age, gender, residence, proficiency level, materials, parents’ language background, history of language learning, amount of time spent on L2 learning, etc. Behavioral questions concern participants’ behavior while learning an L2 or the frequency of using particular approaches. Attitudinal questions generally refer to attitudes, opinions, beliefs, interests and values.

Neuman (1997) suggests that measurements are indicators which are related to the construct and that the researcher must pay attention to reliability and validity. The researcher must first think about how to record and analyze data. The issues of reliability and validity have been noted in the context of L2 acquisition research as well (Brown & Rogers, 2002).

Dörnyei (2003) points out that due to the complexity of L2 acquisition, researchers usually tend to measure different aspects of L2 learning in one questionnaire. The scales should not be too long. Even when researchers use a short scale, Dörnyei suggests that the Cronbach alpha coefficient should not be lower than .60; otherwise the measuring instrument may not be reliable.

The advantages of applying quantitative methods are mainly cost-benefit. It is an easy option for the researchers as experimental methods consume less time, less effort, and less cost. Cost-benefit considerations are very important, particularly when researchers have a full-time job (Dörnyei, 2003).

The limitations of quantitative research methods are, however, that they tend to measure surface-level feelings (Coady, 2001). Therefore, these methods cannot probe an issue more deeply (Dörnyei, 2003). Similarly, Wisker (2001) states that, “statistics and number crunching are not the answers to understanding meanings, beliefs, and experience, which are better understood through qualitative data” (p. 137). It is suggested that researchers apply qualitative methods to capture, for example, students’ learning styles and approaches, as statistics may not be able to demonstrate the reasons of why and how students succeed or fail in their learning (Wisker, 2001).

In summary, quantitative methods are frequently used in L2 acquisition research for data collection. The major characteristic of quantitative methods is that they are hypothesis-driven. A complementary research method needs to be utilized if the researcher wishes to explore an issue deeply.

Qualitative Research Methods

According to Seliger and Shohamy (1989), a major contrast between quantitative and qualitative research is that the manipulation of factors in qualitative research is low. The researcher in qualitative study observes and describes participants’ behaviors and activities in

a natural setting. In recent years, qualitative research methods have been applied to the study of L2 acquisition. Seliger and Shohamy point out that the major reason is that most L2 acquisition concerns classroom learning, which is not easily controlled for experimental purposes. Hence, various sources of data collection are utilized to provide insights into specific behaviors or phenomena.

Interview is the one of the frequently used method in qualitative research (Rogers & Bouley, 1996). According to Patton (2002), interview is a face-to-face conversation, and is therefore a two-way communication and observation. “Qualitative interviewing is a kind of guided conversation in which the researcher carefully listens” (Gubrium & Holstein, 2001, p. 85). The purpose is to understand the participants’ experiences, perspectives, or feelings (Krueger & Casey, 2000). Accordingly, interviews “focus on a narrow range of topics and try to learn about these in details” in order to discover the meaning of what interviewees say (Rubin & Rubin, 2005, p. 13). Therefore, interviews are “complex, structured, interactive, and controlled” (Wisker, 2001, p. 168).

There are three main types of interviews, structured, semi-structured, and non-structured. Each type has different objectives. Nunan (1992) suggests that semi-structured interviews are frequently used by L2 researchers since semi-structured interviews provide a framework and allow for flexibility to probe for clarification and additional information (McDonaugh & McDonaugh, 1997). The chief characteristic of semi-structured interviews is that each interviewee is asked about the same issues (Flick, 1998). The advantages are that interviewees express various ideas and feelings (Patton, 2002). As a result, data will be rich and rewarding (Wisker, 2001).

Interviews can involve individual, face-to-face verbal interchange or face-to-face group interviewing (Fontana & Frey, 1998). Krueger and Casey (2000) have suggested that small groups consisting of six to eight participants are preferable. They allow the participants to share more experiences with the researcher and have more discussion about the topics raised during the interview. According to Fontana and Frey (1994, 2005), there are several

advantages of group interviews. Firstly, group interviews are time-efficient and inexpensive. In addition, the interaction between the respondents can help individual participants to remember issues that they may have otherwise forgotten, thereby yielding richer data. Finally, the skills needed by the researcher are not significantly different from those needed to conduct individual interviews.

However, Fontana and Frey (1994, 1998, 2005) also point out that the challenge of group interviews is greater due to the group dynamics. Therefore, the interviewer needs to have three specific skills. First, the interviewer should be able to prevent the domination of one person or a small group of people during the interview. Secondly, the interviewer must encourage silent respondents to participate. Thirdly, the interview should cover the topic and obtain information from each member in the group.

Ethics is another issue to be noted (Gubrium & Holstein, 2001). Wisker (2001) suggests that the researcher needs to ask for consent, and explain the purpose of the research and functions of the transcript. McDonough and McDonough (1997) note that the researcher should pay attention to confidentiality and privacy when dealing with the personal data.

With respect to the techniques used during the interview, Bogdan and Biklen (2003) remind the researcher to pay attention to the quality of data taping and transcribing. The researcher needs to ensure that recording is of sufficiently clear quality. When transcribing the data, in addition to recording respondents' words, some space should be left for researchers' comments or coding to weight the respondents' remarks appropriately (Krueger & Casey, 2000).

Although some researchers consider qualitative research approaches to be time-consuming (Lynch, 1992; Brown & Rogers, 2002), Patton (2002) argues that qualitative research can supplement quantitative findings in order to "add depth and detail to complete studies that use quantitative data where the statistical results indicate global patterns generalizable across settings or populations" (p. 193). In particular, Patton notes that

follow-up interviews can provide meaningful data to help with the interpretation of quantitative results.

In summary, qualitative research methods offer researchers deep insights into an issue. Interviews are one of the most common methods for collecting qualitative data. As suggested, semi-structured interviews are frequently used by L2 researchers. Interviews can be conducted individually or in groups. Regardless of the context or the purpose of the research, the issue of ethics should be understood and taken up by the researcher.

Research Methods Used in the Present Study

In the present study, both quantitative and qualitative methods were utilized in order to explore participants' L2 learning experience with the use of graphic organizers. The quantitative methods used were two reading comprehension tests and two attitudes questionnaires. These investigated the participants' attitudes toward English reading and graphic organizers. The qualitative methods used were face-to-face, group-interviews. The use of these research methods took both the methodological guidelines and the context of the present study into consideration.

Reading Comprehension Test

Alderson (2000) points out that a researcher's understanding of the construct of reading is crucial for the assessment of reading abilities. As most reading courses and reading teachers attempt to improve students' reading abilities rather than focusing on specific texts, reading tests focus more on how well the students can understand the texts rather than how well they can memorize the texts (Alderson, 1996).

Current reading theories support the view that the reading process involves the continuous and simultaneous interaction of various knowledge sources. This reading process

should be reflected in reading tests (Eskey, 1988). Moreover, tests also need to mirror the teacher's teaching style as reflected in the syllabus (Hefferman, 2004). Brown (1994) suggests that teaching and testing are interdependent. Reading tests should take into account the students' prior knowledge by including actual texts that have been learned in class (Alderson, 1996; Hefferman, 2004; Sequera, 1995).

The "gapped summary" (Alderson, 1996) and provision of a "word bank" (Cross, 1991) were used as the principle guidelines for the design of reading comprehension tests in the present study. The characteristic of gapped summary tests, a sort of cloze test proposed by Alderson (1996), is that the teacher summarizes the content of a material and leaves the key words or phrases blank. The students are required to fill in the blanks with appropriate words or phrases from the contextual clues. The testing skills require both top-down and bottom-up processing. The test-takers must not only know the meaning of the words, but also have a "big picture" of the content.

Personal perspectives. Prior to this study, the researcher had used gapped summary in different classes to assess students' EFL reading comprehension. Hence, the researcher had accumulated a certain amount of experience in this kind of test design. The advantages of gapped summary tests are stated as follows:

1. These tests require the students to understand the text content and integrate information parts into a complete picture rather than just memorizing.
2. These tests require students to infer and think in order to figure out appropriate words or phrases from the contextual clues.
3. These tests reduce cheating during tests, as thinking takes time.
4. These tests can form "washback effects" on students' learning to focus student's attention not only on important information presented in the text, but also on macro-understanding.

The accompanying word bank, as suggested by Cross (1991), provides necessary words and phrases to fill in the blanks. However, the words are arranged in a mixed order. The test-takers must know the exact meanings of the words or phrases to be able to fill in the blanks. The advantages of providing a word bank are as follows.

1. As the nature of the tests causes anxiety (Brown, 1994), the provision of a word bank reduces test anxiety.
2. The word bank decreases the load of memorizing vocabulary for EFL students. For many EFL learners, memorizing vocabulary is a painful experience, as words learnt by rote are easily forgotten (Goetz, 1984; Wittrock, 1990).
3. As graphic organizers focus on important information in a text, words included in a word bank are key words or phrases. The bank helps the students to focus on the important words in a text and thereby reduces the density of word coverage.

However, although there are so many advantages of gapped summaries, they are not without their difficulties and limitations. The difficulties are stated as follows.

1. When linking the key information of the text, paraphrasing or creating linking words and phrases is a necessity. The researcher took the participants' English proficiency into careful consideration. As a teacher's English proficiency level is generally higher than that of the students, the linking words or phrases may go beyond the average student's vocabulary range. Therefore, the researcher added Chinese translation to the words in the tests (See Appendix 10).
2. As the gapped summary tests emphasize the interactive view of reading, they may be very different from traditional tests, which focus on the bottom-up mode of learning. Practice tests will be necessary to assist students to adapt to this type of test.

The limitations are that the tests may be subjectively determined by the teacher as the key ideas are selected and organized based on the teacher's interpretation. According to schema theory, reading comprehension is closely related to the reader's prior knowledge and experience, and is, therefore, an interaction between the reader and the text (Alderson, 2000; Rumelhart, 2004). The reader's background knowledge and experiences influence his/her interpretation of the information encountered, as "different readers will develop somewhat different understandings of what a text 'means'" (Alderson, 2000, p. 6). Therefore, a teacher's understanding of a text may differ from that of the learner. This may affect the outcomes of the students' reading performance.

In summary, in the context of EFL reading in the present study, several perspectives drawn from the researcher's experience of constructing gapped summary tests to assess the students' EFL reading comprehension has been discussed. However, in reviewing the relevant literature, no studies of this kind of test have been empirically conducted in the EFL context. Therefore, this issue is open and further investigation is required.

Second Language Reading Attitude Model

In the present study, the investigation of English reading attitudes was conducted both quantitatively and qualitatively. The fundamental principle upon which the research was based is that which underlies the Second Language Reading Attitudes Model developed by Day and Bamford (1998).

Day and Bamford's model (1998) is possibly the only one relevant to L2 reading attitudes (Mori, 2002; Yamashita, 2004). This model was developed based on reading attitudes models developed by Mathewson (2004) and McKenna (1994) in first language reading (L1). The former stresses the interaction of affective factors with cognitive factors during reading (Mathewson, 2004). The latter suggests that reading attitudes are influenced by both the present environment and past reading experiences, while the reading experience is of

greater importance than environment (McKenna, 1994). Similarly, Day and Bamford's model also emphasizes the critical role of attitudes in second language reading (L2).

Day and Bamford's (1998) model suggests that four sources influence the acquisition and development of second language reading attitudes. The sources are: (a) first language reading attitudes; (b) previous experiences with learning to read other languages; (c) attitudes toward the second language, culture, and people; and (d) the second language classroom environment.

Masgoret and Gardner (2003) define attitudes in the classroom environment as: "Attitudes toward the learning situation refer to individual reaction to anything associated with the immediate context in which the language is taught" (p. 127). Mathewson (2004) and McKenna (1994) suggest that classroom activities, teaching/learning strategies, and teacher's attitudes toward reading have crucial impact on the learner's reading attitudes. With respect to the second language classroom environment, Day and Bamford (1998) state:

Favorable feelings for and experiences with the teacher, classmates, materials, activities, tasks, and so on, can forge positive attitudes toward reading in the second language. Unfavorable feelings and ongoing experiences can lead to negative attitudes. (p. 25)

It has also been suggested that attitudes are not set in concrete, but can be changed (Day & Bamford, 1998; Scarcella & Oxford, 1992). In order to make attitude change successful, Day and Bamford suggest that teachers need to understand the sources of the students' positive or negative attitudes, as many variables are associated with attitude change.

The collection of qualitative data enables researchers to gain a deeper understanding of an issue. Therefore, semi-structured group interviews were utilized in the present study. The interview questions were based on two sources in Day and Bamford's (1998) Second Language Reading Attitude Model. The two sources are (a) previous experiences with learning to read other languages, and (b) the second language classroom environment.

In the present study, the students' attitude towards reading in English and their attitudes towards the use of the two generating types of graphic organizers were investigated both quantitatively and qualitatively. The quantitative data was collected via the English Reading Attitudes Questionnaire (ERAQ) developed by Hung's (2000) master's thesis. The ERAQ used in the present study was the revised version based on Chiu (1999). An outstanding EFL reading educator in Taiwan supervised both theses. Therefore, this questionnaire was seen as the best available instrument developed in Taiwan. The qualitative data was collected by means of semi-structured, group-interviews.

Regarding the participants' attitudes toward the use of the two generating types of graphic organizers, a questionnaire was developed by the researcher based on Chyuan (1992). Qualitative data was also collected via semi-structured, group interviews in order to understand the students' attitudes towards the use of graphic organizers in EFL reading.

Personal perspectives. The use of semi-structured group interviews in the present study took the following aspects into consideration.

1. The semi-structured interview provides a framework and allows for flexibility (McDonough, 1997). In the pilot study prior to the present study, semi-structured focus-group interviews were conducted. The researcher found the data rich and rewarding, as suggested by Wisker (2001).
2. Based on the researcher's experience of teaching, less proficient students were recognized to be afraid to talk to the teacher. Therefore, it was thought that individual face-to-face interview might frighten these students.
3. When students are interviewed in groups, similar and different experiences or ideas can be evoked and active discussion encouraged, as suggested by Fontana and Frey (1998, 2005).
4. In the present study, as forty-six students agreed to accept the interview, group-interviews were time-efficient.

In addition to the above aspects, preparations in advance of the interview such as the selection of interview sites, the interview questions, as well as the choice of the interviewer should be taken into consideration.

1. Selection of interview sites. Patton (2002) has suggested that interviews uncover the interviewees' experiences. Therefore, privacy and confidentiality are important. Therefore, in order to protect the interviewees' privacy, the interview sites selected in the present study were quiet and secure. Moreover, Creswell (1997) points out that quiet settings also assure the accurate recording of information.
To make the interview climate easy and comfortable, soft drinks and snacks were also prepared by the researcher before the interview and participants were invited to snack as they talked. Krueger and Casey (2000) have suggested that eating together tends to promote communication and conversation.
2. Several copies of the interview questions with clear wording and short questions (Patton, 2002) were prepared and given to the students before the interview so that the students would know what the interview topic would cover.
3. Fontana and Frey (1998, 2005) suggest that group-interviews are more challenging, as more skills are required due to group dynamics. The researcher in the present study had received sound training in counseling and worked as a volunteer school counselor for more than ten years. This experience was helpful in conducting group interviews.
4. The researcher discovered that empathetic listening was crucial when conducting interviews. This encouraged the students to recount their experience in much greater detail that they might have in another context.
5. The researcher discovered that a small number of students remained silent. But these students eventually joined the discussion when encouraged by their friends.

6. Few dominant persons were found in the interviews, as each group consisted of four to six students and each one was encouraged by their friends to speak.
7. However, as the students usually came with their friends, they sometimes chatted about something irrelevant to the interview topic. Under these circumstances, the researcher had to wait patiently and before moving the conversation back to the topic of the interview.

In summary, in the present study, English reading attitudes were investigated both quantitatively and qualitatively. The quantitative data was collected via a questionnaire, while the qualitative data was collected by means of semi-structured group interviews. Both quantitative and qualitative data collections were based on Day and Bamford's (1998) Second Language Reading Attitude Model.

Research Hypotheses

Based on the literature review in Chapter 2 and the theoretical and methodological framework, the following hypotheses are addressed according to the research questions given in Chapter 1

Hypothesis 1.1 stated that there would be a significant difference between the use of teacher- and student-generated graphic organizer on participants' reading comprehension, as measured by the Pre- and Post-reading Comprehension Test.

Hypothesis 1.2 stated that there would be a significant difference between teacher- and student-generated graphic organizers on high-scorers' reading comprehension, as measured by the Pre- and Post-reading Comprehension Test.

Hypothesis 1.3 stated that there would be a significant difference between teacher- and student-generated graphic organizers on low-scorers' reading comprehension, as measured by

the Pre- and Post-reading Comprehension Test.

Hypothesis 1.4 stated that there would be a significant difference between high- and low-scorers' reading comprehension after the use of teacher-generated graphic organizers, as measured by the Pre -reading Comprehension Test.

Hypothesis 1.5 stated that there would be a significant difference between high- and low-scorers' reading comprehension after the use of student-generated graphic organizers, as measured by the Pre-reading Comprehension Test.

Hypothesis 2.1 stated that the teacher-generated graphic organizers would have a significantly positive impact on all participants' attitudes towards EFL reading when compared to the none use of graphic organizers as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.2 stated that the student-generated graphic organizers would have a significantly positive impact on all participants' attitudes towards EFL reading when compared to the teacher-generated graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.3 stated that the teacher-generated graphic organizers would have a significantly positive impact on high-scorers' attitudes towards EFL reading when compared to none use of graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.4 stated that the student-generated graphic organizers would have a significantly positive impact on high-scorers' attitudes towards EFL reading when compared to teacher-graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.5 stated that the teacher-generated graphic organizers would have a significantly positive impact on low-scorers' attitudes towards EFL reading when compared to none use of graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.6 stated that the student-generated graphic organizers would have a significantly positive impact on low-scorers' attitudes towards EFL reading when compared to

the teacher-graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.7 stated that there would be a significant difference between high- and low-scorers' attitudes towards EFL reading at the initial stage when none use of graphic organizers, were employed as measured by the Graphic Organizers Attitudes Questionnaire. .

Hypothesis 2.8 stated that there would be a significant difference between high- and low-scorers' attitudes towards EFL reading after the use of teacher-generated graphic organizers, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 2.9 stated that there would be a significant difference between high- and low-scorers' attitudes towards EFL reading after the use of student-generated graphic organizers, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 3.1 stated that there would be a significant difference in all participants' attitudes towards the use of teacher- and student-generated graphic organizer, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 3.2 stated that there would be a significant difference in high-scorers' attitudes towards the use of the two types of graphic organizer, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 3.3 stated that there would be a significant difference in low-scorers' attitudes towards the use of the two types of graphic organizer, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 3.4 stated that low-scorers' attitudes to teacher-generated graphic organizers would be significantly different from that of the high-scorers, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 3.5 stated that low-scorers' attitudes to student-generated graphic organizers would be significantly different from that of the high-scorers, as measured by the Graphic Organizers Attitudes Questionnaire.

Summary

Cognitive psychology has broad applications to much research on reading. The core concept of cognitive psychology is that the learner plays a central role in learning. Cognitive theorists believe that reading is an active process of meaning construction. During this process, the learner's prior knowledge, experience, motivation, and strategies operate simultaneously. Therefore, cognitive learning theories not only pay attention to the cognitive dimension, but also social and affective elements of learning. These three elements are interdependent and need to be explored in a balanced way.

Schema theory explains the process of how human minds store and interpret information. Schema theory emphasizes the critical role of prior knowledge in learning. Prior knowledge is stored in human memories as schemata or concepts. Schemata can be differentiated into more specific concepts, which are interrelated in propositional networks. These networks assist learning by means of association and inference, and thereby enhance retention, retrieval, and comprehension. Failure to activate appropriate schemata will hinder comprehension.

Dual coding theory assumes that the human mind has two different systems—one verbal and the other visual. These two systems direct information processing in different ways. Although the two systems can be activated independently, they are interconnected. The operation of the connections promotes retention and recall.

In recent years, educators have noted the importance of social interaction in learning. Even though there are some drawbacks to cooperative learning, the important advantages are that discussion among, and guidance from, group members not only reduce anxiety, but also enhance motivation. Since the activity of generating graphic organizers suits cooperative learning, the incorporation of these strategies has been advocated strongly by the research community.

Due to the complexity of L2 acquisition, experts in this area suggest that L2 learning should be investigated using multiple perspectives and methods. Both quantitative and

qualitative methods are applicable to L2 acquisition research. The characteristics of quantitative methods are that these methods are deductive, based on theory, and the degree of manipulation is high. The advantages of quantitative methods are that they are not only cost-efficient, but also can be used in large-scale studies. The limitation of quantitative research is that deeper understandings of a complex issue may be hindered.

The characteristics of qualitative methods are that they are inductive and are based on the participants' perceptions. The degree of manipulation is low. A common method of collecting data is by means of interviews. The major advantage of qualitative research is that a question can be explored deeply. Qualitative findings can supplement quantitative results by providing significant details for a deeper understanding of specific phenomena in L2 acquisition.

Based on the aforementioned theoretical framework and the methodological guidelines, the research design of the present study takes multiple perspectives into consideration. On the conceptual level, the present study paid attention to the cognitive, social, and affective aspects that impinge on EFL reading. With respect to methodology, both quantitative and qualitative methods were utilized in the present study in order to capture a complex understanding of the use of graphic organizers in EFL reading.

CHAPTER 4

THE PRESENT STUDY

“Using both qualitative and quantitative methods may provide alternative views of the same classroom phenomena.” (Ross, 1992, p. 169)

In order to address the research questions and hypotheses, both quantitative and qualitative data were collected (three measuring instruments, one questionnaire, and student interviews) in the present study. Following are details of the context of the course, the characteristics of the sample, description of the measuring instruments, and procedures followed to collect the data.

Participants

Participants in this study were 50 female students enrolled in the nursing department of a college of medical technology in Taiwan. It was a natural group in that the group existed prior to the commencement of the study. Participants' mother tongue was Mandarin, and all participants had been learning English as a foreign language for at least six years. Participants' background information was collected via the Personal Data Questionnaire (PDQ) (see Appendix 1). The setting of the present study was a compulsory English course for all tertiary first-year students in an intensive program of General English during 2003. The duration of the course was four hours per week over sixteen weeks. The course instructor was the researcher.

Personal Data Questionnaire (PDQ)

The Personal Data Questionnaire consisted of seven variables inquiring about

participants' background information. The variables included three categorical variables and four continuous variables. The categorical variables contained participants' residence, high schools they had attended and whether or not they had attended cram school. The continuous variables were comprised of participants' age, number of years English had been studied, number of weekly English hours at high schools, and their English score on the standardized Joint College Entrance Examination (JCEE) in 2003 (see Appendix 2 for details of the JCEE).

Participants' age ranged from eighteen to twenty-one years of age, and the average was nineteen years old. Participants had graduated from ten different schools in eight cities throughout Taiwan. Participants had studied English from six to ten years. This is an indication that the majority of the students had started learning English at cram schools since they were at primary schools, while a small minority started learning English only when they entered junior high schools. The average years of studying English was seven years. Participants' English hours per week ranged from two to eight hours, and the average weekly English hours was approximately four hours. For details of comprehensive descriptive statistics, refer to Table A3.1 to Table A.3.7 in Appendix 3.

Classification of English Proficiency Level

Participants' JCEE score was used to classify the participants into two groups of approximately equal numbers. The English proficiency group classification (high- versus low-scorers) was used in order to compare differential effects of the two different graphic organizers strategies on reading comprehension, attitudes towards English reading, and responses to the use of graphic organizers.

Participants who scored 38 and below were designated to be in the low-scorer group (48% of the participants), while participants who scored higher than 38 were designated as high-scorers (52%). Additionally, according to You's study (2004) the average JCEE English score of tertiary students of the Technological Vocational Education System (TVES) in year

2003 was 37. Refer to Table A3.7, in Appendix 3, for detailed descriptive statistics.

Utilizing an Independent T-test (SPSS, 2004), it was found that there is a significant JCEE score difference between the two groups of students ($t = 10.72$, $df = 48$, $p < .05$). As shown in Table 4.1 the mean score of the high-scorers' JCEE was higher by 20.22 points than that of the low-scorers. See Table A3.8 in Appendix 3 for details of descriptive statistics of the two group students.

Table 4.1

Independent t-test of High- and Low-Scorers' JCEE English Score

| Group | N | Mean | SD |
|-------------|----|-------|------|
| Low-scorer | 23 | 28.22 | 5.78 |
| High-scorer | 27 | 48.44 | 7.30 |

In summary, the Personal Data Questionnaire (PDQ) was utilized to collect participants' background information. One variable—English score of Joint College Entrance Examination (JCEE)—was used to categorize the participants into the groups of high- and low-scorers. The statistical analysis indicated that was significant difference in JCEE English scores between the high- and low scorers.

Textbook

The 2003 textbook by Soars and Soars, *American Headway 3*, was used in the present study. The selection of this textbook took into consideration the following perspectives of reading specialists.

1. McDonough (2002) points out that a textbook plays a significant role for teachers and

students in an L2 classroom. He states:

For many learners, [textbooks] contain the only samples of the language they are exposed to, the range of modes of the delivery depending on the modernity and sophistication of the materials . . . In some contexts, particularly, where the teachers do not have confidence in their own proficiency in the L2, the materials represent both the language and the syllabus through which the language is delivered . . . Materials also embody the representation of culture, both of the L2 and often of the L1, in the tension that exists between giving language that learners can imagine using in familiar situations and language that is typically used in the L2 culture or cultures. (pp 118-119)

2. Similarly, Eskey (1997) and Day (1994) also emphasize that the selection of an appropriate text is critical. They claim that reading teachers should give great consideration to language and content when selecting reading passages, since a textbook is probably the major source of learning for L2 students. The texts enable learners to utilize linguistic knowledge and relevant background knowledge to construct meaning from the text. Students, who have difficulties with either source of knowledge, will have problems in reading.
3. Furthermore, L2 reading specialists (Carrell, 1984b; Coady, 1979; Davies, 1995; Farnan, Flood, & Lapp, 1994; Nuttall, 1982, 1996; Scarcella & Oxford, 1992) point out that interest is a very significant factor in choosing a textbook, as interest is important in relation to motivation (Day, 1994; Kristmanson, 2000; Smith, 1991). In terms of selecting texts that interest L2 learners, Nuttall recommends that the texts should take the following aspects into consideration: (a) the texts should contain reasonable amount of information that students may not know; (b) the new information should stimulate the students to explore new ideas; (c) and the text should enable students to understand how people from different cultures think or feel and motivate students to read further.

Readability of the Textbook

Readability refers to the structural and lexical difficulty of reading passages (Nuttall, 1996). Carrell (1987b) views readability as an important factor other than interest. She points out that the text should be meaningful, that is, the text should be relevant to the learner's background knowledge, including language schemata, content schemata, and formal schemata. Background knowledge and interest have been considered as two of the most important factors in selecting a text (Coady, 1979).

The textbook, selected in the present study, is assessed as being at the seventh grade level, based on Fry's Readability Formula (Fry, 1977). Besides taking account of learners' interest and relevant background knowledge in selecting a suitable text, as suggested by reading specialists (Carrell, 1984b; Coady, 1979; Davies, 1995; Day, 1994; McDonough, 2002; Nuttall, 1982, 1996), the textbook used in this study was also chosen for following reasons:

First, the textbook contained colorful pictures with topics, which might interest the students;

Secondly, each unit contains headings which help the readers identify the main ideas of the proceeding section (Askov, 1991); and

Finally, as the transition from high school to college involves greater complexity and quantity in English, the selected English reading material for first-year tertiary students needs to bridge the gap.

Contents of the Textbook

The textbook was accompanied by a Student Book, a Workbook, a Teacher's Book, and a Teacher's Resource Book. The Student Book consisted of twelve units and a CD. From these twelve units, eight were selected by the researcher and the students (Mizokawa & Hansen-Krening, 2000). The units selected were 1, 2, 4, 5, 6, 7, 8, and 9 (see Appendix 4 for

content of these texts). Each unit contained three main sections: grammatical features of each unit, the reading passage and vocabulary. The instruction of each unit followed this sequence. Extra grammatical exercises were provided from the exercises in the Workbook. These reading passages were all expository texts.

Instructional Procedure

In order to avoid the drawbacks of the grammar-translation method and, in particular, to guide the students in constructing a graphic organizer, the instruction procedures adopted both bottom-up and top-down approaches. The instructions consisted of three stages, including pre-reading, during-reading, and post-reading.

Pre-reading Stage

At the beginning of learning each reading passage, the pre-reading activities provided in the textbook were used. In addition, the students were required to look at the title and pictures to predict the content of the text. Following this procedure students brainstormed possible key ideas contained in the text. These key ideas were written on the blackboard, translated into English, and categorized into groups.

In relation to the reading passage, the researcher offered a vocabulary list in the present study (an example is provided in Appendix 5). The supply of the vocabulary was based on two major reasons. First, L2 reading specialists have constantly emphasized the critical role of word recognition and vocabulary knowledge with regard to reading comprehension (Eskey, 2005; Grabe, 2004; Scarcella & Oxford, 1992). Therefore, it is important for teachers to pre-teach unfamiliar words to foster the acquisition of the second language (Carrell, 1988a; Grabe, 1995; O'Donnell & Wood, 2004; Rost, 2005). Similarly, Nation (2005) points out the importance of pre-teaching vocabulary to provide word definitions, especially if the learners

are familiar with less than 95% of the sight words in a text. Cross (1991) also suggests that teachers can show the verbal meanings of the words by means of synonyms in the target language. Sometimes translations in the learners' mother tongue when explaining the word meanings can save much time.

Second, research findings reported by English educators at technological colleges in Taiwan indicated that tertiary students at technological colleges are weak at pronunciation and have insufficient vocabulary size (Hsu, 2003; Huang, 2001, 2004; Lin, 1996; Lee, 2004). Hence, a vocabulary list was supplied and taught as part of the pre-reading activities. This enabled the teacher to lead the students to practise pronunciation and supply appropriate word meanings.

However, in order to prohibit students' passive listening and copying the teacher's explanations, two major steps were adopted. First, new vocabulary/idioms were selected and handed out to the students at least one week before learning the new unit so that the students were required to prepare in advance. Secondly, the new vocabulary was explained using as many English synonyms as possible. Chinese translation was also used if the vocabulary was too complex and too time-consuming to explain in English (Allford, 1995).

During-reading Stage

In the during-reading stage, the instruction proceeded basically through silent reading or reading aloud, and questions and answers (see Appendix 5 for an example of the questions). If the paragraphs in each unit were short and did not contain many new words, the students could read either silently or practise in pairs or groups. The instructor moved around and provided assistance, if needed. If the paragraph was long and contained many new words, the teacher read aloud, and the students repeated what was read to them. After that, the students were checked for their pronunciation.

The questions and answers were used to assist students' literal and global comprehension.

The students had to understand facts and details (key ideas) as well as main ideas of each paragraph. This procedure led to the post-reading activities—the construction of graphic organizers.

Post-reading Stage

In the present study, both teacher- and student-generated graphic organizers were used as post-reading activities. Barron and Schwartz (1984) suggest that graphic post-organizers help students not only to review and re-learn the new vocabulary but also to relate the concepts to the existing knowledge structure in an organized manner.

The hierarchical format was used in the present study. This was based on the following notions suggested by the relevant literature. First, it has been suggested that expository texts are hierarchically constructed with main ideas, subordinate ideas and supporting details (Askov, 1991; Sinatra, 2000; Sinatra & Pizzo, 1992). In addition, Vacca and Vecca (1999) point out that the tree diagram is a common configuration that represents the hierarchical relationships among concepts.

The teacher-generated graphic organizers were constructed during the first phase of the experiment as a post-reading activity (see Appendix 6 for teacher-generated graphic organizers). The purpose was to help students understand the functions of graphic organizers. The other two teacher-constructed graphic organizers were partially completed with key vocabulary and/or linking phrases/words left blank (Appendix 6). The students were required to fill in the blanks with appropriate words/phrases. The purpose was to help the students to select key ideas and identify relationships between those ideas in order to organize the text information into a complete picture (Alvermann & Boothy, 1982). After the maps were completed, the teacher read aloud the content of the map as a summary of the text learned.

In the second phase of the experiment, the students constructed graphic organizers independently, in small groups. The training procedure followed the scaffolding principles of

modeling, guided practice, and independent application (Sinatra, 2000) (see Appendix 7 for the training procedure). The students were allowed to form their own groups. Eventually, each group was made up of high-, average-, and low-scorers.

The independently completed graphic organizers were handed in for the teacher to check whether there were any misunderstandings, errors, or even difficulties revealed in the students' maps. The teacher then discussed with the students any problems shown in their maps, after which the students were required to revise their maps (see Appendix 8 for examples of student-generated graphic organizers). After the discussion, some of the completed graphic organizers were randomly selected to be presented in front of the class as a retelling and summarizing activity, considered important for language development (Sinatra & Pizzo, 1992).

Additionally, in order to ensure that each student was familiar with the mapping techniques and could transfer these mapping skills to further readings, individual graphic organizers were generated after each session of group-graphic organizers. During class, the individual students were required to map the textbook's passages entitled "Debbie's Problem Page" and "Finally He Passes!" (see Appendix 4 for the contents of the two reading passages and Appendix 8 for the students' individually generated graphic organizers).

In summary, the selection of the textbook used in the present study took the perspectives of interests, background knowledge, and readability into consideration. The instructional procedures were designed to assist the participants to capture main ideas and supporting details necessary for the construction of graphic organizers as post-reading activity. The mapping procedures followed the scaffolding principles.

Data Collection

The present study was a one-group, pre- and post-treatment tests design. Seliger and Shohamy (1989) claim that while this type of research design is effective and efficient,

disadvantages such as extraneous factors may impact on the results of the treatment. However, Seliger and Shohamy point out the influence of extraneous factors was less powerful in EFL than in ESL settings, due to the amount of language input.

Moreover, Nunan (1992) notes that it is inevitable that a one-group study be conducted in terms of L2 study, as: (a) it was difficult to find two equivalent groups, a control and an experimental; and (b) it was not feasible to assign participants randomly to a experimental and control group. Nevertheless, Nunan suggests that two aspects should be taken into consideration by the one-group pre- and post-treatment research design. First of all, the pre- and post-treatment tests should be managed carefully. Secondly, it is important to collect qualitative data. "Such qualitative information is often crucial for the interpretation of quantitative data" (Nunan, 1992, p. 41).

Accordingly, the data collection in the present study adopted both quantitative and qualitative research methods. As for quantitative collection, three measurements were utilized. With respect of qualitative data collection, participants were interviewed for their experiences in terms of their previous English learning and of experiences with the two different types of graphic organizers used as post-reading activities.

Quantitative Data

The quantitative data collection consisted of three measurements, including two reading comprehension tests, English Reading Attitudes Questionnaire and Graphic Organizers Attitudes Questionnaire. Detailed descriptions of the measurements are presented in the following sections.

Reading Comprehension Tests

Comprehension test results were reported as the most frequently investigated learning

measure in the studies of graphic organizers (Strangman et al., 2002). Several previous studies employed teacher-made reading comprehension tests (Bulgren et al., 1988; Willerman & Mac Harg, 1991).

In the present study two reading comprehension tests (a mid-term and a final examination) were employed. The mid-term examination (the pre-reading comprehension test) was administered after the teacher-generated graphic organizer post-reading activity. The final examination (the post-reading comprehension test) was conducted after the student-generated graphic organizers. Both pre- and post-comprehension tests consisted of different contents based on Ebel and Friesbie's (1991) notion that repeated use of the same test may result in students' memorization of the test items.

The mid-term and final examinations consisted of two major sections testing reading comprehension and grammar knowledge. The reading comprehension test contained two units. According to Aebersold and Field (1997), teachers can construct a completion task, such as gapped summary. Aebersold and Field suggest that this kind of completion exercise can be useful as "it demands production of language and may reveal a good deal about the student's comprehension of the full text" (p. 168). Likewise, Burns, Roe, and Ross (1999) also suggest that this sort of cloze procedure creates a situation in which students are required to use their linguistic and semantic knowledge to fill in the blanks.

Before conducting the tests, practice with comparable tests was conducted to assist participants to become familiar with the test forms (Brown, 1994).

Preparation for the test. Ebel and Frisbie (1991) point out "If a test is to have the desirable effects in motivating and directing efforts to learn, students need to know . . . what kinds of achievement the test will require them to demonstrate" (p. 199). Additionally, according to Hsu (2003), mapping techniques were not sound in high schools in Taiwan. On the basis that the students might not have had experience with this sort of test before, one assignment and one quiz were provided in advance of the reading comprehension tests as practice (see Appendix 9).

The reading comprehension tests consisted of pre- and post-comprehension tests. The test construction had clear objectives and was carefully edited and revised (Brown, 1994; Nunan, 1992).

Pre-reading comprehension test. The pre-reading comprehension test (RCT) was employed after the teacher-generated graphic organizers. The pre-reading comprehension test was conducted as the mid-term examination (see Appendix 10) based on the reading texts of “World Guide to Good Manners” and “My kind of Vacation” (see Appendix 4). The graphic organizers of the two texts constructed by the researcher are presented in Appendix 6.

The mid-term examination contained two sections, including two comprehension tests and one grammar test made by the researcher. The reading comprehension tests were in the form of a “gapped summary” (Alderson, 1996) with a “word bank” (Cross, 1991) provided. According to Alderson, in a test of gapped summary, the key ideas are removed and the students fill in the missing words. The task requires students to understand the main ideas to restore the missing words. Marking is straightforward and the student’s need to write is reduced to the minimum.

In the mid-term examination, the reading comprehension tests had thirty-two blanks with a total score of sixty-four points. The grammar section consisted of eighteen multiple-choice questions and with a total score of thirty-six points. The grammar test was a mixture of grammar exercises in the Student Book and Workbook. The students had to be familiar with the usage of the grammatical rules. The total score of the mid-term examination was one hundred points.

Post-reading comprehension test. The final examination was a post-reading comprehension test, which was used to assess the impact of students-generated graphic organizers on the students’ reading comprehension. The final examination (see Appendix 10) consisted of the same sections as the mid-term examination. The two reading comprehension tests were based on reading texts of “The Trapeze Artists” and “Who wants to be millionaire? We do.” (see Appendix 4). The content of the mid-term and final examinations was examined

by the English Teachers Committee of the researcher's college. The examinations took place in the classroom and the testing time was 50 minutes.

English Reading Attitudes Questionnaire (ERAQ)

The ERAQ (Appendix 11) was adopted from Hung's (2000) master's thesis, who investigated the effects of Constructive Reading Courseware (CRC) on junior high school students' English reading comprehension, reading attitudes towards English, perception of reading and response to CRC after the experiment.

Based on Day and Bamford (1998), Hung's (2000) English Reading Attitudes Questionnaire was employed in the present study to explore participants' attitude toward EFL reading. The ERAQ contained twenty-two items. However, item seven was removed, as it was irrelevant to the purpose of the questionnaire. The reliability of the ERAQ in the pilot study was .89. (See Appendix 12 for the descriptive statistic of the pilot study.)

The ERAQ was administered three times in the present study. The pre-ERAQ test was conducted at the beginning of this study, while the mid- and post-ERAQ were conducted after the implementation of teacher-generated and student-generated graphic organizers. The purpose was to explore probable changes in the participants' attitudes towards EFL reading.

Graphic Organizer Attitudes Questionnaire (GOAQ)

The GOAQ in the present study (see Appendix 13) was developed from Chyuan's (1992) Concept Mapping Attitudes Questionnaire (CMAQ). In Chyuan's (1992) study, the questionnaire (see Appendix 14) was used to investigate the learning attitudes of non-science students after studying a physics concept map in the National Taipei Teachers College (NTTC). In addition, the differences of the attitudes between non-science students at the NTTC and at Ohio State University (OSU) in the United States were compared.

Chyuan's (1992) Concept Mapping Attitudes Questionnaire (CMAQ). Chyuan's CMAQ consisted of twenty-one items measured by seven scales. The seven scales were: (a) "strongly disagree"; (b) "disagree"; (c) "slightly disagree"; (d) "neutral"; (e) "slightly agree"; (f) "agree"; and (g) "strongly agree". The scoring weights were 1 to 7, namely "strongly disagree" scored "1"; "disagree" scored "2"; "slightly disagree" scored "3"; "neutral" scored "4"; "slightly agree" scored "5"; "agree" scored "6"; and "strongly agree" scored "7". The items were categorized into three factors: (a) attitudes towards constructing a concept map; (b) attitudes towards using concept mapping in learning; and (c) attitudes towards using concept maps to learn key concepts.

The descriptive statistics in Table 4.2 show the concept-mapping attitudes of participants from National Taipei Teachers College (NTTC) and Ohio State University (OSU), while Table 4.3 depicts the descriptive statistics of the three factors described above. Table 4.4 shows the comparison of the participants' attitudes towards concept mapping from the two universities.

Development of Graphic Organizer Attitudes Questionnaire (GOAQ). Permission to use Chyuan's (1992) questionnaire in the present study was obtained from Professor Chyuan personally in 2002. The terms of "physics" and "concept mapping" were converted into "English reading" and "graphic organizers". Chyuan's questionnaire was piloted (see Appendix 15 for the descriptive statistics summary of Chyuan's questionnaire in the pilot study).

In addition to the questionnaire, the students were also asked to provide their evaluation on the use of graphic organizers in English reading. Based on the students' comments, eleven items (1, 3, 4, 8, 9, 10, 11, 12, 13, 20, and 21) in Chyuan's (1992) questionnaire were kept, while the others were replaced by thirteen items (2, 5, 6, 7, 14, 15, 16, 17, 18, 19, 22, 23, and 24). The reliability of GOAQ in the pilot study was .82. (See Appendix 16 for the descriptive statistic summary of the GOAQ in the pilot study).

Table 4.2

Descriptive Statistics of Concept-Mapping Attitudes Questionnaire (CMAQ) of Participants from NTTC and OSU

| University | N | Mean | SD |
|------------|-----|-------|-------|
| NTTC | 128 | 88.36 | 16.21 |
| OSU | 106 | 63.26 | 22.56 |

Chyuan (1992)

Table 4.3

Descriptive Statistics of Three Factors of Concept-Mapping Attitudes Questionnaire (CMAQ) of Participants from NTTC and OSU

| Variables | NTTC Students N = 128 | OSU Students N = 106 |
|--|--------------------------|-------------------------|
| Factor 1 | | |
| Attitudes Towards Constructing a CM | | |
| Mean | 21.59 | 19.77 |
| SD | 5.69 | 8.28 |
| Factor 2 | | |
| Attitudes Towards Using CM in Learning | | |
| Mean | 54.77 | 35.74 |
| SD | 10.61 | 15.29 |
| Factor 3 | | |
| Attitudes towards Using CM to Learn Concepts | | |
| Mean | 12.39 | 6.23 |
| SD | 3.72 | 3.53 |

Chyuan (1992)

Table 4.4
MANOVA of Three Factors of Concept-Mapping Attitudes Questionnaire (CMAQ)
of Participants from NTTC and OSU

| Variables | MS Hypoth. | Error MS | F (1,232) | Sig. of F |
|-----------|------------|----------|-----------|-----------|
| Factor 1 | 192.08 | 48.76 | 3.94 | .05 |
| Factor 2 | 21014.73 | 167.44 | 125.51 | .00 |
| Factor 3 | 2203.20 | 13.18 | 167.20 | .00 |

Chyuan (1992)

In the present study, the GOAQ was administered twice. The pre-GOAQ was administered after teacher-generated graphic organizers, and the post-GOAQ was conducted after student-generated graphic organizers. The purpose was to explore the participants' responses to uses of the two types of graphic organizers in EFL reading.

In summary, four measurements were utilized to collect quantitative data. The Personal Data Questionnaire (PDQ) was employed to collect participants' background information. The Reading Achievement Test probed participants' reading performance after the incorporation of the two types of graphic post-organizers as post-reading activity. The English Reading Attitudes Questionnaire (ERAQ) examined the impact of graphic organizers on participants' attitudes towards EFL reading. The Graphic Organizer Attitudes Questionnaire (GOAQ) was administered to understand participants' responses to the two types of graphic post-organizers. The research procedure is shown in Appendix 17.

Qualitative Data

The qualitative data in this study was collected through face-to-face group interviews

conducted by the researcher. The purposes and procedures of the interviewing will be illustrated, as follows.

Interview

In order to understand in depth the students' experience of the implementation of graphic organizers in the English course, a face-to-face interview with the students was conducted as a further data collection method after the experiment was completed. In conducting the interviews, the researcher herself served as the interviewer.

The language used in the interview was participants' first language, i.e. Mandarin. The consent of the students was obtained (see Appendix 18). The students could come in pairs or groups if they found it difficult to speak with the interviewer face-to-face. Forty-six students accepted the interview. In advance of each interview, the researcher explained the purpose of the study and an interview question list was provided. The students were free to start with any interview questions they felt like talking. Each interview was taped and transcribed by the researcher.

The interview was semi-structured with six interview questions based on two sources of Day and Bamford (1998) Second Language Reading Attitudes Model.

1. Please state your previous experiences in reading in English.
2. Please state the reading difficulties you have had.
3. Please state the reading methods you have used.
4. Please state your attitudes towards reading in English.
5. Please provide your viewpoints of graphic organizers.
6. Please provide your comments on the reading material.

The Chinese as well as the English version of the interview questions can be found in Appendix 19. Following Patton's (2002) interview guidelines, the wording and the focus of the interview questions were short and clear.

Settings of the interviews. The interviewed were conducted in the researchers' office or the students' places at participants' convenience. The setting needed to be quiet and interviewees' privacy was protected.

Time of the interviews. The interviews were conducted after the research was completed in order not to affect interviewees' feelings and opinions, as the researcher was their teacher. Participants could negotiate the interview time at their convenience, either after school or during the hours in school when they were free. Each interview lasted for at least one hour. Sometimes it lasted for more than one hour to complete the conversation. Some participants came more than once as they had more to say. Twenty-one interviews were conducted. (See Appendix 20 for an example of the interview data in both Chinese and English.)

Data Collection Procedure

In 2003, after receiving the consent from the college to conduct the research on the students (see Appendix 21) and Ethics Clearance from Australian Catholic University Research Committee the present study commenced (see Appendix 22). Students enrolled in the Nursing Department of a TVES college, which is located in a major city in southern Taiwan, were invited to participate in this study. Participants were given informed consent forms and details of the study and were instructed on how to complete the PDQ and the ERAQ at the beginning of the experiment. Individuals responding to the measurement used a four-point scale to report their attitudes towards English reading. The time required to complete the measurements was approximately 20 minutes. The four scales were: (a) strongly disagree"; (b) "disagree"; (c) "agree"; and (d) "strongly agree". The scoring weights were 1 to 4, namely "strongly disagree" was scored "1"; "disagree" was scored "2"; "agree" was scored

“3”; and “strongly agree” was scored “4”.

In the middle of the research period, a mid-test of ERAQ with the pre-test of GOAQ was conducted. The post-test of the two measurements was held at the end of the research period. The time required to complete the two measurements was approximately fifteen minutes.

Data Analysis

Quantitative Data Analysis

Following the data input, analyses were conducted using the Statistical Package for Social Science, Version 13 (SPSS, 2004). This statistical software package was utilized to execute descriptive and inferential statistical analysis.

Qualitative Data Analysis

Qualitative data were first transcribed and then analyzed. The data analysis procedure followed Patton's (2002) three qualitative data analysis streams: data reduction, data display and conclusion drawing and verification. The data were sorted and extracted by identifying themes or patterns (Bogdan & Biklen, 2003). Content analysis was used to define categories, detect patterns, and draw conclusions (Miles & Huberman, 1994; Wiersma & Juro, 2005).

Summary

The present study was administered in the intensive program of General English Course, one of the compulsory subjects for all freshmen at the tertiary level in Taiwan. A total of fifty tertiary freshmen students of technological and vocational educational system (TVES), who enrolled in the nursing department of a TVES medical college located in a city in southern

Taiwan, participated in the study.

Both quantitative data and qualitative data were collected. With respect to quantitative data, participants completed three measuring instruments—Reading Comprehension Tests (RCT), English Reading Attitudes Questionnaire (ERAQ), Graphic Organizer Attitudes Questionnaire (GOAQ) and one questionnaire—Personal Data questionnaire (PDQ). In terms of qualitative data, semi-structured interviews were conducted. The researcher served as interviewer.

CHAPTER 5

QUANTITATIVE RESULTS

“Graphic organizers are a means to an end, that of enhanced motivation and greater satisfaction and success in learning.” (Egan, 1999, p. 644)

This study examined the effects of graphic organizers on EFL reading comprehension and attitudes towards English reading of college freshmen students in the Technological Vocational Education System (TVES) in Taiwan. The different types of graphic organizers, teacher-generated and student-generated, were probed for the impact on a number of dependent measures. Additionally, students’ attitudes to the utilization of the two different types of graphic organizers were also explored. This chapter reports the results of the quantitative data collected in the present study.

This chapter consists of four major sections in terms of the measuring instruments utilized in this study. The first section deals with the results of Personal Data Questionnaire (PDQ). The second section discusses the students’ performance on the two Reading Comprehension Tests (RCT). The third section reports the findings of the students’ attitudes towards reading in English as measured by the English Reading Attitudes Questionnaire (ERAQ), and the fourth section presents the students’ attitudes to the use of the two types of graphic organizers as measured by the Graphic Organizers Attitudes Questionnaire (GOAQ).

Personal Data Questionnaire (PDQ)

The Personal Data Questionnaire consisted of seven variables requiring participants’ background information. The variables consisted of three categorical variables and four continuous variables. The categorical variables included participants’ residence, high schools

they had attended and whether they had visited cram schools or not. The continuous variables contained participants' age, years of studying English, weekly English hours at high schools, and their 2003 English score obtained from the Joint College Entrance Examination (JCEE).

The JCEE score was used to classify the participants into high- and low-scorer groups. Among the seven variables in PDQ, four of them—residence, high schools attended, age, JCEE English score—have been discussed in the section of Participants of Chapter 4. The Present Study. In this section, the other three variables—years studied English, weekly English hours, and whether attended cram school or not—are analyzed to probe whether there are any relationships between these variables and JCEE English score. The categorical variable was evaluated by cross-tabulations, while the group difference of the high- and low-scorers on the continuous variables were assessed by independent t-tests.

Table 5.1 shows that no significant association was found between the two variables of JCEE English score level and whether participants had attended cram schools or not. Note that this result should be considered in association with the variable of years of studying English. In Taiwan, if students have learned English for more than six years (which is the officially regulated length of learning English from junior high to senior high schools), they attended cram schools prior to the officially regulated age of learning English (approximately at the age of twelve).

With respect to the two variables, years studied English and high and low English score levels, a significant difference was found. That is, the more years participants studied English, the higher the JCEE English score. No significant differences were found in terms of weekly English hours and high and low English scores.

Table 5.1

JCEE English Score Level Association and Difference on the Personal Data Questionnaire (PDQ) Variable

| Variables | <u>JCEE English Score</u> | |
|-----------------------|----------------------------|-----|
| | High | Low |
| Attended Cram School | No significant Association | |
| Years studied English | Significant Difference | |
| Weekly English Hours | No Significant Difference | |

Criterion of significant association is $p < .05$.

Reading Comprehension Tests

This section consists of two parts. The first part compares the results of the two reading comprehension tests (pre-RCT and post-RCT) to probe the effects of teacher-generated and student-generated organizers strategies on all participants' EFL reading comprehension. The pre-RCT was administered as the mid-term examination, which was conducted following the implementation of teacher-generated graphic organizers. The post-RCT, which was administered as the final examination, was conducted following the incorporation of student-generated graphic organizers.

The purpose of these analyses was to explore the effects of the use of two types of graphic organizer on English reading comprehension on high- and low-scorers.

Participants' Pre- and Post-reading Comprehension Tests

Hypothesis 1.1 stated that there would be significant difference between the use of

teacher- and student-generated graphic organizer on participants' reading comprehension, as measured by the Pre- and Post-reading Comprehension Test.

Table 5.2 shows the result of the paired sample statistics. The comparison of the mean scores shows a gain of 8.40 points for all participants on the Post-reading Comprehension Test (post-RCT). The paired-t test shows that there was a significant difference between the two comprehension tests ($t = 8.66$, $p < .001$, $df = 49$). Hypothesis 1.1 was accepted. See Table A23.1 in Appendix 23 for details on the descriptive statistics.

Table 5.2
Descriptive Statistics of All Participants' Pre- and Post-RCT

| Variable | N | Mean | SD |
|----------|----|-------|-------|
| Pre-RCT | 50 | 41.28 | 12.40 |
| Post-RCT | 50 | 49.68 | 9.63 |

High Scorers' Pre- and Post-reading Comprehension Tests

Hypothesis 1.2 stated that there would be significant difference between teacher- and student-generated graphic organizers on high-scorers' reading comprehension, as measured by the Pre- and Post-reading Comprehension Test.

In Table 5.3, the analysis of paired sample t-tests shows that the mean score of high-scorers' Pre- and Post-reading Comprehension Test increased by 7.56 points after the use of student-generated graphic organizers. In addition, a significant difference indicates ($t = 6.96$, p

< .001, $df = 26$) that the use of student-generated graphic organizers had a significant and positive impact on the high-scorers' reading comprehension. Therefore, Hypothesis 1.2 was accepted. See Table A23.2 in Appendix 23 for summary on descriptive statistics.

Table 5.3

Descriptive Statistics of High-Scorers' Pre- and Post-RCT

| Test | N | Mean | SD |
|----------|----|-------|-------|
| Pre-RCT | 27 | 45.70 | 11.03 |
| Post-RCT | 27 | 53.26 | 7.68 |

Low-Scorers' Pre- and Post-reading Comprehension Tests

Hypothesis 1.3 stated that there would be significant difference between teacher- and student-generated graphic organizers on low-scorers' reading comprehension, as measured by the Pre- and Post-reading Comprehension Test.

Table 5.4 shows the results of paired sample t-tests. The mean score of the low-scorers' Pre- and Post-reading Comprehension Test increased by 9.39 points after the use of student-generated graphic organizers. In addition, the result, which shows a statistically significant difference ($t = 5.57$, $p < .001$, $df = 22$), suggests that the use of student-generated graphic organizer seemed to produce a significantly positive effect on low-scorers' EFL reading comprehension. Hypothesis 1.3 was accepted. See Table A23.3 in Appendix 23 for summary on descriptive statistics.

Table 5.4

Descriptive Statistics of Low-Scorers' Pre- and Post-RCT

| Test | N | Mean | SD |
|----------|----|-------|-------|
| Pre-RCT | 23 | 36.09 | 12.09 |
| Post-RCT | 23 | 45.48 | 10.13 |

Comparison of High- and Low-Scorers' Pre- and Post-reading Comprehension Tests

Hypothesis 1.4 stated that there would be significant difference between high- and low-scorers' reading comprehension after the use of teacher-generated graphic organizers, as measured by the Pre -reading Comprehension Test.

Hypothesis 1.5 stated that there would be significant difference between high- and low-scorers' reading comprehension after the use of student-generated graphic organizers, as measured by the Pre-reading Comprehension Test.

The comparison of high- and low-scorers' Pre-reading Comprehension Test, conducted by the Independent t-test, shows a significant difference ($t = 2.93$, $p < .01$, $df = 48$) in favor of high-scorers. Similarly, the high-scorers outperformed low-scorers on the Post-reading Comprehension Test after the use of student-generated graphic organizers ($t = 3.08$, $p < .01$, $df = 48$). Even though the comparison of the mean score of Post-reading Comprehension Test showed that the low-scorers had a gain greater than that of the high-scorers (9.39 versus 7.56 respectively) the low-scorers did not surpass the high-scorers. Hypotheses 1.3 and 1.4 were supported.

The results indicate that the reading comprehension performance of the participants increased after the use of student-generated graphic organizers. Furthermore, the high-scorers outperformed the low-scorers on both Pre- and Post-reading Comprehension Test. However, the results should be interpreted cautiously as further evidence is required from the results of the qualitative data analysis.

English Reading Attitudes Questionnaire (ERAQ)

The English Reading Attitudes Questionnaire consists of twenty-one questions measuring the students' attitudes towards reading in English during the research. The ERAQ was conducted at three different stages in this study, termed as pre-ERAQ, mid-ERAQ, and post-ERAQ. The pre-ERAQ was conducted prior to the use of any types of graphic organizers; the mid-ERAQ was administered after the use of teacher-generated graphic organizers; and the post-ERAQ was employed after the use of student-generated graphic organizers.

As the English Reading Attitudes Questionnaire was administered three times in this study, a one-way multivariate repeated measures analysis of variance (MANOVA) was utilized to analyze the statistical data.

Participants' Attitudes Towards Reading in English

Hypothesis 2.1 stated that the teacher-generated graphic organizers would have significantly positive impact on all participants' attitudes towards reading in English when compared to none use of graphic organizers as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.2 stated that the student-generated graphic organizers would have significantly positive impact on all participants' attitudes towards reading in English

when compared to the teacher-generated graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Table 5.5 depicts ERAQ raw score total means and standard deviation. As can be seen in the MANOVA summary statistical table (Table 5.6), Pillai's multivariate test for the effect of student-generated graphic organizers was significant (Pillai's Trace = .35, $F = 13.04$, $p < .001$, $f = .32$). See Table A24.1 in Appendix 24 for the summary on the descriptive statistics.

Table 5.5

Descriptive Statistics of All Participants' Pre-, Mid-, and Post-ERAQ

| Scale | N | Mean | SD |
|-----------|----|-------|------|
| Pre- ERAQ | 50 | 57.16 | 6.13 |
| Mid-ERAQ | 50 | 57.74 | 7.42 |
| Post-ERAQ | 50 | 61.90 | 6.74 |

Table 5.6

One Way Multivariate Analysis of Variance (MANOVA) Summary for Pre-, Mid-, and Post-ERAQ of All Participants

| Pillai's Trace | F | p | Eta ² |
|----------------|-------|-----|------------------|
| .35 | 13.04 | .00 | .35 |

df = 2,4

The pairwise comparisons, as shown in Table 5.7, revealed that there was no significant difference between none use of graphic organizers and teacher-generated graphic organizers ($F = .58, p > .05$), but a significant difference was found between student- and teacher-generated graphic organizers ($F = 4.16, p < .001$). Comparisons between student-generated and none use of graphic organizers also showed a significant difference ($F = 4.74, p < .001$). Hypothesis 2.2 was supported, whereas Hypothesis 2.1 was not accepted.

Table 5.7

Pairwise Comparisons of Pre-, Mid-, and Post-ERAQ for All Participants

| Scale | Mean Difference | p |
|--------------------|-----------------|-----|
| Pre- vs. Mid-ERAQ | .58 | .55 |
| Mid- vs. Post-ERAQ | 4.16 | .00 |
| Post- vs. Pre-ERAQ | 4.74 | .00 |
| df = 2,48 | | |

High-Scorers' Attitudes towards Reading in English

Hypothesis 2.3 stated that the teacher-generated graphic organizers would have a significant positive impact on high-scorers' attitudes towards reading in English when compared to none use of graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.4 stated that the student-generated graphic organizers would have a significant positive impact on high-scorers' attitudes towards reading in English when

compared to teacher-graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Table 5.8

Descriptive Statistics of Pre-, Mid-, and Post-ERAQ for High-scorers

| Scale | N | Mean | SD |
|-----------|----|-------|------|
| Pre-ERAQ | 27 | 59.00 | 6.38 |
| Mid-ERAQ | 27 | 58.78 | 7.45 |
| Post-ERAQ | 27 | 63.22 | 7.49 |

Table 5.8 depicts high-scorers' ERAQ raw score total means and standard deviation. As can be seen in the repeated measures statistic table (Table 5.9), Pillai's multivariate test for the main effect of student-generated graphic organizers was significant (Pillai's Trace = .36, $F = 6.89$, $p < .01$, $f = .35$). See Table A24.2 in Appendix 24 for detailed information on the descriptive statistics.

The pairwise comparisons, shown in Table 5.10, revealed that there was no significant difference between none use of graphic organizers and teacher-generated graphic organizers ($F = .22$, $p > .05$), but a significant difference was found between student- and teacher-generated graphic organizers ($F = 4.22$, $p < .01$) on high-scorer's attitudes towards reading in English. Comparisons between student-generated and non-graphic organizers also showed a significant difference ($F = 4.44$, $p < .01$). Hypothesis 2.4 was supported, whereas Hypothesis 2.3 was not accepted.

Table 5.9

One Way Multivariate Analysis of Variance (MANOVA) Summary for Pre-, Mid-, and Post-ERAQ of High-scorers

| Pillai's Trace | F | p | Eta ² |
|----------------|------|------|------------------|
| .36 | 6.89 | .004 | .35 |
| df = 2, 25 | | | |

Table 5.10

Pairwise Comparisons of Pre-, Mid-, and Post-ERAQ for High-scorers

| Scale | Mean Difference | p |
|------------------|-----------------|-----|
| Pre-& Mid-ERAQ | .22 | .88 |
| Mid- & Post-ERAQ | 4.22 | .01 |
| Post- & Pre-ERAQ | 4.44 | .01 |
| df = 2,25 | | |

Low-scorer's Attitudes towards Reading in English

Hypothesis 2.5 stated that the teacher-generated graphic organizers would have significantly positive impact on low-scorers' attitudes towards reading in English when compared to none use of graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Hypothesis 2.6 stated that the student-generated graphic organizers would have significantly positive impact on low-scorers' attitudes towards reading in English when compared to the teacher-graphic organizers, as measured by the English Reading Attitudes Questionnaire.

Table 5.11 depicts low-scorers' ERAQ raw score total means and standard deviation. As can be seen in the repeated measures statistic table (Table 5.12), among the three trials Pillai's multivariate test for the main effect of student-generated graphic organizers was significant (Pillai's Trace = .35, $F = 5.67$, $p < .05$, $f = .35$). See Table A24.3 in Appendix 24 for detailed information on the descriptive statistics.

The pairwise comparisons, shown in Table 5.13, revealed that there was no significant difference between none use of graphic organizer strategy and teacher-generated graphic organizers ($F = 1.52$, $p > .05$), but a significant difference was found between student- and teacher-generated graphic organizers ($F = 3.83$, $p < .01$). Comparisons between student-generated and non-graphic organizers also showed a significant difference ($F = 5.35$, $p < .01$). Hypothesis 2.6 was supported, whereas Hypothesis 2.5 was not accepted.

Table 5.11

Descriptive Statistics of Pre-, Mid-, and Post-ERAQ for Low-scorers

| Scale | N | Mean | SD |
|-----------|----|-------|------|
| Pre- ERAQ | 23 | 55.00 | 5.15 |
| Mid- ERAQ | 23 | 56.52 | 7.36 |
| Post-ERAQ | 23 | 60.35 | 5.49 |

Comparison of High- and Low-scorers' Attitudes towards Reading in English

Hypothesis 2.7 stated that there was a significant difference between high- and low-scorers' attitudes towards reading in English at the initial stage when none use of graphic organizers were employed, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 2.8 stated that there was a significant difference between high- and low-scorers' attitudes towards reading in English after the use of teacher-generated graphic organizers, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 2.9 stated that there was a significant difference between high- and low-scorers' attitudes towards reading in English after the use of student-generated graphic organizers, as measured by the Graphic Organizers Attitudes Questionnaire.

The data analysis indicates that there was a significant difference ($F = 4.08$, $p < .05$, $df = 1, 48$) between high- and low-scorers' attitudes towards reading in English at the initial stage of the research, before the use of any types of graphic organizers. The result revealed that the low-scorers' held significantly less positive attitudes towards reading in English at the beginning. However, after the employment of the two types of graphic organizers, no significant difference was found between high- and low-scorer's attitudes towards reading in English ($F = .41$, $p > .05$, $df = 2, 47$). Hypothesis 2.7 was supported, while Hypotheses 2.8 and 2.9 were not accepted.

It is also noteworthy that the mean score of high scorers dropped by 0.22 points, while that of the low-scorers increased by 1.52 points after the use of teacher-generated graphic organizers. Following the use of student-generated graphic organizers, the comparisons show that the high-scorers' mean score was greater than that of the low-scorers (4.44 and 3.82

points respectively). This indicates student-graphic organizers appeared to have more positive impact on high-scorers' attitudes towards reading in English than those of the low-scorers.

Finally, comparison of the mean scores of the Pre- and Post-ERAQs of high- and low-scorers suggests that the facilitative effects of the intervention on low-scorers' attitudes towards reading in English were greater than that of high-scorers.

Table 5.12

One Way Multivariate Analysis of Variance (MANOVA) Summary for Pre-, Mid-, and Post-ERAQ of Low-scorers

| Pillai's Trace | F | p | Eta ² |
|----------------|------|------|------------------|
| .35 | 5.67 | .011 | .35 |

df = 2,21

Table 5.13

Pairwise Comparisons of Pre-, Mid-, and Post-ERAQ F tests for Low-scorers

| Scale | F | p |
|--------------------|------|-----|
| Pre- vs. Mid-ERAQ | 1.52 | .25 |
| Mid- vs. Post-ERAQ | 3.83 | .01 |
| Post- vs. Pre-ERAQ | 5.35 | .01 |

df = 2,21

The aforementioned data analyses indicate that the use of student-generated graphic organizers yielded significantly positive impact on high- and low-scorers' attitudes towards

reading in English, whereas the teacher-generated graphic organizers did not. However, as noted earlier, the results should be interpreted with caution, as more evidence will be required from the qualitative data analysis.

Graphic Organizers Attitudes Questionnaire (GOAQ)

This section presents the data analysis of the participants' attitudes to the utilization of two graphic organizer strategies. The Graphic Organizer Attitudes Questionnaire (GOAQ) was employed twice in this study, termed as pre-GOAQ and post-GOAQ. The pre-GOAQ was conducted after the use of teacher-generated graphic organizers, while the post-GOAQ was administered after the use of student-generated graphic organizers.

As in previous sections, all participants' as well as high- and low-scorers' attitudes to the use of the different types of graphic organizer were probed. To assess differences, the paired-t test and Independent-t test were employed. Before analyzing the collected data, negatively worded items were recoded.

Participants' Attitudes Towards Graphic Organizers

Hypothesis 3.1 stated that there would be a significant difference in all participants' attitudes towards the use of teacher- and student-generated graphic organizer, as measured by the Graphic Organizers Attitudes Questionnaire.

Table 5.14 shows the raw scores of the participants' attitudes to the two types of graphic organizers. The analysis of the paired t-tests reveals that there was no significant difference in students' attitudes to the use of the two graphic organizers ($t = .29$, $p > .05$, $df = 49$), even though the mean score for attitudes to the student-generated graphic organizer was slightly higher than for teacher-generated ones. Therefore, Hypothesis 3.1 was not supported. See

Table A25.1 in Appendix 25 for detailed information on descriptive statistics.

Comparison of High- and Low-scorers' Attitudes towards Graphic Organizers

In this section, high- and low-scorers' attitudes to the use of teacher-generated and student-generated graphic organizers are compared.

Hypothesis 3.2 stated that there would be a significant difference in high-scorers' attitudes towards the use of the two types of graphic organizer, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 3.3 stated that there would be a significant difference in low-scorers' attitudes towards the use of the two types of graphic organizer, as measured by the Graphic Organizers Attitudes Questionnaire.

Table 5.14

Descriptive Statistics of Pre- and Post-GOAQ for All Participants

| Scale | N | Mean | SD |
|-----------|----|-------|------|
| Pre-GOAQ | 50 | 69.10 | 7.57 |
| Post-GOAQ | 50 | 69.50 | 5.71 |

Table 5.15 shows that no significant difference was identified between the high-scorers' attitudes to the two types of graphic-organizers ($t = .19$, $p > .05$, $df = 26$); nor was any significant difference found between low-scorers' attitudes to the two different graphic organizer strategies ($t = .21$, $p > .05$, $df = 22$) as shown in Table 5.16. Therefore, both

Hypotheses 3.2 and 3.3 were not accepted. See Table A25.2 and A25.3 in Appendix 25 for detailed information on descriptive statistics.

Table 5.15

Descriptive Statistics of Pre-GOAQ and Post-GOAQ for High-scorers

| Scale | N | Mean | SD |
|-----------|----|-------|------|
| Pre-GOAQ | 27 | 68.22 | 8.57 |
| Post-GOAQ | 27 | 68.59 | 4.11 |

Table 5.16

Descriptive Statistics of Pre-GOAQ and Post-GOAQ for Low-scorers

| Scale | N | Mean | SD |
|-----------|----|-------|------|
| Pre-GOAQ | 23 | 70.13 | 6.23 |
| Post-GOAQ | 23 | 70.57 | 7.12 |

Hypothesis 3.4 stated that low-scorers' attitudes to teacher-generated graphic organizers would be significantly different from that of the high-scorers, as measured by the Graphic Organizers Attitudes Questionnaire.

Hypothesis 3.5 stated that low-scorers' attitudes to student-generated graphic organizers

would be significantly different from that of the high-scorers, as measured by the Graphic Organizers Attitudes Questionnaire.

Even though the comparison of the mean scores shows that low-scorers' attitudes to the two graphic organizer strategies were slightly higher than those of the high-scorers, no significant differences were found between high- and low-scorers' attitudes to the teacher-generated ($t = .87, p > .05, df = 48$) and student-generated graphic organizers ($t = .38, p > .05, df = 48$). As a result, both Hypotheses 3.4 and 3.5 were not supported.

However, when comparing the single item in the Pre and Post GOAQs, several items show significant differences between high- and low-scorers. The high- and low-scorers' attitudes to item No. 7, which states, "Graphic organizers can help me with vocabulary retention" and item No. 19 stating that, "A Chinese translation is necessary" in the Pre-GOAQ showed significant difference. The mean scores of the low- and high-scorers for item No 7 were 3.26 and 2.93 respectively ($t = 2.55, p < .05, df = 48$). The mean scores of low- and high-scorers for item No. 19 were 3.13 and 2.59 respectively ($t = 2.33, p < .05, df = 48$). The results indicate that the low scorers found graphic organizers helped with remembering vocabulary and they needed Chinese translation more than the high-scorers.

In the Post-GOAQ, a significant difference was found on item No.10, which states, "Graphic organizers can decrease my problems with English grammar". The mean scores of the low- and high- scorers were 3.17 and 2.85 respectively ($t = 2.05, p < .05, df = 48$). The result suggests that graphic organizers could eliminate language barriers, such as grammatical difficulties, for the low-scorers in reading in English.

In summary, the comparison of the students' attitudes to the two types of graphic organizers did not demonstrate any significant difference. Neither did the comparison of high- and low-scorers' attitudes towards the two graphic organizers depict any significant difference. Possible explanations will be derived from the qualitative data analysis.

Summary

In this chapter, the statistical analyses of the measuring instruments utilized in this study were discussed. Particular attention was given to whether there were any statistically significant differences between the high- and low-scorer groups.

The findings from three variables analyzed in the Personal Data Questionnaire revealed that the two groups of students differed significantly on only one variable: years studying English. The results reported that the longer the students had learned English, the better their English score obtained from the Joint College Entrance Examination.

With respect to the Reading Comprehension Tests, Independent-t test results showed that the EFL reading comprehension of both student groups increased significantly after the use of student-generated graphic organizers. When comparing reading comprehension between high- and low-scorers, paired-t test results indicated that the former outperformed the latter in both comprehension tests.

Multivariate analysis of variance (MANOVA) results reported that all participants' attitudes towards reading in English improved significantly after the use of student-generated graphic organizers. When comparing the students' attitudes towards reading in English through the three stages of the research, the low-scorer's attitudes increased continuously with time, whereas the high-scorers' attitudes declined slightly after the use of teacher-generated graphic organizers.

In terms of participants' attitudes towards the use of the two types of graphic organizers, paired-t test results showed that no significant difference was found. The results of the Independent-t test did not report any significant difference between high- and low-scorers' attitudes towards the use of the two types of graphic organizers.

However, the comparison of several single items in the Pre- and Post-Graphic Organizer Attitudes Questionnaires showed significant differences. The results indicated that the low-scorers found that the student-generated graphic organizers were particularly helpful for

vocabulary retention and decreased their difficulties with English grammar. In addition, the low-scorers found that Chinese translation was necessary to help them to understand the English texts.

CHAPTER 6

QUALITATIVE RESULTS

“... different levels of success may be explained by a complex and dynamic interplay of internal cognition and emotion, external incentives, and social context.”

(Gan, Humphreys, Hamp-Lyons, 2004, p. 229)

The qualitative data analysis had two purposes. The first was to provide answers to the research questions; the second was to supplement the quantitative results. The major assertion generated from the qualitative data analysis was that teachers, teaching strategies, and reading materials influenced not only the students' reading abilities but also their attitudes to reading in English.

Two themes emerged that conceptualize the participants' attitudes to both reading in English and to the use of graphic organizers in English reading. The first theme regarding attitudes towards EFL consists of three subthemes: (a) at secondary schools, (b) at tertiary level, and (c) future English reading. The second major theme concerning attitudes towards the use of graphic organizers in English reading, also has the three subthemes: (a) the effects of graphic organizers, (b) the cost of generating a graphic organizer, and (c) the difficulties of constructing a graphic organizer. Table 6.1 presents a summary of themes and subthemes.

Attitudes Towards Reading in English

In this section, the students' attitudes towards reading in English will be discussed. Interview data revealed the students' EFL reading experiences in the past, their experiences at tertiary level (in the present study), and their attitudes towards future English reading. Typical statements have extracted in the following material to represent a range of perspectives.

Table 6.1

Emerging Themes and Subthemes

| Themes | Subthemes |
|--------------------------------------|---|
| Attitudes Towards Reading in English | Secondary School At Tertiary Level Future EFL Reading |
| Attitudes Towards Graphic Organizers | Effects of GOs Drawbacks of Generating a GO Difficulties of Generating a GO |

Attitudes Towards Reading in English at Secondary Schools

All students (100%) interviewed reported that the dominant teaching strategy at secondary school was the grammar-translation method (GTM). Typical teaching activities included vocabulary teaching, the explanation of grammatical rules and translation of texts into the Chinese. The students pointed out the GTM had had a significant influence on their reading strategies. They memorized everything in the textbook as well as what the teacher taught in the class. The following extracted responses typify the features of the learning strategies applied.

(Student JY): Tests items focused on the text content. We memorized everything in the textbook.

(Student SF): The materials were simple in junior high. I memorized the whole texts. Teachers didn't test anything other than the content in the textbooks. I got high marks.

The two statements suggested two probable reasons why students relied so heavily on memorization. The first extract suggests that teachers and textbooks were considered as the students' major sources of knowledge about English. The second reason pertained to the taking of tests. This is understandable in the EFL context, as the input of the target language and the learners' exposure to that language is limited. In such situations, teachers and textbooks often become the main source of knowledge. Furthermore, as the majority of participants started learning English at secondary school in Taiwan, teachers and textbooks at the beginning stage served as a foundation for establishing the basic knowledge about the English language. Some participants supported this perspective of learning, whereas other students did not. Typical statements of the two contradictory views are presented in the following section.

Positive Attitudes Towards the Grammar-translation Method

Six students (13%) stated explicitly that the grammar-translation method was helpful in establishing a solid English knowledge basis.

(Student JS): I liked English at junior high. I was good at memorizing vocabulary. I memorized words and read texts and recognized many words I memorized when I was reading the current material.

(Student HS): We were required to memorize vocabulary and the whole textbook. My teacher provided various extra materials. We had to learn *Let's Talk in English* and *Student Post* for three years at junior high. Those materials were tested. I felt a great sense of achievement when I had memorized the content. They established a sound basis for my English. I still recognize a lot of words now.

Less Positive Attitudes Towards Grammar-translation Method

However, the majority of the students (82 %) reported less positive attitudes towards GTM. One lengthy statement represents these perspectives.

(Student YL): The English teacher taught a lot grammatical rules and wrote the rules on the blackboard. You had to memorize all the rules. I didn't like the teacher and found grammar difficult. I didn't understand what he was teaching. He taught parts of speech such as noun, adjective etc., and its active or passive forms. I became more and more confused and disliked English more and more. From then on, my English got poorer and poorer.

The above statements reveal the students' contradictory viewpoints of grammar-translation method. This indicates that the same teaching method may not suit individual learning styles. As a result, the teaching method influences the learners' motivation and learning outcomes. It is interesting to note that those students who showed positive attitudes towards GTM were high-scorers, whereas those who showed less positive attitudes towards GTM were low-scorers.

Corporal punishment. During their interviews, six students (13 %) described the corporal punishment they had received in the past. The students felt greatly discouraged and English learning turned out to be a very negative experience. Two lengthy representative examples drawn from this corpus of experiences are presented in the following.

(Student SY): English teachers would punish you corporally you if you couldn't do it. You were forced to memorize as much as you could. I think learning English at junior high was a nightmare. The teacher beat you and forced you to learn. You didn't do it willingly. Only for the sake of tests and exams.

(Student PY): The tests became more and more difficult. If you didn't reach The standard score, you were beaten. The more I was beaten, the

less I felt like studying. The teacher was mean. We were all beaten in front of the class. It was very embarrassing. Then I became very upset. I didn't want to study English any more. By the time I realized that I had to catch up, it was too late.

One of the high-scorers mentioned in the interview that she felt sorry for some of her classmates who were often beaten and, as a result, lost interest in learning English. However, corporal punishment worked for some students. The researcher felt deeply troubled when she listened to these students reporting their English language learning experiences at secondary school. Even though there might have been other factors attributable to these students' EFL reading difficulties, the teachers' attitudes and teaching style had significantly negatively influenced the students' learning, particularly at the beginning stage.

Learning English at Cram Schools

Extra English learning at cram schools has been a common experience for students in Taiwan. Most children attend crams schools to learn English before they officially start learning it at junior high schools. The earlier they attend cram schools, the more benefit they can derive from this extra learning. The following statements reporting on the advantages of attending cram schools for extra English are typical of the statements the students made on this topic.

(Student MY): I started learning English when I as small. I had had a native-speaker teacher since the very beginning. At that time I was required to do one reading every day and then had conversation with him. My family valued the learning of English.

(Student YH): I went to cram school when I was in junior high. The teacher there taught us how to understand grammar. This teaching method was very effective. It helped a lot. My English

teacher at junior high — I can hardly find words to describe how poorly he taught.

The disadvantages of not being able to attend cram school for extra English learning were reported as follows.

(Student YL): I didn't go to cram school to learn English prior to junior high due to the family economic circumstances. I remember the first English class in junior high. The teacher asked how many of us had not learned phonetics. I wouldn't dare to raise my hand, as nobody did. From then on, the teacher taught very fast, as he assumed that we all knew that. I didn't understand anything, and I didn't have a chance to ask questions. When I came to the second-grade, my parents allowed me to go to cram school. It was too late. I fell far behind the others.

(Student PY): I went to cram school prior to entering junior high. At first I did well. Later the parts of speech became confusing. My family was poor to afford me to have extra lessons at cram schools. I tried to study it myself but couldn't find the right ways. I don't think that I tried hard enough.

In summary, according to the interview data, the dominant instruction method was grammar-translation (GTM) at secondary schools. As a result, both the teaching styles and the teacher's attitudes had a significant influence on the students' attitudes towards, and their performance in, learning English. Attending cram schools for extra learning also had an impact on the students' English language learning.

Impact of the Grammar-translation Method on Learning

In the interviews, the students commented on the influence of the grammar-translation method on their English language learning, as grammar-translation was the major instructional method the students encountered. The majority of the students (90 %) found the

traditional teaching method ineffective in improving their English proficiency.

Perspectives on Memorization. All the students (100%) mentioned that they used to memorize a great amount of vocabulary, but forgot the lexical items that they had learned. The following are typical responses by students on the attitudes to rote learning.

(Student LL): Not only at high schools, but also at junior high, and even at cram schools, teachers all taught us in the same way they taught in a traditional manner. We had to memorize vocabulary, only memorizing. Teachers told us that the more you memorize, the better you understand. Sometimes we memorized the whole text. But you couldn't remember anything you had memorized. We have wasted plenty of time on memorizing. Often I encounter words, I know I have memorized them before, but I simply can't remember the meanings.

(Student CF): Teachers said that learning English is memorizing, just memorizing. I didn't like the dull teaching method. I became less interested in learning English. As a result, my English became poorer.

These statements, one of which was made by a high-scorer, the other by a low-scorer, indicated that the students did not favor memorization. Since no other learning strategies were provided, they did not have the opportunities to learn any alternative strategies.

Perspectives on the Provision of Chinese Translation

The students expressed their opinions regarding the provision of Chinese translation and its negative impact on their reading abilities in English. The students stated that they were heavily dependent on Chinese and that this impeded their reading abilities. Two representative comments from the interviews with all thirty-eight students are presented in the following extracts from the interview transcripts.

(Student HJ): Teachers provided you with everything. You didn't need to worry. All you had to do was to read the translation and memorize it. We were accustomed to looking for the Chinese translation when we read in English. If there was no translation, I couldn't understand anything in the text. I didn't know the main ideas, I didn't understand what the sentences mean. Chinese translation decreased your abilities to think about what a text tried to say.

(Student LL): You didn't have to do anything. Teachers did everything for you. All you had to do was listen. You didn't even need to think as there would be translation given to you. We received passively. Teachers gave you everything anyway. We read and knew it. You didn't need to work it out by yourself. It saved teachers a lot of trouble. Students wouldn't complain either. But years later you realize that it's important to think on your own, as you have used your brain and thought about it, you'll understand it. If the teacher provides everything, you know it, but after the tests you forget everything.

The provision of a Chinese translation encouraged not only the students' heavy dependence on the teachers for answers but also prevented them from risk-taking and problem solving (Nuttall, 1996). Consequently, when the same students were required to do EFL reading independently at a tertiary level, it became a very difficult task. As revealed by previous Taiwanese studies, the students became stressed and frustrated when confronted with academic English reading as no Chinese translation was provided and they needed to solve problems by themselves.

Two students expressed their deep concern regarding their EFL reading abilities after they realized the critical role that proficient English played in their academic success at a tertiary level.

(Student YC): If we didn't learn well at high schools, we wouldn't do well at colleges. Because you can't keep moving forward, and there

would be a break. Then we would not be familiar with the language. English is not our mother tongue, so that learning environment is very important.

(Student YY): If we didn't have a solid basis of English language knowledge at secondary schools, then you can't understand anything at a tertiary level, many students simply give up.

In summary, in reviewing their reading learning experience in the past, the students found that the traditional grammar-translation method strongly influenced their reading strategies. Their statements indicate that the students were willing to learn more, but a consistent use of the grammar-translation method at junior high schools constrained their language knowledge acquisition and the development of efficient learning strategies.

Attitudes Towards Reading in English At Tertiary Level

This section deals with the students' attitudes towards reading in English at a tertiary level. According to Day and Bamford (1998), ongoing reading experience refers to classroom environment and includes the variables of teacher, classmates, materials, activities, tasks, and procedures. Therefore, the students' attitudes towards reading in English at tertiary level were closely related to these variables.

This section consists of three parts. The first shows how the students compared the teaching methods used in the tertiary environment with those used at secondary schools. In the second part, the students comment on the reading material used in the present study. The final part shows how the students reported on two major difficulties they faced when reading English.

Comparison of Secondary and Tertiary English Teaching Methods

The major differences between the instructional methods used in the tertiary environment and secondary schools were group work, graphic organizers, and no Chinese translation. The purpose of the teaching strategies was to encourage students to understand the content of a text by means of cooperative learning and graphic organizers. The students' comments highlighted these differences. The students' perceptions of graphic organizers will be discussed in the next section 'Attitudes Towards the Use of Graphic Organizers'. This section presents the statements related to the other two topics: group work and self-reported difficulties in reading in English. Some students' perceptions are reported below.

(Student JY): I think they were different. We used to memorize. But you showed us how to find answers on our own. Previous teachers gave us the answer directly, but you asked us to look for it, although we hoped that you would offer answers so that we could pass the tests easily. If I really wanted to learn something, I'd select your ways. But if I wanted to have high grades, I'd choose the traditional ways. That's for certain.

(Student HJ): I think that I have learned methods for studying English, actually not only English but also other subjects. Even though my English is not good now, I've learned a method that captures key ideas. Now I know there are many ways to study English. It's useful to apply this concept to further studies. I think I've made some progress now.

It is worth noting that these statements were made by two of the low-scorers. The high-scorers pointed out that what they learned from the teaching methods was guessing. Two extracted statements represented this body of perspectives.

(Student CY): You taught us how to make guesses from contextual clues. We had translation before, and we didn't need to do anything. But

now I guess a lot. It also saves time to look up words in the dictionary.

(Student HS): Guessing pushed me to think. I enjoyed this way of learning. I think it suited me.

Guessing semantically from context and organizing the information parts into a complete picture require inference and analysis (Armbruster & Anderson, 1984). The development of these abilities is as important as the ability to recognize words and to identify grammatical features. All reading abilities should be developed in a balanced way. This process should begin when students first start learning English and continue throughout the later years. As reported by the students, this process was neglected in secondary schools.

Group Work. In the present study, the students were encouraged to sit in groups in the English class. The students found this very different from the way the learning was organized in previous English classes. Therefore, a great deal of comment was made on this aspect of the classroom activities. One typical statement illustrates this corpus of perspectives.

(Student YL): When I sat with my team members, I was not so nervous. It was like playing games. We could always discuss and answer the questions in class or complete a learning task. If I didn't know the answer, another student in the group could do it. We all helped each other. We became very close.

In summary, as revealed by the interview data, the use of instructional strategies, such as top-down processing, cooperative learning and graphic organizers provided the students with a wide range of flexible learning strategies appropriate for both high- and low-scorers. As suggested by cognitive learning theories, supplying students with diverse learning strategies enhances both cognitive and affective learning (Bromley et al., 1995; National Reading Panel, 2000). However, the teaching of learning strategies alone cannot contribute to successful learning, the use of suitable reading materials also plays a significant role.

Perceptions of Reading Materials

Reading specialists suggest that reading topics should relate closely to the learner's background knowledge and experience, which play an important role in L2 reading (Day, 1994; Eskey, 1997; McDonough, 2002; Scarcella & Oxford, 1992). The textbook used in the present study *American Headway 3* (Soar & Soar, 2003), was selected carefully with these principles in mind. Generally, the students found the topics in the textbook stimulating, although their interest in specific topics varied. The following two statements represented the students' perceptions:

(Student UZ): I found some topics interesting. I learned new information. The new information in Unit one "It's a Wonderful World" was interesting. Sometimes there are many new words. I looked them up and read the texts through. I learned something new.

(Student ZY): They are interesting. I was excited when I read about pizza and traveling. The materials are authentic. Not dull. Some of us went on Internet to see the Arabian hotel. It looks pretty. I sent the picture to my friends. The "Trapeze Artist" is interesting too. The person in the text travels with the circus. I love traveling.

Compared with the materials used in secondary classrooms, the textbook in the present study seemed difficult, as each reading unit contained a great range of vocabulary and many unfamiliar words. However, both low- and high-scorers found the instruction interesting. In particular, after they generated a graphic organizer, the texts were less difficult than they had seemed to be, at first glance. This is shown in the following extracts.

(Student YY): The texts were long and the words were printed small. There were so many words in one text and it seemed difficult to understand. The textbook used at high school was about one page and with large words. There were lots of long words, too. It seemed difficult when you first saw it. But it became easy after

the teacher explained it, especially after we have constructed a graphic organizer.

(Student YY): The material is challenging. A little bit hard, but not too hard. I needed to preview the vocabulary. I paid attention in class to the teacher's explanation of the grammar and idiomatic expressions. I think the graphic organizer helped a lot too.

Even though the interview data revealed that the majority of students (83%) found the reading materials interesting, the text posed a range of difficulties, particularly for the low-scorers, as no Chinese translation was provided.

Self-reported Difficulties of Reading in English

Two major difficulties of English reading were reported by the students. One of the difficulties was vocabulary and grammar; the other was the students' dependence on Chinese translation. In fact, these two issues are related.

Vocabulary and Grammar

Thirty-one students (74 %) expressed their difficulties in relation to vocabulary and grammar when reading in English. One student (Student PS) described the problem as a "bottle neck" for her. Following are two extracted statements representing this body of interview data.

(Student JY): In English reading, I think it's the vocabulary. Sometimes I couldn't even understand the title, as there were new words in it. If I could understand the title, I probably knew what the topic was about. I would try to read it by finding the sentences I knew. Usually I skipped the ones I didn't know, and guessed the meaning of the content. Vocabulary is really, really difficult for me.

(Student UZ): In a sentence, the present tense, the present progressive tense, the present perfect tense. You need to decide how the forms of verbs change. Is it present tense, or past tense? The sentence becomes so complicated. Some verbs have the same form of past tense and past perfect tense. You have to be able to tell the difference. It's very confusing.

These statements indicate the major difficulties EFL learners confront when reading in English. According to EFL specialists (e.g. Nuttall, 1996), common English words often have more than one meaning. Learners have to select the appropriate one based on the semantic and syntactic clues. Thirty-four students (81%) mentioned that even though they had looked up all the unfamiliar words, the sentences did not sound right. Two of the students' statements are presented below. The extracts represent the perspectives of students of high and low proficiency levels.

(Student YS): Usually I skimmed the text first. If there were new words, I made guesses, and I continued reading to confirm the word meaning from context. If I was not sure, I looked it up in the dictionary.

(Student YP): I looked up the words in dictionary. Since each word had many meanings, I copied every meaning of the word in my notebook. Then I picked the one the teacher said in the English class, and I put it in the text. I found that words and grammar do not exist separately, they are connected to the context of the text.

Obviously, the first statement was made by one of the high-scorers, the second was made by one of the low-scorers. Both statements indicate that both top-down and bottom-up processing are important during the reading process. According to the aforementioned viewpoints, longer texts with plenty of vocabulary and complicated grammar appeared to be difficult for the participants. This caused difficulties when the students were generating a graphic organizer. Thirty-two students (76%) stated that the long texts, for example "Who wants to be Millionaire. We do" were difficult. The shorter texts, such as "The Trapeze Artist",

were easier (see Appendix 4). However, regardless of the length of the texts, some students requested a Chinese translation.

The Dependence on Translation

Eight students (20%) suggested that a Chinese translation of the whole text would be helpful. Twenty-six (62%) students stated that the teacher should not provide a Chinese translation for the whole text, except for the key words and long sentences, otherwise they would depend heavily on Chinese translation again. Representative statements appear below:

(Student ZL): I think Chinese translation suits me. I'm used to it. It helps me with reading English. With translation, when I read it over and over, then I know the word meanings. After I understand the text, translation will not be necessary. I think graphic organizers are like our hair styles. Long hair suits some people, while short hair suits others. As I am weak in English, translation is more helpful than graphic organizers.

(Student YS): I didn't need the teacher to provide a Chinese translation. If the teacher provided the translation, we wouldn't look up the words. We wouldn't need to remember their meaning. We became dependent on the translation. We didn't learn the vocabulary. The teacher didn't want us to learn by rote, and I did well in tests. I did poorly at the Joint College Entrance Examination, and that worried me when I entered college. I'm much more confident now. I don't like learning by rote. I try to understand the content. I think it would be better if the teachers hadn't provided Chinese translations at secondary schools. We became heavily Chinese-dependent.

It was obvious that first statement was made by one the low-scorers, the second by one of the high-scorers. Both statements indicate that comprehension is the fundamental purpose of EFL reading, with or without translation. A more important message conveyed by the first

statement was that translation was utilized mainly as a means to achieve comprehension rather than “a means to an end”, as observed by Arden-Close (1999).

In summary, successful instruction and learning with regard to EFL reading can be attributed to multiple factors. Based on the statements mentioned above, the teacher’s beliefs about reading and reading instruction play a dominant role in the EFL classroom. The teacher’s beliefs about reading influence the selection of the materials and teaching methods and also influence the interaction between classmates (Day & Bamford, 1998). As a result, the students’ attitudes towards the use of English in their future lives are formed during their time in EFL classrooms.

Attitudes Towards Future Use of English

The Perceived Importance of Reading

All students (100%) acknowledged the importance of reading in English. They felt that their academic success at a tertiary level and their future career would be affected by their fluency in English, although some students were equivocal due the difficulties they had already confronted.

(Student YL): It’s much more important now because we are studying nursing. We need to use English frequently, especially the medical terms. When we work at hospitals, doctors write in English. We use a lot of terms in English as well. We need to read journal articles in English. If your English is not good, you’ll have a lot of problems. If teachers require us to read English journal articles, because the pharmacological terms are all in English, doctor orders are in English, that will make it difficult for me. I might give the incorrect medicine. It’s very important.

Seventeen students (37%) stated that they were interested in English as long as they could understand the reading passages. They were willing to learn English but lacked effective methods for increasing their spoken and written proficiency. However, some students were reluctant to learn English due to the past experience.

(Student JY): I like English. It sounds beautiful. I really like learning it. It's a great language. However, at the same time, I don't like it because I don't understand it. I'd be interested in it, if I could understand what it tries to tell me.

(Student LL): I'm reluctant to learn it. My basic English knowledge is poor. The learning environment is not effective. I kind of hate it. I'm afraid of it. I run away from learning English as much as I can.

As demonstrated by the three examples above, the students' attitudes towards reading in English varied. It seems that both the students' English language proficiency and their past learning experiences influenced their attitudes towards their use of English in the future. How to provide effective cognitive strategies and an appropriate learning environment to enhance the learners' EFL reading abilities and to motivate them to read seems to be a never-ending task for EFL reading teachers in Taiwan.

Attitudes Towards the Use of Graphic Organizers

In the present study, two types of graphic organizers, teacher- and student-generated, were used as post-reading activities in a tertiary EFL reading class. Analysis of the interview data revealed that three subthemes emerged under the theme of "learning experience" in the present study. The subthemes were (a) the impact of graphic organizers and (b) the students' perspectives regarding teacher- and student-generated graphic organizers, and (c) the cost of generating a graphic organizer.

The Effects of Graphic Organizers

All 46 students (100%) interviewed stated that they had not seen graphic organizers before and that this was the first time that they had used this strategy in an English reading class. All the students informed the interviewer that the use of graphic organizers as post-reading activity was effective in helping them with EFL reading.

The students found graphic organizers useful for two main reasons. First, graphic organizers helped them to grasp main ideas enabling them to get the gist and learn new vocabulary. The interview data also showed that student-generated graphic organizers promoted interaction with classmates and active thinking. However, the students also reported that it was difficult at times to construct a graphic organizer on their own. The students' viewpoints will be illustrated in the following sections.

Getting the Gist

All students (100%) agreed that graphic organizers were useful in grasping key ideas and thereby helpful in understanding the gist of a text. Some students also found it novel and interesting when graphic organizers were first used in the present study. Two extracts from the interview data summarize the students' viewpoints.

(Student HS): I hadn't had that experience before. It was fun. When it was first used in the English class, I found it helped to grasp key ideas in the text easily, even when you hadn't previewed the text. You could skip unimportant information and get the gist quickly. If I read by myself, it's difficult to find the main ideas, especially when the text is long and has many new words.

(Student YY): The combination of graphic organizers and text helps you to get the gist quickly. It helps you to grasp the key ideas. I like this way of learning. It is very useful in EFL reading. It can be more

effective, especially when you are reading a long text. I found it interesting.

In addition to understanding the text easily through the organized overview of the visual display, two students pointed out that the effect of graphic organizers was to show them the parts they did not understand and focus their attention to those parts.

(Student CM): Graphic organizers show you the key points in a text. The important words are placed in the boxes. It is useful to help you pay attention to the vocabulary, idioms or main ideas that you don't know.

(Student SW): It's good to use graphic organizers in English reading, as it shows you the parts you are not familiar with. I don't think you need to use it in Chinese. We understand Chinese texts already. It's useful to apply it in English reading. It helps you focus on the parts you don't understand.

It is important to note that the above four statements were made by both high- and low-scorers. Their statements indicate that graphic organizers seemed to be perceived as effective strategies by both high- and low-scorers.

Overcoming Language Barriers

One of the students (Student HT) stated the graphic display reduces language barriers in EFL reading by omitting unimportant vocabulary and grammatical features.

(Student JY): I think graphic organizers are great. A graphic organizer omits things like grammar and many words. Some sentences are long and complicated. It decreases the difficulties caused by these things. It shows you directly the key points. Some words are omitted. Therefore, I find the strategy great.

By displaying key ideas in an organized manner and thereby omitting the less important information in a text, graphic organizers help to make a text more comprehensible (Tang, 1992).

Enhancing Vocabulary Learning

In addition, the students also found graphic organizers very useful when it came to learning vocabulary. In the following extracts are three different viewpoints drawn from fifteen students' (33%) comments.

(Student LL): It's easier with graphic organizers. You don't need to memorize every word. You recognize the word meaning when you see it, not like we used to do before, only memorization. Sometimes it took me a long time to recall the word meaning. There wasn't any clue to make associations. But now when you see the words, you can guess the meaning of them and often the next word as well.

(Student CM): It used to take me a long time to memorize vocabulary. It's much faster now. You know the meaning and you know how to sound them out. The words are chunked in groups. It's easier to remember them.

(Student WZ): The words are placed in boxes, and the boxes are connected by lines. It helps you to think of the words by linking one to another. I still remember plenty of words now.

The above statements represented the students' viewpoints of the *general* effects of graphic organizers in EFL reading. In the present study, two types of graphic organizers were used, teacher- and student-generated. Hence, the following section will present the students' comments on the use of these two types of graphic organizers.

Perspectives of Student-generated Graphic Organizers

All of the students expressed the opinion that there was a great difference between the teacher- and student-generated graphic organizers. The students found the graphic organizer to be a more useful strategy when they constructed their own. Before they started to map, it was necessary for them to understand the text, to find out key ideas and to understand the relationships between these ideas. After that, they were able to organize them in a proper order. During the process, they were more actively involved in comprehending the content of the text. As a result, the mapping process also promoted thinking.

However, the use of student-generated graphic organizers was not without some disadvantages and difficulties. Some of the students found that mapping on their own consumed too much time, whereas some others found the time spent worthwhile. The difficulties they encountered centered on finding key ideas and creating linking words or phrases. The key factor that caused difficulties in constructing a graphic organizer independently was the students' difficulty in reading English. The students' comments will be presented in the following sections.

Enhancing Reading Comprehension

The main reason why student-generated graphic organizers were more useful in promoting comprehension was that the students needed to understand the content of the text before they started to map. The students' perceptions are summed up in the following:

(Student PS): You need to figure out the word meanings and grammatical features that you don't know. If you don't understand them, you can not map. After you find out the key ideas, and organize them, the text becomes crystal clear.

Studies have pointed out that students learn in a rather passive way when the graphic organizers are constructed by the teachers (Askov, 1990). When learners are required to construct their own graphic organizers, it promotes better comprehension as learners are forced to get involved in reading process more actively. Consequently, the result is more beneficial to the learners (Barron & Schwartz, 1984).

Interaction Between Classmates

More than half of the students (70 %) stated that it was difficult when they constructed their first graphic organizer without teacher intervention. It was necessary to exchange ideas and see how other students constructed their maps. However, the activity promoted discussion amongst the students and made the mapping task more manageable. The students' views are made quite clear in each of the following extracts.

(Student LL): It was difficult when we constructed the first one on our own. We discussed this with one another in the group. One student in our group took charge of the mapping. We discussed the work together. Sometimes you felt it was not right, and sometimes you got stuck. Then you needed other students' opinions to get through the barriers. You couldn't complete it alone. It was very different from previous learning. We used to study individually, memorizing words and texts. But now we have to work out a problem together. We could be creative too.

(Student JY): It was difficult when we did the first one by ourselves. We worked together to finish the first map. I think English is something you need to sit together and discuss. You couldn't complete a map on your own. When we were discussing during the mapping process, we put together the words we knew. You knew 10 words, I knew 15 words, and she knew 10 words. There was a lot when these words were added up together. We asked one another for help. I do think discussion and interaction

are important in learning English. Then I understood what the content was about. It was not difficult to map if we worked in groups.

As revealed by these statements, the students experienced a different way of learning through generating a graphic organizer independently. Student-generated graphic organizers promoted cooperative learning and active learning. In addition to that, constructing a graphic organizer allowed the students to be creative, as no standardized answers were provided. One student (Student WT) described the mapping process as very “challenging”.

Promoting Thinking

The third aspect of student-generated graphic organizers was their ability to promote thinking, as reported by eighteen students (39%). They stated that, in the previous reading, learning thinking was not required, as the Chinese translation was provided. Even with teacher-generated graphic organizers in the first stage of the present study, they did not need to think actively because a framework for the text content was presented. Students commented on this aspect of the learning in the following way.

(Student HC): When you mapped on your own, you needed to read the text carefully. You needed to think about what the text was trying to tell you. Then you started to put the ideas into the map. We used to have translations before. Then we knew the meaning of the text and memorized it. That was easy. You didn't need to think. But mapping was very different. It took me two hours to finish my part, which was one paragraph in the unit of “Millionaire”. It was difficult. It took me a long time to think. I revised it over and over. After I finished it, I found it worthwhile. A sense of achievement. It helped less proficient students like me. The completed organizer showed me the main ideas clearly.

(Student HJ): You taught us not to look up words as soon as we saw one. Graphic organizers encouraged us to guess word meaning from context. It helped with inferring and promotes thinking. I've never guessed meaning from context before, as word meanings and translation in Chinese were provided.

It is interesting to note that the first statement was made by a low-scorer, the second by a high-scoring student. Regardless of the students' English proficiency levels, these statements reveal that inferring and thinking were seen by the students to play an important role in reading comprehension.

The Drawbacks of Generating Graphic Organizers

Even though the use of graphic organizer was effective in several ways, it was not without disadvantages and difficulties. In the following section, the students commented on the disadvantages and difficulties they experienced during the process of generating a graphic organizer.

Time-consuming

Twelve students (22%) stated that organizing a text graphically took effort and consumed a great deal of time. Interestingly, however, other students (78%) thought it was worth the investment of time and effort. Here are two statements representing the opposing perspectives.

(Student UZ): It took me a great deal of time to think about the linking words and to find the key ideas and how they were related. If you didn't do it well, you felt frustrated, as the result might not be satisfying after you had spent so much time on it. I had other subjects to study. It was a good method. It was ok if we didn't have tests or exams. If we did, I wouldn't want to do it.

(Students MF): At first I found it complicated when we were mapping on our own. Later it was fun. Because you had to read through the text very carefully, then you were able to map. If you could complete a map that meant you already understood the text. You got a sense of achievement.

One student (Student SC) stated “It took time to think.” This supports studies demonstrating that the mapping process can be conceptually demanding as it involves active thinking and thinking takes time. The time required for the mapping process may have been one of the difficulties for the participants as they had twelve other subjects to study other than English.

Although the two statements reported contradictory views on student-generated graphic organizers, both of them indicated that generating a graphic organizer required a lot of preparation. It took time to figure out word meanings and also to read the text over and over to understand the content. It also took time to search for key ideas and linking words and to integrate them systematically.

Difficulties with Linking Words

Most students (88%) pointed out that finding key words and linking words was difficult. Several students (12%) stated that linking words were more difficult to find since sometimes they had to paraphrase or create appropriate words. Here is a typical statement.

(Student MY): I could grasp the key ideas, but linking words were sometimes difficult. If there was a key point in one paragraph and another one in the next paragraph, then you needed to create the appropriate linking words. Sometimes it was difficult.

In summary, the students’ overall attitudes towards the use of graphic organizers in an EFL reading class were positive, although there were some difficulties when they generated

one on their own. Considerable time and effort investment was necessary to complete a map. Hence, it is not surprising that one student (Student HS) pointed out that it was a great achievement to complete a satisfactory map. What touched the researcher was that the students tried their best to finish the mapping task even though they lacked sufficient time to construct a sophisticated graphic organizer.

Summary

The analysis of the interview data indicates that there were advantages and disadvantages regarding the use of graphic organizers in the EFL reading class. Students reported that they appeared to derive greater benefit from the use of student-generated graphic organizers. Furthermore, they reported their favorable response to the reading materials used in this study. Comparing the students' previous EFL reading learning experience to the experiences they had with graphic organizers in the present study, the interview data provided insights into the students' perceptions. The students found the learning strategy of graphic organizers not only novel, but also more effective in promoting reading comprehension than the grammar-translation method. Most significantly, the students were more actively involved in the learning process than they had been in contexts that promoted the grammar-translation method.

CHAPTER 7

DISCUSSION AND CONCLUSIONS

“Change is a gradual, sustained process.” (Millet, 2000, p. 115)

The purpose of the present study was threefold. The first purpose was to investigate the effects of the different, but parallel, forms of graphic organizers, teacher- and student generated, on tertiary students' EFL reading comprehension in a Taiwanese tertiary context. The second purpose was to explore the effects of the two different graphic organizer strategies on participants' attitudes towards reading in English. Finally, this study examined the participants' attitudes towards the use of the two graphic organizers in the EFL reading class.

Accordingly, this chapter consists has been divided into three major sections. Each section consists of several subsections regarding the hypotheses.

Reading Comprehension

Summary of Findings

A number of important findings emerged from this section of the study. First, significant difference was found between the scores obtained in Pre- and Post-reading Comprehension Tests. The Pre-reading Comprehension Test was employed after the use of teacher-generated graphic organizers, which the Post-reading Comprehension Test was conducted after the use of student-generated graphic organizers. In addition, significant difference was found when a comparison between high- and low-scorers' reading comprehension outcomes was made. The results indicated that the high-scorers surpassed the low-scorers in both reading comprehension tests.

The second finding referred to the participants' attitudes towards reading in English at three stages of the study: the pre-treatment stage, after the teacher-generated graphic organizers and after the use of student-generated graphic organizers. No significant difference was found regarding the students' attitudes towards reading in English between the pre-treatment stage and after the use of teacher-generated graphic organizer. However, significant difference between attitudes was found to the use of teacher- and student-generated graphic organizers. Moreover, the results showed that the attitudes of high- and low-scorers towards reading in English varied.

In relation to the students' attitudes towards the use of the two types of graphic organizers in EFL reading, to the researcher's surprise, no significant difference was found. The following section presents a summary of the hypotheses postulated in Chapter 3 and the quantitative and qualitative results reported in chapter 5 and 6.

Hypothesis 1.1 stated that there would be a significant difference between the use of teacher- and student-generated graphic organizer on participants' reading comprehension, as measured by the Pre- and Post-reading Comprehension Test.

As shown in the quantitative results, this hypothesis was supported ($t = 8.66$, $p < .001$, $df = 49$). This result was consistent with emerging empirical evidence that supports the use of graphic organizers in instruction to promote reading comprehension in both L1 (Alvermann, 1981; Boyle & Weishaar, 1997; Gobert & Clement, 1999; Horton et al., 1995) and L2 (Huang, 2004; Jau, 1998; Kro, 2003; Tang, 1992). The analysis of the interview data provided rich data through which to interpret the effects of student-generated graphic organizers on reading comprehension.

1. The student-generated graphic organizers required active participation in the reading process. According to Alvermann (1981), Anderson and Armbruster (1984), Barron and Schwartz (1984), and Tang (1992), student-generated graphic organizers require the students' active engagement in the text in order to portray the pertinent ideas and relationships between these ideas into a holistic picture. Accordingly, this process assists or forces the learners to attend to or analyze the semantic content. This in turn leads to a deeper and more sustained level of comprehension of the reading materials.

The interview data supported these perspectives. The students reported that they needed to read through the text over and over to understand it in order to identify key ideas and their relationships in preparation for generating a graphic organizer independently. Moreover, during mapping, thinking was necessary in order to arrange the ideas and the relationships in a proper order. As a result, the completed graphic organizer was an extract of information contained in the text content. This provided a good review.

The students' viewpoints corresponded with those of Long and Aldersley (1984), who concluded in their study on hearing-impaired students, that the effect of networking was to assist less English proficient learners to "identify important concepts when reading and summarizing the gist of passage" (p.

109). Consequently, the visual representation of the reading materials promoted knowledge acquisition, storage, and retrieval.

In contrast to student-generated graphic organizers, teacher-generated organizers may decrease the amount of student effort expended on the learning task, as suggested by Simmon, Griffin, and Kameenui (1988). This perspective was also supported by the interview data when the students suggested that teacher-

generated graphic organizers might result in passive learning as they waited to be fed with the right answers.

2. The graphic organizer reduced language barriers by focusing on important information, omitting extraneous information and decreasing grammatical difficulties (Tang, 1992). This provided “comprehensible input for students who learn English as a second language” and helped low proficiency learners to overcome language difficulties via a form they could handle more easily (Tang, 1992, p. 190).
3. The student-generated graphic organizer promoted vocabulary learning. This result was consistent with the findings of Barron and Schwartz (1984). According to Barron and Schwartz, the mapping procedure provides “a structure whereby students simultaneously reviewed and relearned vocabulary concepts” (p. 285). Additionally, according to schema theory, knowledge in human memory is stored in a networking manner, in which all concepts or schemata are interrelated (Holley & Dansereau, 1984; Kintsch, 1978; Novak & Gowin, 1984). The advantages of the network with interrelated concepts facilitate association and inference (Anderson, 1978, 2004; O’Malley & Chamot, 1990).

Hypothesis 1.2 stated that there would be a significant difference between teacher- and student-generated graphic organizers on high-scorers’ reading comprehension as measured by the Pre- and Post-reading Comprehension Test.

Hypothesis 1.3 stated that there would be a significant difference between teacher- and student-generated graphic organizers on low-scorers’ reading comprehension as measured by the Pre- and Post-reading Comprehension Test.

The quantitative data analysis demonstrated that significant difference was found for the high-scorers' Pre-and Post-Reading Comprehension Test ($t = 6.96$, $p < .001$, $df = 26$). Similarly, significant difference was also found for the low-scorers' Pre- and Post-Reading Comprehension Test ($t = 5.57$, $p < .001$, $df = 22$). The results indicated that the student-generated graphic organizer facilitated reading comprehension of both the high- and low-scorers.

Hypothesis 1.4 stated that there would be a significant difference between high- and low-scorers' reading comprehension after the use of teacher-generated graphic organizers, as measured by the Pre -reading Comprehension Test.

Hypothesis 1.5 stated that there would be a significant difference between high- and low-scorers' reading comprehension after the use of student-generated graphic organizers, as measured by the Pre -reading Comprehension Test.

The quantitative results indicated the effect of "language competence ceiling" (Clarke, 1979) that prohibited the low-scorers from surpassing the high-scorers. In other words, the students with better English language proficiency significantly outperformed the low-scorers on the Pre-Reading Comprehension Test ($t = 2.93$, $p < .01$, $df = 48$) and Post-Reading Comprehension Test ($t = 3.08$, $p < .01$, $df = 48$).

The qualitative data analysis revealed that the majority of the students (74%), particularly the low-scorers, reported vocabulary difficulties as the major barrier to comprehension of text. This result was congruent with previous studies of L2 learning, such as Koda (1992, 1996), Haynes and Baker (1993), Gan et al. (2004), Huang (2004), and Park (2004). The findings of these studies pointed out that for L2 learners, vocabulary played a critical role in reading comprehension. Hsueh-chao and Nation (2000) suggest in their study

that if the threshold is below 80% vocabulary coverage, comprehension will be difficult. Additionally, Gan et al. (2004) reported in their study that all of the unsuccessful EFL Chinese college students indicated that the major difficulty they had with reading was related to knowledge of vocabulary.

Therefore, the students emphasized in the interviews that it was very important that the teacher provided a vocabulary list, which covered at least the key words or phrases in the text, and explained the word meanings in the class. The students further commented that if they had a general idea of what the reading passage was about, it would help them to guess or predict words and to identify adequate word meanings in a dictionary. This perception was consistent with the perspectives of L2 reading specialists, who have emphasized the importance of pre-teaching unfamiliar vocabulary to provide word definitions, particularly, when the learners are less proficient (Carrell, 1988a; Cross, 1991; Grabe, 1995; Nation, 2005; Rost, 2005).

In addition, 20% of the low-scorers requested a Chinese translation to help them understand the meaning conveyed in the text. The result was congruent with the findings in Saito and Ebsworth (2004). According to Oxford (1990), translation can foster comprehension when it is used as one of the cognitive strategies at early stage in language learning. However, research has suggested that translation can also do harm to students' L2 learning when it becomes the method that language learners rely on heavily (Field, 1984), and turns out to be "a means to an end" (Arden-Close, 1999). Nuttall (1996) comments that it is an inappropriate kind of help if teachers translate the target language into the mother tongue as the students may view their role as passive receivers. The issue of how to use translation appropriately in an L2 classroom probably requires further investigation.

In summary, the findings in the present study reported that the student-generated graphic organizer encouraged better reading comprehension than did the teacher-generated graphic organizers. As suggested earlier in this chapter: (a) student-generated graphic organizers

involve the learner's active engagement in the learning; (b) completed organizers provide a summary of the learning material; (c) for L2 learners a graphic organizer decreases extraneous information and grammatical difficulties; and (d) student networking assists with association and inferencing, rather than rote learning.

Attitudes Towards Reading in English

The theoretical model of the present study was based on Day and Bamford's (1998) Second Language Reading Attitude Model. The quantitative data was collected via Hung's (2000) English Reading Attitudes Questionnaire (ERAQ). The questionnaire was administered three times: as a Pre-, Mid-, and Post-ERAQ. The qualitative data was collected through semi-structured group interviews.

Summary of Findings

The comparison of the pre- and mid-English reading attitudes questionnaire (ERAQ) did not show any significant difference, whereas the comparison of Mid- and Post-ERAQ showed significant difference. The interview data analysis provided probable explanations.

Hypothesis 2.1 stated that the teacher-generated graphic organizers would have a significantly positive impact on all participants' attitudes towards EFL reading when compared to none use of graphic organizers as measured by the English Reading Attitude Questionnaire.

The comparison of the Pre-English Reading Attitudes Questionnaire (ERAQ), which was administered at the pre-treatment stage, and the Mid-ERAQ, which was employed after the

teacher-generated graphic organizers, revealed no significant difference between the two variables ($F = .58, p > .05$). The qualitative results showed that the teacher-provided organizers offered a good summary of the reading passage. Furthermore, the students emphasized the importance of the teacher's modeling and guided practice prior to the independent application. However, the disadvantages of teacher-provided organizers were passive learning and the risk of memorizing the teacher's organizers.

Hypothesis 2.2 stated that the student-generated graphic organizers would have a significantly positive impact on all participants' attitudes towards EFL reading when compared to the teacher-generated graphic organizers, as measured by the English Reading Attitude Questionnaire.

The quantitative results showed significant difference ($F = 4.16, p < .001$) regarding the participants' attitudes towards reading in English after using teacher- and completing student-generated graphic organizers. The qualitative data analysis provided explanations for this significantly positive change. The most important reason was the linking of cooperative learning with graphic organizers. The interview data revealed that generating a graphic organizer independently enhanced active learning, while discussion with fellow students promoted problem solving.

The qualitative results can be summarized in the following way:

1. During the discussion everybody had something to contribute. Several students acknowledged that English learning should be an active activity filled with exchange of ideas and interaction with classmates.
2. Discussion fostered thinking. The students stated that they did not need to think when translation was provided. In contrast, in the present study, the students found

that reading in English involved active thinking.

3. Discussion decreased classroom tension and anxieties about learning, and thereby increased the interest in learning. The students stated in the interview that it was difficult to generate a graphic organizer independently, particularly if the text was long. Discussion made the learning task easier to handle and supported comprehension. After a graphic organizer had been completed, the students felt a sense of achievement. This, in turn, motivated the students to learn intrinsically. The results were consistent with the work of Governale (1997).

Even though research has urged the use of linking graphic organizers and cooperative learning to promote learning attitudes (Avery & Avery, 1994; Bromley et al., 1995; Egan, 1999; National Reading Panel, 2000), few empirical studies have been conducted in an L2 context to examine the effects of linking cooperative learning and graphic organizers in the EFL context. The results shown in the present study provided empirical support for the positive impact of linking graphic organizers and cooperative learning on the students' attitudes towards reading in English at a tertiary level. However, the findings are inconclusive due to the small sample in the present study. Further evidence for the results is still required.

Hypothesis 2.3 stated that the teacher-generated graphic organizers would have a significantly positive impact on high-scorers' attitudes towards EFL reading when compared to none use of graphic organizers, as measured by the English Reading Attitude Questionnaire.

Hypothesis 2.4 stated that the student-generated graphic organizers would have a significantly positive impact on high-scorers' attitudes towards EFL reading when compared to teacher-graphic organizers, as measured by the English Reading Attitude

Questionnaire.

The comparison of the high-scorers' Pre- and Mid-ERAQ did not show any significant difference ($F = 22, p > .05$). This indicates that teacher-generated organizers did not affect these students' attitudes towards reading in English. The probable reason, as suggested by the relevant literature (Anderson, 1991; Arden-Close, 1993; Carrell, 1989; Carrell, Carson, & Zhe, 1993), was that these students had already applied various strategies when reading, so that the graphic organizer was just one of a number of strategies available to these students.

However, these students' attitudes towards reading in English had significantly positive change after the use of student-generated graphic organizers ($F = 4.22, p < .01$). The analysis of the interview data showed that these students found that the top-down processing strategies such as predicting and guessing were useful in English reading as they did not like rote learning. However, active strategies had not been modeled or demonstrated in secondary schools.

Hypothesis 2.5 stated that the teacher-generated graphic organizers would have a significantly positive impact on low-scorers' attitudes towards EFL reading when compared to none use of graphic organizers, as measured by the English Reading Attitude Questionnaire.

Hypothesis 2.6 stated that the student-generated graphic organizers would have a significantly positive impact on low-scorers' attitudes towards EFL reading when compared to the teacher-graphic organizers, as measured by the English Reading Attitude Questionnaire.

Similarly to the quantitative results of the high-scorers' attitudes towards reading in

English at the three stages, the analysis of the quantitative data of the low-scorers' Pre- and Mid-ERAQ did not show any significant difference ($F = 1.52, p > .05$), whereas the quantitative analysis of the Mid- and Post-ERAQ indicated significant difference ($F = 3.83, p < .01$).

The analysis of the interview data revealed that the students were used to memorizing the teacher-provided graphic organizers and learning English in a rather passive manner. The significantly positive impact of student-generated graphic organizers was mainly due to the linking of cooperative learning and student-generated graphic organizers.

Hypothesis 2.7 stated that there would be a significant difference between high- and low-scorers' attitudes towards EFL reading at the initial stage when none use of graphic organizers, were employed as measured by the Graphic Organizers Attitude Questionnaire.

The quantitative data analysis of the high- and low-scorers' Pre-ERAQ showed significant difference ($F = 4.08, p < .05, df = 1,48$). The results indicated that the low-scorers had significantly less positive attitudes towards reading in English prior to the treatment.

The qualitative data analysis revealed abundant information regarding the students' reading experience in the past. These students' experiences were closely correlated with the teaching methods and the teachers' support and approachably in secondary schools. Such past experiences had not only influenced the students' and their attitudes towards reading in English at the tertiary level, but also their attitudes towards the use of English in the future.

According to the interview data, all of the low-scoring students reported unpleasant learning experiences due to either the teaching styles or the teachers' attitudes towards individual students in secondary schools. The negative experiences had significant impact on the low-scoring students' attitudes towards English reading. The results were congruent

with several studies, including Gan et al. (2004) and Hung (2000).

Yoshimura (2000) suggests that students usually have an intense interest in learning English at the beginning stage. Gradually, they lose interest due to the monotonous teaching methods of grammar and translation. Gan et al. (2004) reported in their study that the unsuccessful students found that the boredom of the traditional teaching style and low-level support of the teachers caused “a sense of helplessness and loss of confidence” (p. 236). This learned helplessness had significantly affected not only on the students’ self-esteem, but also their attitudes towards learning English.

Hypothesis 2.8 stated that there would be a significant difference between high- and low-scorers’ attitudes towards EFL reading after the use of teacher-generated graphic organizers, as measured by the Graphic Organizers Attitude Questionnaire.

Hypothesis 2.9 stated that there would be a significant difference between high- and low-scorers’ attitudes towards EFL reading after the use of student-generated graphic organizers, as measured by the Graphic Organizers Attitude Questionnaire.

The quantitative results reported that no significant difference was found between the high- and low-scorers’ attitudes towards English reading after the implementation of the graphic organizer strategy ($F = .41$, $p > .05$, $df = 2.47$).

The results indicated that the use of graphic organizers significantly improved the low-scorers’ attitudes towards English reading. Likewise, the analysis of the qualitative data reported similar results. However, the findings of the present study are inconclusive. Further empirical support is still required.

In summary, data analysis for the present study revealed that learners’ reading attitudes were closely correlated with classroom environment (Day & Bamford, 1998), especially in

the EFL context where language input and exposure to reading are limited (Yoshimura, 2000). The teachers' styles, the teaching strategies, learning activities and materials all affect the learners' attitudes towards reading in an L2. Positive experiences in the classroom encourage intrinsic motivation towards L2 reading. In contrast, unfavorable experiences may result in a loss of interest or even very negative attitudes towards reading in English.

Attitudes Towards the Two Types of Graphic Organizers

The analysis of the quantitative data did not show any significant differences between the students' attitudes towards the teacher- and student-generated graphic organizers. The analysis of qualitative data provided possible explanations for the results.

Summary of Findings

This section discusses the students' attitudes towards the use of the two types of graphic organizers in the EFL reading class. The results of quantitative analysis did not show any significant difference overall, nor did the comparison of the attitudes of high- and low-scorers. The analysis of the qualitative data provided possible explanations for the lack of significant differences in these areas.

Hypothesis 3.1 stated that there would be a significant difference in all participants' attitudes towards the use of teacher- and student-generated graphic organizer, as measured by the Graphic Organizers Attitude Questionnaire.

The quantitative results reported that no significant difference was found regarding the participants' attitudes towards the use of teacher- and student-generated graphic organizers

($t = .29$, $p > .05$, $df = 49$).

Hypothesis 3.2 stated that there would be a significant difference in the high-scorers' attitudes towards the use of the two types of graphic organizers, as measured by the Graphic Organizers Attitude Questionnaire.

Hypothesis 3.3 stated that there would be a significant difference in the low-scorers' attitudes towards the use of the two types of graphic organizers, as measured by the Graphic Organizers Attitude Questionnaire.

The quantitative data analysis showed no significant difference between the high-scorers' attitudes to the two types of graphic-organizers ($t = .19$, $p > .05$, $df = ,26$); nor was any significant difference found between low-scorers' responses to the two different graphic organizer strategies ($t = .21$, $p > .05$, $df = ,22$).

Hypothesis 3.4 stated that low-scorers' responses to teacher-generated graphic organizers would be significantly different from that of the high-scorers, as measured by the Graphic Organizers Attitude Questionnaire.

Hypothesis 3.5 stated that low-scorers' responses to student-generated graphic organizers would be significantly different from that of the high-scorers, as measured by the Graphic Organizers Attitude Questionnaire.

Although comparison of the mean scores shows that low-scorers' responses to the two graphic organizer strategies were slightly higher than those of the high-scorers, no significant differences were found between the high- and the low-scorers' responses to the teacher-

generated ($t = .87, p > .05, df = 48$) and student-generated graphic organizers ($t = .38, p > .05, df = 48$).

These results, as revealed in the interview data, can be attributed to the cognitive load caused by language difficulties, the mapping process, and time constraints in producing a satisfactory map. The students pointed out that repeated reading and thinking were necessary before and during the process of mapping. In addition, constant revisions were required. Therefore, the process could sometimes be frustrating for some students. It is not surprising to find that some students wanted to study in their own ways instead of using a graphic organizer and a more group-oriented method of learning.

Furthermore, all students mentioned the importance of constant practice in mapping techniques. The students claimed that the mapping techniques were not difficult after they had captured the principles of mapping. They could easily construct an organizer with a text written in Chinese. Consequently, several students, especially the low-scoring students found the graphic organizer strategy very helpful when they used it to study Chinese subjects, such as Introduction to Nursing, Anatomy, and Physiology. They could easily transfer the skills to studying Chinese. The result of this transfer effect was consistent with Griffin, Malone, and Kameenui (2001). In the present study, the students transferred the mapping strategy across disciplines.

In summary, the students' attitudes towards the two types of graphic organizers were not significantly different. The possible reasons for this were the cognitive load caused by the mapping procedure, and the difficulties of the reading passages. The students suggested that sufficient time to think and revise was vital for completing a satisfactory organizer. However, the interview data analysis depicted the transfer effect of the graphic organizer strategy and this alone made the strategy one worth taking seriously in all EFL contexts.

Limitations of the Present Study

The present study was limited in terms of its size and composition as the participants were female students and drawn from freshmen of one technological educational system (TVES) college in Taiwan. Therefore, caution is warranted in generalizing from these results to other colleges or universities.

CONCLUSIONS

Research into reading comprehension supports the interactive view of reading in both L1 and L2 to achieve reading comprehension. The process involves the interaction between the reader and the text as well as the interaction between bottom-up and top-down strategies. The graphic organizer is a strategy that supports the interactive model of reading.

According to cognitive psychologists, the graphic organizer falls under the rubric of schema theory (Anderson & Pearson, 1984; Barron, 1969; Dye, 2000; Pehrsson & Denner, 1989). The graphic representations mimic the cognitive view of how information is structured in a networking fashion in the memory (Bromley et al., 1995). This network helps the learners to focus on important information (Bromley et al., 1995) and to select, organize, and integrate important information into a coherent state (Mayer, 1989, 1996).

Moreover, research in both educational and cognitive psychology, supports the use of graphic organizers in reading. Visual learning techniques stimulate a dual coding effect, which allows students to comprehend more information, associate it with other ideas and incorporate new insights into their prior knowledge. As a result, learning will be easier when information is dually coded by using both visual and verbal modes (Darch & Carnine, 1986; Mastropiero & Scruggs, 1997).

Graphic organizers have been viewed as both cognitive and language tools. As cognitive

tools, a graphic organizer summarizes information and ideas in the text (Pehrsson & Denner, 1989). As language tools, the graphic organizer not only emphasizes semantic relationships but also offers opportunities for the learners to exercise the use of language (Pehrsson & Denner, 1989). Hence, it has been suggested that less successful learners obtained greater benefit from graphic representations (Holley et al., 1979; Holley & Dansereau, 1984; Long & Aldersley, 1984; Mayer, 1989; Mastropiero & Scruggs, 1997; Sinatra et al., 1984).

The graphic organizer has two different, but parallel, types: teacher-generated and student-generated. Each has different functions and effects on learning. Graphic organizers can also be flexibly implemented at different stages of learning. However, research has pointed out that graphic organizers yield greater positive learning outcomes when used as post-reading activities and generated by the students. This involves not only the students' active engagement in the reading process but also produces a visual display of learned vocabulary and knowledge.

In recent years, research on graphic organizers has recommended the use of linking cooperative learning and graphic organizers to enhance cognitive and affective learning (Avery & Avery, 1994; Baxendell, 2003; Bromely et al., 1995; Egan, 1999; Irwin-DeVitis et al., 1999). If this is undertaken, students will benefit from some of their more knowledgeable peers providing scaffolding to support their understanding (Pehrsson & Denner, 1989; Pressley & Hilden, 2002).

Based on the above theoretical notions, the researcher conducted the present study in the hope that student-generated graphic organizers as a post-reading activity enhance TVES tertiary students' EFL reading comprehension and improve their attitudes towards reading in English.

The present study has added to the literature of L2 reading in three important ways. First, this study involves students in a classroom environment of EFL reading to investigate the effects of graphic organizer on reading comprehension in an EFL college reading class. The

result indicated that the student-generated graphic organizer, which has been proven effective for L1 students, can be successfully applied to an EFL college reading class with students of diverse English levels. From this study, it was found that EFL college students overall reading comprehension ability was significantly improved after they had been trained to use the graphic organizer strategy. The results of the present study provided support for the educational value of the student-generated graphic organizer strategy in the EFL college reading class.

However, the results of the statistical analysis suggested that, using the same reading passages, the high-scorers performed significantly better than the low-scorers on the two reading comprehension tests. A “language competence ceiling” effect (Clarke, 1979) was found in the present study. Therefore, it is not surprising that learner’s proficiency level plays an important role in the comprehension of L2 reading texts. This finding was consistent with current research, which suggests that L2 learners’ reading ability in English is closely related to their level of proficiency in that language.

The present study fills a gap in the literature on graphic organizers in that it explored the effects of two types of graphic organizers on EFL college students’ attitudes towards reading in English. The results indicated that the use of the student-generated graphic organizer strategy was effective in improving the students’ attitudes towards reading in English, in particular, the attitudes of struggling readers. Research has noted that the linking of cooperative learning and graphic organizers can motivate learning. Few studies have been conducted in an L2 context regarding this issue. The findings in the present study provided preliminary evidence. However, the result is somewhat inconclusive, as more empirical support for the findings of the present study is necessary.

Finally, an added dimension of the present study was the attempt to investigate the students’ attitudes towards the use of the two types of graphic organizer strategies in an EFL college reading class. To the researcher’s surprise, the quantitative results did not show any

significant difference. The analysis of the qualitative data suggested that language difficulties, the cognitive load taken on during the mapping process, and time constraints may be the factors affecting the students' attitudes towards the use of student-generated graphic organizers in an EFL reading. However, the students' general attitudes towards the use of graphic organizers were positive. In addition, the majority of students also supported the idea that heavy investment in time and effort was worthwhile.

In spite of the above contributions, the present study is not without its limitations. The first limitation was the small sample. Even though the findings of the present study provided valuable information about a college EFL reading class, the results are inconclusive. A close examination of the effects of graphic organizers on EFL reading in comparison with other reading comprehension strategies is required.

PEDAGOGICAL IMPLICATIONS

The findings derived from the present study may provide several pedagogical implications for EFL reading instruction and learning.

First, the student-generated graphic organizer as a post-reading activity is an effective strategy to foster tertiary students' EFL reading comprehension as the mapping process incorporates the bottom-up and top-down approaches. This assists the students' metacognitive learning of summarizing and getting the gist of the text rather than relying on memorization and Chinese translation. Researchers have remarked that this global understanding facilitates intrinsic motivation (Alderson, 2000).

Secondly, the linking of cooperative learning and student-generated graphic organizers improved the students' attitudes towards reading in English. Discussion and interaction with classmates not only creates a less tense learning climate in the classroom, but also enhances self-esteem.

In addition, group-work can serve as an alternative to the problem of large class sizes in Taiwan. From the Vygotskian point of view, social interaction plays a significant role in individual cognitive development (Vygotsky, 1978). Students learn to participate in learning activities that fall within their zone of proximal development (Vygotsky, 1962).

Thirdly, as indicated by research that high school students in Taiwan were not familiar with spatial learning strategies (Hsu, 2000), the training procedure plays an important role in the success of incorporating this strategy into a repertoire of teaching and learning strategies. Therefore, the purposes and the value of graphic organizers should be explicitly explained to students. In addition, the sequence of the teacher's modeling, guided practice, and independent application should be followed with great care. Researchers suggest that the students' work first in small groups in order to construct graphic organizers via cooperative learning and with the teacher acting as a facilitator. It is also important to note that constant feedback to the students is necessary.

Fourthly, as can be seen, graphic organizers also increase the interaction between the teacher and the students. This helps the teacher to appreciate the difficulties his/her students confront and to provide adequate assistance in alleviating these difficulties. Students no longer face their problems by themselves and no longer take full responsibility of their failure. The students and the teachers work together to solve problems. This creates positive outcomes for both teacher and learners.

Finally, as Grabe (2002) asserts, "reading efficiency is dependent on rapid and automatic word recognition and a large recognition vocabulary, extensive exposure to L2 texts through reading is the only learning option available to L2 students" (p. 56). EFL reading teachers should encourage the students' engagement in *extensive reading* to increase the time and amount of exposure to the target language. However, it is worth noting that as by Nuttall (1996) remarked, L2 readers first develop the reading strategies in the intensive reading class and then transfer these strategies to extensive reading contexts.

SUGGESTIONS FOR FURTHER RESEARCH

Based on the findings of the present study, some suggestions for further research are provided as follows.

First, research should be conducted on the effects of graphic organizers as pre-reading activities. As pre-reading activities, the teacher can pre-teach the key vocabulary via brainstorming and association. This may reduce the students' cognitive load of unfamiliar vocabulary words and decrease the time the students spend on looking up words in the dictionary.

Additionally, the graphic advance organizer can provide the students with a conceptual framework for the information contained in the text. This may serve as a context for guessing and predicting the content of the text. Furthermore, the use of graphic organizers as a pre-reading activity can be used to activate or assess the students' relevant background knowledge of the topic or highlight cultural features of a text so that the teacher can provide further explanation to promote reading comprehension.

Secondly, in recent years, computer mapping software has been developed extensively. Constructing a graphic organizer using this software can reduce the time spent in revision when mapping by pen and paper. Research regarding the effect of computer mapping software on EFL reading is an area that deserves intensive investigation.

Thirdly, further close examination of the effect of graphic organizers on EFL reading comprehension in comparison with other reading comprehension strategies is necessary.

Last, but not least, professional development of EFL reading teachers is important. Research has shown that teachers' beliefs and understandings regarding reading influence their teaching strategies (Alderson, 2000; Barron & Schwartz, 1984; Bachers, 1998). EFL teachers should be encouraged to attend relevant conferences and workshops in order to be informed about the latest reading theories. Teachers should explore "best practice" methods

and empirical studies of these theories to improve students' English reading abilities and foster positive attitudes towards reading in English.

In summary, reading is a complex and difficult process. Because reading in an L2 setting is generally a more difficult task, therefore reading instruction is a more complex process. Reading research has made consistent efforts to assist instruction and learning by providing valuable insights. The ultimate goal of this research is to create a successful learning context and confident learners. As the present study has shown, graphic organizers have a highly significant role to play in the crucially important process of assisting all tertiary students to read in English with proficiency, greater interest and understanding.

REFERENCES

- Abraham, P. (2000). Skilled-reading: Top-down, bottom-up. *Field Notes*, 10, 1-2.
- Adams, M. J. (1990). *Beginning to read*. Cambridge, MA: The MIT Press.
- Adams, M. J., & Collins, A. (1979). A schema-theoretic view of reading. In R. O. Freedle (Ed.), *New directions in discourse processing*, (Vol. II, pp. 1-22). Norwood, NJ: Ablex (ERIC Document Reproduction Service No. ED142970)
- Aebbersold, J. A., & Field, M. (1997). *From reader to reading teacher*. Cambridge: Cambridge University Press.
- Alderson, J. C. (1984). Reading in a foreign language: A reading problem or language problem? In J. C. Alderson & A. H. Urquhart (Eds.), *Reading in a foreign language* (pp. 1-27). London: Longman.
- Alderson, J. C. (1996). The testing of reading. In C. Nuttall (Ed.), *Teaching reading skills in a foreign language* (pp. 212-228). London: Heinemann.
- Alderson, R. C. (2000). *Assessing reading*. New York: Cambridge University Press.
- Allford, D. (1999). Translation in the communicative classroom. In N. Pachler (Ed.), *Teaching modern foreign languages at advanced level* (pp. 229-150). London: Routledge
- Alvermann, D. E. (1981a). *The compensatory effect of graphic organizer instruction on text structure*. Paper presented at the Annual Meeting of the American Educational Research Association (ERIC Document Reproduction Service No. ED208091)
- Alvermann, D. E. (1981b). The compensatory effect of graphic organizers on descriptive text. *Journal of Educational Research*, 75, 44-48.
- Alvermann, D. E. (1986). Graphic organizers: Cueing devices for comprehending and remembering main ideas. In J. F. Baumann (Ed.), *Teaching main idea comprehension* (pp. 210-226). Newark, DE: International Reading Association.
- Alvermann, D. E. (1988). Effects of spontaneous and induced lookbacks on self-perceived high-and low-ability comprehenders. *Journal of Educational Research*, 81, 325-331.

- Alvermann, D. E., & Boothy, P. R. (1986). Children's transfer of graphic organizer instruction. *Reading Psychology*, 7, 87-100.
- Anderson, J. R. (1976). *Language, memory, and thought*. Hillsdale, NJ: Erlbaum
- Anderson, J. R. (1985). *Cognitive psychology and its implication* (2nd ed). New York: Freeman.
- Anderson, N. J. (1991). Individual differences in strategy use in second language reading and testing. *Modern Language Journal*, 75, 460-472.
- Anderson, N. J. (1999). *Exploring second language reading: Issues and strategies*. Boston: Heinle & Heinle.
- Anderson, N. J. (2001). Developing metacognitive skills in foreign language learners. *Selected Papers from the Tenth International Symposium on English Teaching*, 1-7. Taipei: English Teachers' Association.
- Anderson, N. J. (2003). Metacognitive reading strategies increase L2 performance. *The Language Teacher Online* 27. Retrieved April 12, 2005, from <file:///A:\efl\learning\The Language Teacher Online Anderson, July 2003 htm>
- Anderson, R. C. (1978). Schema-directed processes in language comprehension. In A. M. Lesgold, J. W. Pellegrino, S. D. Fokkema & R. Glaser (Eds.), *Cognitive psychology and Instruction*, (pp. 67-82). New York: Plenum Press.
- Anderson, R. C. (2004). Role of reader's schema in comprehension, learning, and memory. In R. B. Ruddell & N. J. Urnau (Eds.), *Theoretical models and processes of reading* (5th ed., pp. 594-606). Hillsdale, NJ: Erlbaum.
- Anderson, R. C., & Pearson, P. D. (1984). A schema-theoretic view of basic processes in reading comprehension. In P. D. Pearson (Ed.), *Handbook of reading research* (pp. 255-292). New York: Longman.
- Anderson, R. C., & Pearson, P. D. (1988). A schema-theoretic view of basic processes in reading comprehension. In P. L. Carrell, J. Devine, & D. E. Eskey (Eds.), *Interactive*

- approaches to second language reading* (pp. 37-55). Cambridge: Cambridge University Press.
- Anderson, T. H., & Armbruster, B. B. (1984). Studying, in P. D. Pearson (Ed.), *Handbook of reading research* (pp. 657-680). New York: Longman.
- Anderson, T., & Huang, S. (1989). *On using concept maps to assess the comprehension effects of reading expository text*. Illinois University, Urbana. Center for the Study of Reading (ERIC Document Reproduction Service No. ED310368)
- Anderson-Inman, L., Knox-Quinn, C., & Horney, M. A. (1996). Computer-based study strategies for students with learning disabilities: Individual differences associated with adoption level. *Journal of Learning Disabilities*, 29, 461-484.
- Arden-Close, C. (1993). NNS readers' strategies for inferring the meanings of unknown words. *Reading in a Foreign Language*, 9, 867-893.
- Arden-Close, C. (1999). Taiwanese university freshmen's difficulties with reading in English. *Reading in a Foreign Language*, 12, 325-354.
- Armbruster, B. B., & Anderson, T. H. (1984). Mapping: Representing informative text diagrammatically. In C. D. Holley, & D. F. Dansereau (Eds.), *Spatial learning strategies: Techniques, applications, and related issues* (pp. 189-209). Orlando: Academic Press.
- Arnaudin, M. W., Mintzes, J. J., Dunn, C. S., & Shafer, T. H. (1984). Concept mapping in college science teaching. *Journal of College Science Teaching*, Nov, 117-121.
- Askov, E. (1991). Teaching study skill. In B. Hayes (Ed.), *Effective strategies for teaching reading* (pp. 85-102). Needham Heights, MA: Allyn and Bacon.
- Ausubel, D. P. (1963). *The psychology of meaningful verbal learning*. New York: Grune & Stratton.
- Ausubel, D. P. (1968). *Educational Psychology: A cognitive view*. New York: Holt, Rinehart & Winston.

- Ausubel, D. P., Novak, J. D., & Hanesian, H. (1978). *Educational psychology: A cognitive view*. New York: Holt, Rinehart & Winston.
- Avery C. W., & Avery, B. F. (1994). Merging reading and cooperative strategies through graphic organizers. *Journal of Reading*, 37, 689-690.
- Bachers, S. I. (1998). *Teaching reading from process to practice*. Belmont, CA: Wadsworth.
- Barnett, M. A. (1988). Reading through context: How real and perceived strategy affects L2 comprehension. *The Modern Language Journal*, 72, 150-161.
- Barnett, M. A. (1989). *More than meets the eye. Foreign language reading: Theory and practice*. Englewood Cliffs, NJ: Prentice Hall.
- Barron, R. (1969). The use of vocabulary as an advance organizer. In H. H. Sanders (Ed.), *Research on reading in the content area: First year report* (pp. 29-39). Syracuse, New York: Syracuse University Press.
- Barron, R. F., & Earle (1973). An approach for vocabulary instruction. In H.L. Herber & R. F. Barron (Eds.), *Research in reading in the content areas: Second year report* (pp. 84-100). Syracuse, NY: Syracuse University Reading and Language Arts Center.
- Barron, R. F., & Schwartz, R. M. (1980). *Teacher acquisition of semantic relationships about reading instruction*. Paper presented at the Annual Meeting of the National Reading Conference, San Antonio, Texas.
- Barron, R. F., & Schwartz, R. M. (1984). Graphic postorganizers: A spatial learning strategy. In C. D. Holley & D. F. Dansereau (Eds.), *Spatial learning strategies: Techniques, applications, and related issues* (pp. 275-289). Orlando: Academic Press.
- Barron, R. F., & Stone, R. M. (1974). The effect of student constructed graphic post organizers upon learning vocabulary relationships. In P. Nacke (Ed.), *Interaction: Research in college adult reading* (pp. 172-175). Clemson, SC: National Reading Conference
- Barry, A. L. (2002). Reading strategies teachers say they use. *Journal of Adolescent & Adult Literacy*, 46, 132-141.

- Barton, V., Freeman, B., Lewis, D., & Thompson, T (2001). *Metacognition: Effects on reading comprehension and reflective response*. Research Project, Saint Xavier University and SkyLight Professional Development Field-Based Masters Program (ERIC Document Reproduction Service No. ED453521).
- Baxendell, B. W. (2003). Consistent, coherent, creative: The 3 C's of graphic organizers. *Teaching Exceptional Children*, 35, 46-53.
- Beissner, K. L., Jonassen, D. H., & Grabowski, B. L. (1993). *Using and selecting graphic techniques to acquire structural knowledge*. New Orleans, LO: Proceedings of Selected Research and Development Presentations at the Convention of the Association for Educational Communications and Technological Sponsored by the Research and Theory Division (ERIC Document Reproduction Service No. ED362151)
- Ben-David, R. (2002). *Enhancing comprehension through graphic organizers*. Unpublished master's thesis, Kean University (ERIC Document Reproduction Service No. ED461907)
- Bensoussan, M. (1998). Schema effects in EFL reading comprehension. *Journal of Research in Reading*, 21, 213-227.
- Berkowitz, S. J. (1986). Effects of instruction in text organization on sixth-grade students' memory for expository reading. *Reading Research Quarterly*, 21, 161-178.
- Bernhardt, E. B. (1986). Cognitive processes in L2: Examination of reading behaviors. In J. Landtolf & A. Larbaca (Eds.), *Research in second language acquisition in the classroom setting* (pp. 35-50). Norwood, NJ: Ablex.
- Bernhardt, E. B. (1990). A model of L2 text reconstruction: The recall of literary text by learners of German. In A. Labarca & L. M. Bailey (Eds.), *Issues in L2: Theory as practice/practice as theory* (pp. 21-43). Norwood, NJ: Ablex.
- Bernhardt, E. B. (1991). *Reading and development in a second language: theoretical, empirical, and classroom perspectives*. Norwood, NJ: Ablex.

- Bernhardt, E. B. (2005). Progress and procrastination in second language reading. *Annual Review of Applied Linguistics*, 25, 133-150.
- Bernhardt, E. B. & Kamil, M. (1995). Interpreting relationships between L1 and L2 reading: Consolidating the linguistic threshold and the linguistic interdependence hypotheses. *Applied Linguistics*, 16, 15-34.
- Bertelsen, C., & Fisher, J. (2003). Mediating expository text: Scaffolding and the use of multimedia curricula. *Reading on Line*, 6, Retrieved July 15, 2005, from http://www.readingonline.org/articles/art_index.asp?HREF=bertelsen/index.html
- Birch, B. (1998). Nurturing bottom-up reading strategies, too. *TESOL Journal*, 7, 18-23.
- Blatchford, P., Moriarty, V., Edmonds, S. & Martin, C. (2002). Relationships between class size and teaching: A multimethod analysis of English infant schools. *American Educational Research Journal*, 39, 101-132.
- Boland, P. A. (1992). *Qualitative research in student affairs*. *Journal of College Student Development*, 43 (ERIC Document Reproduction Service No. ED347487).
- Bogdan, R. C., & Bilklen, S. K. (2003). *Qualitative research for education: an introduction to theory and methods* (4th ed.). Boston: Allyn and Bacon.
- Bos, C. S., & Anders, P. L. (1990). Effects of interactive vocabulary instruction on the vocabulary learning and reading comprehension of junior high learning disabled students. *Learning Disability Quarterly*, 13, 31-42.
- Bowman, L. A., Carpenter, J. & Rose, A. (1998). *Using graphic organizers, cooperative learning groups, and higher order thinking skills to improve reading comprehension* (ERIC Document Reproduction Service No. ED420842)
- Boyle, J. R. (1996). The effects of a cognitive mapping strategy on the literal and inferential comprehension of students with mild disabilities. *Learning Disability Quarterly*, 19, 86-98.

- Boyle, J. R., & Weishaar, M. (1997). The effects of expert-generated versus student-generated cognitive organizers on the reading comprehension of students with learning difficulties. *Learning Disability Research & Practice, 12*, 228-235.
- Boyle, J. R., & Yeager, N. (1997). Blueprints for learning: Using cognitive frameworks for understanding. *Teaching Exceptional Children, 29*, 26-31.
- Breuker, J. A. (1984). A theoretical framework for spatial learning strategies. In C. D. Holley & D. F. Dansereau (Eds.), *Spatial learning strategies: Techniques, applications, and related issues* (pp. 21-46). New York: Academic Press.
- Bromley, K., Irwin-DeVitis, L., & Modlo, M. (1995). *Graphic organizers: Visual activities for active learning*. New York: Scholastic Professional Books.
- Bromley, K., Irwin-DeVitis, L., & Modlo, M. (1995). *Graphic organizers: Visual strategies for active learning*. New York: Scholastic Professional Books.
- Brown, H. D. (1994). *Teaching by principles: An interactive approach to language pedagogy*. Englewood Cliffs, New Jersey: Prentice Hall.
- Brown, J. D. (1989). Language program evaluation: a synthesis of existing possibilities. In K. Johnson (Ed.), *The second language curriculum* (pp. 222-241). Cambridge: Cambridge University Press.
- Brown, J. D., & Rogers, T. S. (2002). *Doing second language research*. Oxford: Oxford University Press.
- Brown, R., Pressley, M., Van Meter, P., & Schuder, T. (1996). A quasi-experimental validation of transactional strategies instruction with previously low-achieving, second-grade readers. *Journal of Educational Psychology, 88*, 18-37.
- Bruning, R. H., Schraw, G. J., & Ronning, R. R. (1999). *Cognitive psychology and instruction* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.
- Bulgren, J., Schumaker, J. B., & Deschler, D. D. (1988). Effectiveness of a concept teaching routine in enhancing the performance of LD students in secondary-level mainstream classes. *Learning Disability Quarterly, 11*, 3-17.

- Burns, P. C., Roe, B. D., & Ross, E. P. (1999). *Teaching reading in today's elementary schools* (7th ed.). Boston: Houghton Mifflin.
- Carrell, P. L. (1983). Background knowledge in second language comprehension. *Language Learning and Communication*, 2, 25-33.
- Carrell, P. L. (1984a). Schema theory and ESL reading: Classroom implications and applications. *Modern Language Journal*, 68, 332-343.
- Carrell, P. L. (1984b). Evidence of a formal schema in second language comprehension. *Language Learning*, 34, 87-113.
- Carrell, P. L. (1985). Facilitating ESL reading by teaching text structures. *TESOL Quarterly*, 19, 727-752.
- Carrell, P. L. (1987a). Content and formal schemata in ESL reading. *TESOL Quarterly*, 21, 461-481.
- Carrell, P. L. (1987b). Readability in ESL. *Reading in a Foreign Language*, 4, 21-40.
- Carrell, P. L. (1988a). Some causes of text-boundedness and schema-interference in ESL reading. In P. L. Carrell, J. Devine, & D. E. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 101-113). New York: Cambridge University Press.
- Carrell, P. L. (1988b). Interactive text processing: Implications for ESL/second language reading classrooms. In P. L. Carrell, J. Devine, & D. E. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 239-259). New York: Cambridge University Press.
- Carrell, P. L. (1988c). SLA and classroom instruction: Reading. *Annual Review of Applied Linguistics*, 8, 223-242.
- Carrell, P. L. (1989). Metacognitive awareness and second language reading. *Modern Language Journal*, 73, 121-134.
- Carrell, P. L. (1991). Second language reading: Reading ability or language proficiency? *Applied Linguistics*, 12, 159-179.

- Carrell, P. L., Carson, J. G., & Zhe, D. (1993). First and second language reading strategies: Evidence from cloze. *Reading in a Foreign Language, 10*, 953-965
- Carrell, P. L., & Eisterhold, J. (1983). Schema theory and ESL reading pedagogy. *TESOL Quarterly, 17*, 553-573.
- Carrell, P. L., & Eisterhold, J. C. (1988). Schema theory and ESL reading pedagogy. In P. L. Carrell, J. Devine, & D. E. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 73-92). New York: Cambridge University Press.
- Carrell, P. L., Gajdusek, L., & Wise, T. (1998). Metacognition and EFL/ESL reading. *Instructional Science, 26*, 97-112.
- Carrell, P. L., Pharis, B., & Liberto, J. (1989). Metacognitive strategy training for ESL reading. *TESOL Quarterly, 23*, 647-678.
- Chan, Y. H. (2003). Cultural content and reading proficiency: A comparison of Mainland Chinese and Hong Kong learners of English. *Language Culture and Curriculum, 16*, 60-69.
- Chang, W. C., Joe, S. Q., You, Y. L., & Wu, S. L. (2000). 技專校院入學測驗中心英文考科命題改善研究計畫. 教育部專題研究計畫.
- Chen, H. C. (2002). A preliminary study of Chinese EFL learners' difficulties in vocabulary learning and remedial learning strategies. *Papers Selected from The Seventeenth Conference of TVES Education, 81-91*. Taipei: Crane.
- Chen, H. C., & Graves, M. F. (1995). Effects of previewing and providing background knowledge on Taiwanese college students' comprehension of American short stories. *TESOL Quarterly, 29*, 663-686.
- Chern, C. L. (1993). Chinese students' word-solving strategies in reading in English in T. Huckin, M. Haynes, & C. Coady (Eds.), *Second language reading and vocabulary learning* (pp.67-85). Norwood, NJ: Ablex.

- Chern, C. L. (2003). English language teaching in Taiwan today. In H. W. Kam & Y. L. Wong (Eds.), *English language teaching in East Asia today: Changing policies and practices* (pp. 427-439). Singapore: Times Academic Press.
- Chia, H. L., & Chia, H. U. (2001). English reading concepts held by Taiwanese EFL readers. *English Teaching & Learning*, 26, 23-44.
- Chiang, T. Y. (2004). *A case study on concept mapping as an adjunct aid for EFL reading comprehension and recall*. Unpublished master's thesis. Southern Taiwan University of Technology, Taiana, Taiwan.
- Chikalanga, I. W. (1993). Exploring inferencing ability of ESL readers. *Reading in a Foreign Language*, 10, 931-952.
- Chiu, C. H. (1999). *The effects of metacognitive strategy training on English reading comprehension and attitudes of EFL students in senior school*. Unpublished master's thesis, National Kaohsiung Normal University, Kaohsiung, Taiwan.
- Chu, H. C. (2000). Orienting EFL readers toward global strategy use. *Selected Papers from the Ninth International Symposium on English Teaching* (pp. 274-283). Taipei: crane.
- Chuang, L. J., & Yang, Y. F. (1997). 反思演練與英文答題策略之相關性探究. *Proceedings of the Fourteenth Conference on English Teaching and Learning in the Republic of China*, 239-251. Taipei: Crane.
- Chyuan, J. P. (1992). Studies on the learning attitude of concept map among non-science students of the National Taipei Teachers College in Taiwan. *Journal of National Taipei Teachers College*, 5, 299-318.
- Clarke, J. H. (1991). Using visual organizers to focus on thinking. *Journal of Reading*, 34, 526,534.
- Clarke, M. A. (1979). 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. *Modern Language Journal*, 64, 203-209.
- Clements-Davis, G. L., & Ley, T. C. (1991). Thematic preorganizers and the reading comprehension of tenth-grade world literature students. *Reading Research & Instruction*, 31, 43-53.
- Coady, J. H. (1979). A psychological model of the ESL reader . In B. B. R. Mackay, & R. Jordan (Eds.), *Reading in a second language* (pp. 5-12). Rowley, MA: Newbury House.
- Coady, M. R. (2001). Attitudes toward bilingualism in Ireland. *Bilingual Research Journal*, 25, 39-58.
- Collins-Cobuild English Dictionary*. (1995). Glasgow: HarperCollins.
- Connor, C. M., Morrison, F. J., & Petrella, J. N. (2004). Effective reading comprehension instruction: Examining Child x instruction interaction. *Journal of Educational Psychology*, 96, 682-698.
- Cook, V. (2001). *Second language learning and language teaching* (3rd ed.). New York: Oxford University Press.
- Crandall, J., Olsen, L., Peyton, J. K., & Joy, K. (2002). *Using cognitive strategies to develop English language and literacy*. ERIC Clearinghouse on Language and Linguistics (ERIC Document Reproduction Service No. ED469970).
- Creswell, J. W. (1997). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: SAGE.
- Cross, D. (1991). *A practical handbook of language teaching*. London: Cassell.
- Culbert, E., Flood, M., Windler, R., & Work, D. (1998). *A qualitative investigation of the use of graphic organizers*. Paper presented at the SUNT-Geneseo Annual Reading and Literacy Research Symposium (ERIC Document Reproduction Service No. ED 418381)

- Cziko, G. A. (1980). Language competence and reading strategies: A comparison of first and second language oral reading errors. *Language Learning*, 30, 101-116.
- Darch, C., & Carnine, D. (1986). Teaching content area material to learning disabled students. *Exceptional Children*, 53, 240-246.
- Darch, C., Carnine, D., & Kameenui, E. (1986). The role of graphic organizers and social structure in content area instruction. *Journal of Reading Behavior*, 18, 275-295.
- Davies, F. (1995). *Introducing reading*. London: Penguin.
- Day, R. R. (1994). Selecting a passage for the EFL reading class. *Forum*, 32, 20-23.
- Day, R. R., & Bamford, J. (1998). *Extensive reading in the second language classroom*. Cambridge: Cambridge University Press.
- Day, R. R., & Park, J. S. (2005). Developing reading comprehension questions. *Reading in a Foreign Language*, 17, 60-73.
- Devine, J. (1987). General language competence and adult second language reading. In P. L. Carrell, J. Devine & D. E. Eskey (Eds.), *Research in reading in English as a second language* (pp. 75-85). Washington, DC: Teachers of English to Speakers of Other Languages.
- Devine, J. (1988). The relationship between general language competence and second language reading proficiency: Implications for teaching. In P. L. Carrell, J. Devine & D. E. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 260-277). New York: Cambridge University Press.
- Devine, J. (1993). The role of metacognition in second language reading and writing. In J. Carson & I. Leki (Eds.), *Reading in the composition classroom: Second language perspectives* (pp. 105-121). Boston: Heinle & Heinle.
- Dickson, S. V., Simmons, D. C., & Kameenui, E. J. (1995). *Text organization: Curricular and instructional implications for diverse learners*. Eugene, OR: National Center to Improve the Tools of Educators. Retrieved March 31, 2005, from <http://idea.uoregon.edu/~ncite/documents/techrep/tech18.html>

- DiCecco, V. M. & Gleason, M. M. (2002). Using graphic organizes to attain relational knowledge from expository text. *Journal of Learning Disabilities*, 35, 306-320.
- Diekhoff, S. M., & Diekhoff, R. B. (1982). Cognitive maps as a tool in communicating structural knowledge. *Educational Technology*, 22, 28-30.
- Dörnyei, Z. (2003). *Questionnaires in second language research: construction, administration, and processing*. Mahwah, NJ: Erlbaum.
- Dunston, P. J. (1992). A critique of graphic organizer research. *Reading Research and Instruction*, 3, 57-65.
- Dye, G. A. (2000). Graphic organizers to the rescue! Helping students link—and remember—information. *Teaching Exceptional Children*, 32, 72-76.
- Ebel, F. R., & Frisbie, D. A. (1991). *Essentials of educational measurement* (5th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Egan, M. (1999). Reflections on effective use of graphic organizers. *Journal of Adolescent & Adult Literacy*, 42, 641-644.
- Ekhaml, L. T. (1998). Graphic organizers: Outlets for your thoughts. *School Library Media Activities Monthly*, 14, 29-33.
- Ellis, R. (1994). *The study of second language acquisition*. Oxford: Oxford University Press.
- Ellis, R. (1997). *Second language acquisition*. Oxford: Oxford University Press.
- Eskey, D. E. (1988). Holding in the bottom: an interactive approach to the language problems of second language readers. In P. L. Carrell, J. Devine, & D. E. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 93-100). New York: Cambridge University Press.
- Eskey, D. E. (1997). Models of reading on the ESOL students. *Focus on Basics*, 1, 9-11.
- Eskey, D. E. (2002). Reading and the teaching of L2 reading. *TESOL Journal*, 11, 5-9.

- Eskey, D. E. (2005). Reading in a second language. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 563-580), Mahwah, NJ: Lawrence Erlbaum.
- Eskey, D., & Grabe, W. (1988). Interactive models for second language reading: Perspectives on instruction. In P. L. Carrell, J. Devine, & D. E. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 223-238). New York: Cambridge University Press.
- Farnan, N., Flood, J., & Lapp, D. (1994). Comprehending through reading and writing: six research-based instructional strategies. In Spangenberg-Urbschat & R. Pritchard (Eds.), *Kids come in all languages: Reading instruction for ESL students* (pp. 135-157). Newark.: International Reading Association.
- Farrell, T. S. (2001). Teaching reading strategies: "It takes time!". *Reading in a Foreign Language*, 13, 631-646.
- Field, M. L. (1984). A psycholinguistic model of Chinese reader. In *On TESOL '84*. (ERIC Document Reproduction service No. ED271952)
- Fielding, L. G., & Pearson, P. D. (1994). Reading comprehension: What works. *Educational Leadership*, 51, 62-68.
- Finocchiaro, M. (1989). *English as second/foreign language* (4th ed.). Englewood Cliff, NJ: Prentice Hall.
- Fisher, J. B., & Shumaker, J. B. (1995). Searching for validated inclusive practices: A review of the literature. *Focus on Exceptional Children*, 28, 1-20.
- Flick, U. (1998). *An introduction to qualitative research*. London: Sage.
- Fontana, A., & Frey, T. H. (1994). Interviewing: The art of science. In N. K. Denzin & Y. S. Lincoln (Eds.), *handbook of qualitative research* (pp. 361-376). Thousand Oaks, CA: Sage.

- Fontana, A., & Frey, T. H. (1998). Interviewing: The art of science. In N. K. Denzin & Y. S. Lincoln (Eds.), *Collecting and interpreting qualitative materials* (pp. 47-78). Thousand Oaks, CA: Sage.
- Fontana, A., & Frey, T. H. (2005). The interview: From neutral stance to political involvement. In Denzin, N. K. & Lincoln, Y. S. (Eds.), *The Handbook of Qualitative Research* (pp. 695-728). Thousand Oaks, CA: Sage.
- Fotos, S. (2005). Traditional and grammar translation methods for second language teaching. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 653-670). Mahwah, NJ: Lawrence Erlbaum.
- Fry, E. (1977). *Elementary reading instruction*. New York: McGraw-Hill.
- Gan, Z., Humphreys, G., & Hamp-Lyons, L. (2004). Understanding successful and unsuccessful EFL students in Chinese universities. *The Modern Language Journal*, 88, 229-243.
- Gardill, M. C., & Jitendra, A. K. (1999). Advanced story map instruction: Effects on the reading comprehension of students with learning disabilities. *The Journal of Special Education*, 33, 2-17.
- Ghaith, G. (2003). Effects of the learning together model of cooperative learning on English as a foreign language reading achievement, academic self-esteem, and feelings of school alienation. *Bilingual Research Journal*, 27, 451-473.
- Gibbons, P. (2002). *Scaffolding language, scaffolding Learning: Teaching second language learners in the mainstream classroom*. Portsmouth, NH: Heinemann.
- Gillet, J. W., Temple, C., Crawford, A. N., Mathews, S. R., & Young, J. P. (2000). *Understanding reading problems*. New York: Longman.
- Gobert, J. D., & Clement, J. J. (1999). Effects of student-generated diagrams versus student-generated summaries on conceptual understanding of causal and dynamic knowledge in plate tectonics, *Journal of Research in Science Teaching*, 36, 39-53.

- Goetz, E. T. (1984). The role of spatial strategies in processing and remembering text: A cognitive-information-processing analysis. In C. D. Holley & D. F. Dansereau (Eds.), *Spatial learning strategies: Techniques, applications, and related issues* (pp. 47-77). Orlando: Academic Press.
- Goldman, S. R. & Rakestraw, J. A. (2000). Structural aspects of constructing meaning from text. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (Vol. III, pp. 311-335). Mahwah, NJ: Erlbaum.
- Goodman, K. S. (1967). Reading: A psycholinguistic guessing game. *Journal of Reading Specialist*, 6, 126-135.
- Goodman, K. S. (1988). The reading process. In P. Carrell, J. Devine, & D. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 21-29). New York: Holt, Rinehart, and Winston.
- Gough, P. B. (1972). One second of reading. In J. F. Kavanagh & I. G. Mattingly (Eds.), *Language by ear and by eye* (pp. 331-358). Cambridge, MA: MIT Press.
- Gough, P. B. (2004). One second of reading: Postscript. In R. B. Ruddell & N. J. Urnau (Eds.), *Theoretical models and processes of reading* (5th ed., pp. 1180-1181). Newark, DE: International Reading Association.
- Governale, J. (1997). *Improving attitudes of students toward social studies*. Research Project, Saint Xavier University (ERIC Document Reproduction Service No. ED424173)
- Grabe, W. (1988). Reassessing the term "interactive". In P. L. Carrell, J. Devine, & D. E. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 56-70). New York: Cambridge University Press.
- Grabe, W. (1991). Current development in second language reading research. *TESOL Quarterly*, 26, 372-406.
- Grabe, W. (1995). Dilemmas for the development of second language reading abilities. *Prospect: A Journal of Australian TESOL*, 10, 38-51.

- Grabe, W. (2002). Foundations for L2 reading instruction. *The Language Teacher Online*, 26, Retrieved December 3, 2003, from <http://www.jalt-publications.org/tlt/articles/2002/07/grabe>
- Grabe, W. (2004). Research on teaching reading. *Annual Review of Applied Linguistics*, 24, 44-69.
- Grabe, W., & Stoller, F. L. (2002). *Teaching and researching reading*. Harlow: Pearson Education.
- Griffin, C. C., Malone, L. D., & Kameenui, E. J. (1995). Effects of graphic organizer instruction on fifth-grade students. *Journal of Educational Research*, 89, 98-107.
- Griffin, C. C., Simmons, D., & Kameenui, E. (1991). Investigating the effectiveness of graphic organizer instruction on the comprehension and recall of science content by students with learning disabilities. *Reading, Writing, and Learning Disabilities*, 7, 355-376.
- Griffin, C. C., Tulbert, B. L. (1995). The effect of graphic organizers on students' comprehension and recall on expository text: A review of the research and implications for practice. *Reading and Writing Quarterly: Overcoming Learning Difficulties*, 11, 73-89.
- Guastello, E. F., Beasley, T. M., & Sinatra, R. C. (2000). Concept mapping effects on science content comprehension of low-achieving inner-city seventh graders. *Remedial and Special Education*, 21, 356-365.
- Gubrium, J. F., & Holstein, J. A. (Eds.) (2001). *Handbook of interview research*. Thousand Oaks, CA: Sage.
- Gunner A. S., Smith, J. A., Smith, S. D., & Sauda, D. (1999). *Improving comprehension and attitude toward reading using a balanced reading approach*. Master's Action Research Project, Saint Xavier University and IRI/Skylight (ERIC Document Reproduction Service No. ED435095)

- Hall, R. H., Hall, M. A., & Saling, C. B. (1999). The effects of graphic postorganization strategies on learning from knowledge maps. *The Journal of Experimental Education*, 67, 101-112.
- Hamp-Lyons, L. (1985). Two approaches to teaching reading: A classroom-based study. *Reading in a Foreign Language*, 3, 363-373.
- Hanf, M. B. (1971). Mapping: A technique for translating reading into thinking. *Journal of Reading*, 14, 225-230.
- Harris, T. L., & Hodges, R. E. (1995). *The literacy dictionary: The vocabulary of reading and writing*. Newark, DE: International Reading Association.
- Hayes, B. L. (1991). The effective teaching of reading. In B. L. Hayes (Ed.), *Effective strategies for teaching reading* (pp. 3-12). Needham Heights, MA: Allyn and Bacon.
- Haynes, M. (1993). Patterns and perils of guessing in second language reading. In T. Huckin, M. Haynes, & J. Coady (Eds.), *Second language vocabulary learning* (pp. 46-64). Norwood, NJ: Ablex.
- Haynes, M., & Baker, I. (1993). American and Chinese readers learning from lexical familiarization in English text. In T. Huckin, M. Haynes, & J. Coady (Eds.), *Second language reading and vocabulary learning* (pp.130-152). Norwood, N. J.: Ablex.
- Hefferman, N. (2004). Testing in an EFL reading course. *國際語言文化研究所紀要*, 16, 185-192.
- Heimlich, J. E., & Pittleman, S. D. (1986). *Semantic mapping: Classroom applications*. Newark, DE: International Reading Association.
- Heller, M. (1995). *Reading- writing connections from theory to practice*. New York: Longman.
- Hoffman, J. (2003). Student-created graphic organizers bring complex material to life. *College Teaching*, 51, 105.

- Holley, C. D., Dansereau, D. F. (1984). The development of spatial learning strategies.
- In C. D. Holley and D. F. Dansereau (Eds.), *Spatial learning strategies: Techniques, applications, and related issues* (pp. 3-19). Orlando: Academic Press.
- Holley, C. D., Dansereau, D. F., McDonald, B. A., Garland, J. C., & Collins, K. W. (1979). Evaluation of a hierarchical mapping technique as an aid to prose processing. *Contemporary Educational Psychology*, 4, 227-237.
- Horton, S. V., Lovitt, T. C., & Bergerud, D. (1990). The effectiveness of graphic organizers for three classifications of secondary students in content area classes. *Journal of Learning Disabilities*, 23, 12-22.
- Hsu, L. J. (2003). *A study of relationships between feeling of knowing about English reading strategy use and reading comprehension of Taiwanese college students*. Unpublished master's thesis. National Changhua University of Education, Changhua, Taiwan.
- Hsu, H., & Chu, H. C. (1996). The effects of direct and integrative instruction of macrostrategies on EFL reading comprehension. *Papers from the 12th conference on English teaching and Learning in the Republic of China*, 273-293. Taipei: Crane.
- Hsueh-chao, M. H. & Nation, P. (2000). Unknown vocabulary density and reading comprehension. *Reading in a Foreign Language*, 13, 403-425.
- Huang, C. C. (2001). An investigation of ESP students' vocabulary and reading comprehension. *Selected Papers from the Tenth International Symposium on English Teaching*, 436-445. Taipei: English Teachers' Association.
- Huang, C. C. (2004). 談英語字彙教學. Curriculum and Research Development Center For Commerce Education. Retrieved October 27, 2004, from <http://bccepaper.odsldns.org>.
- Huang, C. C., Wu, S. J., & Joe, S. G. (2004). 科技大學學生英文字彙量及大一原文教科書字彙量研究. *Proceedings of the 21st International Conference on English Teaching and Learning in the Republic of China*, 647-659. Taichung: Taiwan.

- Huang, L. Y. (2003). *Using concept mapping as a strategy to improve the English reading comprehension*. Unpublished master's thesis. Tzu-chi University, Hualien, Taiwan.
- Hudson, P., Lingugaris-Kraft, B, & Miller, T. (1993). Using content enhancement to improve the performance of adolescents with learning disabilities in content classes. *Learning Disability Research and Practice*, 8, 106-126.
- Hung, C. H. (1994). 技職學生對英語文教育之觀點與看法之研究. 第九屆全國技術及職業教育研討會, 269-277. Taipei: Crane.
- Hung, C. H. (1996a). 技職學生和其英語教學環境之社會互動探討. *Studies in English Language and Literature*, 1, 82-94.
- Hung, C. H. (1996b). 高職教師和其英語教學環境之社會互動探討. *Proceedings of the Thirteenth Conference on English Teaching and Learning in the Republic of China*, 41-50. Taipei: Crane.
- Hung, C. H. (1996c). 技職學生英語文學習經驗及其相關脈絡因素之探討. *Educational Research & Information*, 7, 26-43.
- Hung, C. H. (1996d). Understanding the culture of EFL in Taiwan: A qualitative inquiry. *The Proceedings of the Fifth International Symposium on English Teaching*, 19-26. Taipei: Crane.
- Hung, C. H. (2000). *A study of social interaction of English curriculum in technological and Vocational educational system*. 行政院國家科學委員會專題研究計畫 NSC88-2411-H-224-001.
- Hung, C. H., & Lou, B. C. (1995). 高職英文教師對英語文教育之觀點研究. 全國技職體系英語教學學術研討會論文集, 121-145. Taipei: Crane.
- Hung, C. H., & Lou, B. C. (1998). 技職英文教師教學策略探討. *The Proceedings of the Seventh International Symposium on English Teaching*, 547-557. Taipei: Crane.

- Hung, C. H., Joe, S. G. & Wu, S. R. (1998). 技術學院英文教師閱讀教學觀點研究. *The Proceedings of the Seventh International Symposium on English Teaching*, 559-570. Taipei: Crane.
- Hung, S. M. (2000). *The Effects of Constructive Reading Courseware on EFL Reading Instruction for Junior High School Students*. Unpublished master's thesis, National Kaohsiung Normal University, Kaohsiung, Taiwan.
- Hunt, A., & Beglar, D. (2005). A framework for developing EFL reading vocabulary. *Reading in a Foreign Language*, 17, 23-59.
- Hyerle, D. (1996). *Visual tools for constructing knowledge*. Alexandria, VA: ASCD.
- Irwin-DeVitis, L., Bromley, K., & Modlo, M. (1999). *50 graphic organizers for reading, writing, and more*. New York: Scholastic Professional Books.
- Jau, R. F. (1998). Graphic organizer and reading comprehension: A pilot study. *Soochow Journal of Foreign Language and Cultures*, 11-45.
- Jia, Y. K. (1996). 台灣高中與高職英語教學行政措施與課程規劃比較研究. *Studies in English Language and Literature*, 1, 101-110.
- Joe, S. G. (1994). 技術學院一年級學生閱讀克漏字測驗策略使用之研究. 第九屆全國技術及職業研討會, 259-267. Taipei: Crane.
- Joe, S. G. (1996a). 技職學生對語意不一致性句子覺知程度及其檢視策略使用. 行政院國科會專題研究成果報告. NSC85-2418-H-224-001.
- Joe, S. G. (1996b). Expository text structure and recall. *Journal of Yunlin Institute of Technology*, 5, 169-177.
- Joe, S. G. & Chiang, C. Y. (1996). 技職學生讀後回憶策略研究. *Studies in English Language and Literature*, 1, 76-81.
- Johnson, F. R. (2001). Spelling exceptions: Problems or possibilities? *The Reading Teacher*, 54, 372-378.

- Johnson-Glenberg, M. C. (2000). Training reading comprehension in adequate decoders/poor comprehenders: Verbal versus visual strategies, *Journal of Educational Psychology*, 92, 772-782.
- Jones, B. F., Pierce, J. & Hunter, B. (1988). Teaching students to construct graphic representations. *Educational Leadership*, 46, 20-25.
- Katayama, A. D., & Robinson, D. A. (2000). Getting students “partially” involved in note-taking using graphic organizers. *The Journal of Experimental Education*, 68, 119-133.
- Kern, R. G. (1989). Second language reading strategy instruction: Its effect on comprehension and word inference ability. *Modern Language Journal*, 73, 135-149.
- Kim, A. H., Vaughn, S., Wanzek, J., & Wei, S. (2004) Graphic organizers and their effects on the reading comprehension of students with LD: A synthesis of research. *Journal of Learning Disabilities*. 37, 105-118.
- Kintsch, W., & van Dijk, T A. (1978). Toward a model of text comprehension and Production. *Psychological Review*, 85, 363-394.
- Kirylo, J. D., & Millet, C. P. (2000). Graphic organizers: An integral component to facilitate comprehension during basal reading instruction. *Reading Improvement*, 37, 179-184.
- Koda, K. (1992). The effects of lower-level processing skills on FL reading performance: Implications for instruction. *The Modern Language Journal*, 76, 502-512.
- Koda, K. (1996). L2 word recognition research: A critical review. *The Modern Language Journal*, 80, 450-460.
- Krashen, S. (1984). Immersion: Why it works and what it has taught us. *Language and Society*, 12, 61-64.
- Krashen, S. D., & Terrell, T. D. (1983). *The natural approach: Language acquisition in the classroom*. Oxford: Pergamon.

- Kristmanson, P. (2000). Affect in the second language classroom: How to create an emotional climate. *Reflexions*, 19, 1-5.
- Krueger, R. A., & Casey, M. A. (2000). *Focus group: A practical guide for applied research* (3rd ed.). Thousand Oaks, CA: Sage.
- Kulhavy, R. W., Lee, B., & Caterino, L. C. (1985). Conjoint retention of maps and related discourse. *Contemporary Educational Psychology*, 19, 28-37.
- Kuo, P. C. (2003). *The Instruction of semantic mapping on reading comprehension: A study at Changhua Senior High School*. Unpublished master's thesis, National Changhua University of Education, Changhua, Taiwan.
- Landry, K. L. (2002). Schemata in second language reading. *The Reading Matrix*, 2, Retrieved July 8, 2005, from <http://www.readingmatrix.com/article/landry/>
- Language Learning and Testing Center (2001). 九十學年度技專校院學生英語檢測成績統計報告. Taipei: Language Learning and Testing Center.
- Language Learning and Testing Center (2002). 九十一學年度技專校院學生英語檢測成績統計報告. Taipei: Language Learning and Testing Center.
- Language Learning and Testing Center (2003). *Annual Report*. Retrieved March 10, 2004 from <http://lttc.ntu.edu.tw/2003ANNUALREPORT.pdf>
- Language Learning and Testing Center (2004). 九十二學年度技專校院學生英語檢測成績統計報告. Taipei: Language Learning and Testing Center.
- Lee, Y. C. (2004). *A study of technological university freshmen's performance in decoding vocabulary and strategy selection*. Unpublished master's thesis, National Yunlin University of Science and Technology, Yunlin, Taiwan.
- Lin, H. J., & Warden, C. A. (1998). Different attitudes among non-major EFL students. *The Internet TESL Journal*, IV. Retrieved January 12, 2004, from <http://iteslj.org/Articles/Warden-Difference/>

- Lin, M. S. (1992). Designing an effective English program in universities of technology in Taiwan. *Papers Presented in the Ninth Conference on English Teaching and Learning in the Republic of China*, 85-98. Taipei: Crane.
- Lin, M. S. (1994). *A study of English teaching materials for institute of technology systems in the R. O. C. An innovation plan for humanities and social sciences education, 1-41*. Taipei: Ministry of Education.
- Lin, M. S. (1996). 中華民國高中高職英文教學現況比較研究. *中華民國第十二屆英語文教學研討會*, 59-79. Taipei: Crane.
- Lin, M. S. (2003). 英語技職教育挑戰與回應. *Paper presented at 2003 International Conference & Workshop on TEFL & Applied Linguistics*, 512-514. Taipei: Crane.
- Lin, M. S., & Ou, H. C. (1996). 台灣地區高中高職畢業生英文能力比較研究. 八十五年度語言學門專題研究計畫研究成果發表會. NSC 83-0301-H011-004.
- Lin, T. F. (2000). The teaching of vocabulary in Taiwan: A review. *The Proceedings of the Ninth International Symposium on English Teaching*, 460-469. Taipei: Crane.
- Lin, W. T. (2003). *A study of TVES college students' vocabulary size and the vocabulary of their English field-specific textbooks*. Unpublished master's thesis, National Yunlin University of Science and Technology, Yunlin, Taiwan.
- Lipson, M. Y., & Cooper, J. D. (2002). Understanding and supporting comprehension development in the elementary and middle grades. In J. D. Cooper (Ed.), *A legacy of literacy* (pp. 1-15). Boston: Houghton Mifflin.
- Liu, S. Y. (1995). 訓練高職生建立有效的英語學習策略. *第一屆英語學術研討會論文集*, 103-108.
- Long, G., & Aldersley, S. (1984). Networking: Application with hearing-impaired students. In C. D. Holley & D. F. Dansereau (Eds.), *Spatial learning strategies: Techniques, applications, and related issues* (pp. 109-125). Orlando: Academic Press.

Lu, H. Y. (2004). *四技二專共同科英文考科命題與技職英語教學之我見*.

Curriculum and Research Development Center For Commerce Education. Retrieved January 26, 2004, from http://bcc.yuntech.edu.tw/e_news/第十二期/e_news_12.htm

Lynch, B. (1992). Evaluating a program inside and out. In J. C. Alderson & A. Beretta (Eds.), *Evaluating second language education* (pp. 61-94). Cambridge: Cambridge University Press.

Marchand-Martella, N. E., Miller, T. L., & MacQueen, C. (1998). Graphic organizers. *Teaching PreK-8*, 28, 46-48.

Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). *Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.

Masgoret, A. M., & Gardner, R. C. (2003). Attitudes, motivation, and second language learning. *Language Learning*, 53, 123-163.

Mastropieri, M. A., & Scruggs, T. E. (1997). Best practices in promoting reading comprehension in students with learning disabilities: 1976 to 1996. *Remedial & Special Education*, 18, 197-213.

Mastropieri, M. A., Scruggs, T. E., & Graetz, J. E. (2003). Reading comprehension instruction for secondary students: Challenge for struggling students and teachers. *Learning Disability Quarterly*, 26, 103-116.

Mathewson, G. C. (2004). Model of attitude influence upon reading and learning to read. In R. B. Ruddell & N. J. Urnau (Eds.), *Theoretical models and processes of reading* (5th ed., pp. 1431-1461). Newark, DE: International Reading Association.

Mayer, R. E. (1989). Models for understanding. *Review of Educational Research*, 59, 43-64.

Mayer, R. E. (1996). Learning strategies for making sense out of expository text: The SOI model for guiding three cognitive processes in knowledge construction, *Educational Psychology Review*, 8, 357-371.

- Mayer, R. E., Bove, W., Bryman, A., Mars, R., & Tapango, L. (1996). When less is more: Meaningful learning from visual and verbal summaries of science textbook lessons. *Journal of Educational Psychology, 88*, 64-73.
- McDonough, S. H. (1995). *Strategy and skill in learning a foreign language*. London: Edward Arnold.
- McDonough, J., & McDonough, S. H. (1997). *Research methods for foreign language teachers*. London: Edward Arnold.
- McDonough, S. H. (2002). *Applied linguistics in language education*. London: Edward Arnold.
- McKenna, M. C. (1994). Toward a model of reading attitude acquisition. In E. H. Cramer, & M. Castle (Eds.), *Fostering the love of reading: The affective domain in reading education*. (pp. 18-40). Newark: DE: International Reading Association.
- McKeachie, W. J. (1984). Spatial strategies: Critique and educational implications. In C. D. Holley & D. F. Dansereau (Eds.), *Spatial learning strategies: Techniques, applications, and related issues* (pp. 301-312). Orlando: Academic Press.
- Merkley, D. M., & Jefferies, D. (2000). Guidelines for implementing a graphic organizer. *The Reading Teacher, 54*, 350-357.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis*. CA: Sage.
- Millet, C. P. (2000). *The effects of graphic organizers on reading comprehension achievement of second grade students*. Unpublished PhD thesis, University of New Orleans.
- Ministry of Education (2001). *九年一貫課程綱要*. Taipei: Taiwan.
- Ministry of Education (2004a). *中華民國教育統計*. Taipei: Ministry of Education.
- Ministry of Education (2004b). *未來四年施政主軸行動方案*. Taipei: Ministry of Education.
- Ministry of Education (2005). *高職新課程暫行綱要*. Taipei: Ministry of Education.
- Mizokawa, D. T., & Hansen-Krening, N. (2000). The ABCs of attitude toward reading: Inquiring about the readers' response. *Journal of Adolescent & Adult Literacy, 44*, 72-79.

- Mori, S. (2002). Redefining motivation to read in a foreign language. *Reading in a Foreign Language, 14*, 91-110.
- Moore, D., & Readence, J. (1984). A quantitative and qualitative review of graphic organizer research. *Journal of Educational Research, 78*, 11-17.
- Nassaji, H. (2002). Schema theory and knowledge-based processes in second language reading comprehension: A need for alternative perspectives. *Language Learning, 52*, 439-481.
- Nassaji, H. (2003a). Higher-level and lower-level text processing skills in advanced ESL reading comprehension. *Modern Language Journal, 87*, 261-276.
- Nassaji, H. (2003b). L2 vocabulary learning from context: Strategies, knowledge sources, and their relationship with success in L2 lexical inferencing. *TESOL Quarterly, 37*, 645-670.
- Nation, I. S. (2005). Teaching and learning vocabulary. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 581-595). Mahwah, NJ: Lawrence Erlbaum.
- National Reading Panel. (2000). Report of the National Reading Panel: *Teaching children to read: An evidence-based, assessment of the scientific research literature on reading and its implications for reading instruction*. Washington, DC: National Institute of Child Health and Human Development, National Institute of Health.
- Neuman, W. L. (1997). *Social research methods: Qualitative and quantitative approaches*. Boston: Allyn and Bacon.
- Novak, J. D. (1977). *A theory of learning*. Ithaca, NY: Cornell University Press.
- Novak, J. D. (1998). *Learning, creating, and using knowledge*. Mahwah, NJ: Lawrence Erlbaum.
- Novak, J., & Gowin, D. (1984). *Learning how to learn*. New York: Cambridge University Press.
- Nunan, D. (1991). *Language teaching methodology: A textbook for teachers*. Hemel Hemstead: Prentice Hall.

- Nunan, D. (1992). *Research methods in language learning*. New York: Cambridge University Press.
- Nunan, D. (1999). *Second language teaching and learning*. Boston: Heinle & Heinle.
- Nuttall, C. (1982). *Teaching reading skills in a foreign language*. London: Heinemann.
- Nuttall, C. (1996). *Teaching reading skills in a foreign language*. London: Heinemann.
- O'Donnell, M. P., & Wood, M. (2004). *Becoming a reader: A developmental approach to reading instruction* (3rd ed.). Boston: Pearson Education.
- O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge: Cambridge University Press.
- Ou, H. C. (1997a). A comparative study of English reading proficiency between comprehensive university and technological institute seniors. *Studies in English Language and Literature*, 2, 1-12.
- Ou, H. C. (1997b). A study of university freshmen's English reading proficiency and learning strategies. *Paper presented at the Proceedings of the Fourteenth Conference on English Teaching and Learning in the Republic of China*, 95-105 Taipei: Crane.
- Oxford, R. (1990). *Language learning strategies: What every teacher should know*. New York: Newbury House.
- Oxford, R. (1994). *Language learning strategies: An update*. ERIC Clearinghouse on Languages and Linguistics (ERIC Document Reproduction Service No. ED376707)
- Oxford, R. (2001). *Integrated skills in the ESL/EFL classroom*. ERIC Clearinghouse on Languages and Linguistics (ERIC Document Reproduction Service No. EDO-FL-01-05)
- Paivio, A. (1971). *Imagery and verbal processes*. New York: Holt, Rinehart, & Winston.
- Paivio, A. (1986). *Mental Representations*. New York: Oxford University Press.
- Papalia, A. (1987). Interaction of reader and text. In W. Rivers (Ed.), *Language and languages: Study and teaching*. (pp. 70-82). Cambridge: Cambridge University Press.

- Park, G. P. (2004). Comparison of L2 listening and reading comprehension by university students learning English in Korea. *Foreign Language Annals*, 37, 448-458.
- Patton, M. Q. (2002). *Qualitative research evaluation methods* (3rd ed.). Thousand Oaks, California: Sage.
- Pearson, P. D. (1985). Changing the fact of reading comprehension. *The Reading Teacher*, 38, 724-738.
- Pearson, P. D., & Gallagher, M. C. (1983). The instruction of reading comprehension. *Contemporary Education Psychology* 8, 317-344.
- Perfetti, C. A. (1991). Representations and awareness in the acquisition of reading competence. In L. Rieben & C. A. Perfetti (Eds.), *Learning to read: Basic research and its implications* (pp. 33-44). Hillsdale, NJ: Lawrence Erlbaum.
- Pehrsson, R. S., & Denner, P. R. (1989). *Semantic organizers: A study strategy for special needs learners*. Rockville, MD: Aspen.
- Pica, T. (2005). Second language acquisition research and applied linguistics. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 263-280). Mahwah, NJ: Lawrence Erlbaum.
- Prater, D. L., & Terry, C. A. (1988). Effects of mapping strategies on reading comprehension and writing performance. *Reading Psychology*, 9, 101-120.
- Pressley, M. (1998). *Reading instruction that works: the case for balanced teaching*. New York: Guilford.
- Pressley, M., & Hilden, K. (2002). How can children be taught to comprehend text better? In M. Kamil, J. B. Manning, & H. J. Walberg, (Eds.), *Successful reading instruction* (pp. 33 – 51). Greenwich, CT: Information Age.
- Pritchard, R. (1990). The effects of cultural schemata on reading processing strategies. *Reading Research Quarterly*, 25, 273-295.

- Razi, S. (2004). The effects of cultural schema and reading activities on reading comprehension. *Proceedings of the First International Online Conference on Second and Foreign Language Teaching and Research*, 276-293.
- Rewey, K. L., Dansereau, D. F., Hall, L. P., & Pitre, U. (1989). Effects of scripted cooperation and knowledge maps on the processing of technical material. *Journal of Educational Psychology*, 81, 604 - 609.
- Rieber, L. P. (1994). *Computers, graphics and learning*. Madison, WI: WCB Brown & Benchmark.
- Robinson, D. H. (1998). Graphic organizers as aids to text learning. *Reading Research and Instruction*, 37, 85-105.
- Robinson, D. H., & Kiewra, K. A. (1995). Visual argument: Graphic organizers are superior to outlines in improving learning from text. *Journal of Educational Research*, 87, 455-467.
- Robinson, D. A., Katayama, A. D., & Dubois, N. F., & Devaney, T. (1998). Interactive effects of graphic organizers and delayed review on concept application. *Journal of Experimental Education*, 67, 17-31.
- Rogers, G., & Bouley, E. (1996). Collecting your data. In L. M. Tutty, M. Rothery, R. M. Grinnell, JR. (Eds.), *Qualitative research for social workers: Phases, steps, and tasks* (4th ed., pp. 50-87). Boston: Allyn & Bacon.
- Rose, A. (2000) Literacy strategies at the secondary level. *Leadership*, 30, 12-17.
- Ross, S. (1992). Program-defining evaluation in a decade of eclecticism. In J. C. Alderson & A. Beretta (Eds.), *Evaluating second language education* (pp. 167-195). Cambridge: Cambridge University Press.
- Rost, M. (2005). L2 listening. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 503-528). Mahwah, NJ: Lawrence Erlbaum.
- Rubin, H. J., & Rubin, I. S. (2005). *Qualitative interviewing: The art of hearing data*. Thousand Oaks, CA: Sage.

- Rumelhart, D. E. (1977). Toward an interactive model of reading. In S. Dornic & P. Rabbitt (Eds.), *Attention and performance* (Vol. 6, pp. 573-603). New York: Academic Press. (ERIC Document Reproduction Service No. ED155587)
- Rumelhart, D. E. (1980). Schemata: The building blocks of cognition. In R. J. Spiro, B. C. Bruce & W. F. Brewer (Eds.), *Theoretical issues in reading comprehension* (pp. 33-58). Hillsdale, NJ: Lawrence Erlbaum.
- Rumelhart, D. E. (1985). Toward an interactive model of reading. In H. Singer & R. B. Ruddell (Eds.), *Theoretical models and the processes of reading* (3rd ed., pp. 722-750). Newark, DE: International Reading Association.
- Rumelhart, D. E. (2004) Toward an interactive model of reading. In R. B. Ruddell & N. J. Urnau (Eds.), *Theoretical models and processes of reading* (5th ed., pp. 1149-1179). Newark, DE: International Reading Association.
- Rumelhart, D. E., & Ortony, A. (1977). The representation of knowledge in memory. In R. Anderson, R. Spiro & W. Montague (Eds.), *Schooling and the acquisition of knowledge* (pp. 99-135). Hillsdale, NJ: Erlbaum.
- Saito, H., & Ebsworth, M. E. (2004), Seeing English Language Teaching and Learning Through the Eyes of Japanese EFL and ESL Students. *Foreign Language Annals*, 37, 111-124
- Samuels, S. J., & Kamil, M. L. (1984). Models of reading process. In P. D. Pearson, P. Mosenthal, M. Kamil, & R. Barr (Eds.), *Handbook of reading research* (pp. 185-224). New York: Longman.
- Scanlon, D., Deshler, D. D., & Schumaker, J. B. (1996). Can a strategy be taught and learned in secondary inclusive classrooms? *Learning Disabilities Research & Practice*, 11, 41-57.
- Scarcella, R. C., & Oxford, R. (1992). *The tapestry of language learning*. Boston: Heinle & Heinle.

- Schoenbach, R., Greenleaf, C., Cziko, C., & Hurwitz, L. (1999). *Reading for Understanding: A guide to improving reading in middle and high school classrooms*. San Francisco: Jossey-Bass.
- Schorzman, E. M., & Cheer, R. H. (2004). Structured strategy instruction: Investigating an intervention for improving six-graders' reading comprehension. *Reading Psychology, 25*, 37-60.
- Seliger, H., & Shohamy, E. (1989). *Second language research methods*. Oxford: Oxford University Press.
- Sequera, W. (1995). *Construct validity in reading tests*. Retrieved January 12, 2003, from <http://exchanges.state.gov/forum/vols/vol33/no1/P49.htm>
- Sharp, A. (2002). Chinese L1 schoolchildren reading in English: The effects of rhetorical patterns. *Reading in a Foreign Language, 14*, 111-135.
- Shih, Y. H., Huang, M. C., & Lin, M. S. (1997). 高職英語文教學問題之探討. *Proceedings of the Fourteenth Conference on English Teaching and Learning in the Republic of China*, 425. Taipei: Crane.
- Shih, Y. H., Lin, M. S., Joe, S. G., & Hung, C. H. (1999). 跨世紀技職體系一貫課程規劃：技職校院外與教育改進計畫. 教育部技職司委託專題研究計畫.
- Shih, Y. H., Lin, M. S., Huang, S. S., & Yeh, J. F. (2000). 四技二專英文考試對高職英文教學之影響. *第九屆中華民國英語文教學國際研討會論文集*, 586- 596. Taipei: Crane.
- Shimmerlik, S. (1978). Organization theory and memory for prose: A review of literature. *Review of Educational Research, 48*, 103-120.
- Shohamy, E. (1994). The role of language tests in the construction and validation of second-language acquisition theories. In E. E. Tarone, S. M. Gass, & A. D. Cohen (Eds.), *Research methodology in second-language acquisition* (pp. 133-142). Hillsdale, NJ: Erlbaum.

- Simmons, D., Griffin, C. & Kameenui, E. (1988). Effects of teacher-constructed pre- and post-graphic organizer instruction on sixth-grade science students' comprehension and recall. *Journal of Educational Research*, 82, 15-21.
- Sinatra, R. (2000). Teaching learners to think, read, and write more effectively in content subjects. *The Clearing House*, 73, 266-273.
- Sinatra, R., & Pizzo, J. (1992). Mapping the road to reading comprehension. *Teaching PreK-8*, 23, 102-105.
- Sinatra, R. C., Stahl-Gemake, J., & Berg, D. N. (1984). Improving reading comprehension of disabled readers through semantic mapping. *The Reading Teacher*, 38, 22-29.
- Slavin, R. E. (1991). *Educational psychology* (3rd. ed.). Needham Heights, MA: Allyn & Bacon.
- Smith, F. (1971). *Understanding reading*. New York: Hold, Rinehart, & Winston.
- Smith, F. (2004). *Understanding reading: A psycholinguistic analysis of reading and learning* (6th ed.). Mahwah, NJ: Lawrence Erlbaum.
- Smith, R. J. (1991). Developing positive attitudes toward reading. In B. L. Hayes, *Effective strategies for teaching reading* (pp. 343-361). Needham Heights, MA: Allyn and Bacon.
- Smith, L. P., & Ragan, T. J. (1999). *Instructional Design* (2nd ed.). New York: Merrill, Macmillan.
- Soars, L., & Soars, J. (2003). *American Headway 3*. New York: Oxford University Press.
- Sola, A. M. (1996). EFL reading: An outlining technique. *Forum*, 34, Retrieved February 15, 2005, from <http://exchanges.state.gov/forum/vols/vol34/no2/p.48.htm>
- Spiegel, G. F., & Braufaldi, J. P. (1994). The effects of a combination of text structure awareness and graphic postorganizers on recall and retention of science knowledge. *Journal of Research in Science Teaching*, 31, 913-932.

- SPSS for Windows (Version 13) [Computer software]. (2004). Chicago, IL: SPSS.
- Stanovich, K. E. (1991). Changing models of reading and acquisition. In L. Rieben & C. A. Perfetti (Eds.), *Learning to read* (pp. 19-32). Hillsdale, NJ: Lawrence Erlbaum.
- Steffensen, Joag-Dev, & Anderson (1979). A cross-cultural perspective on reading comprehension. *Reading Research Quarterly*, 15, 10-29.
- Strangman, N., Hall, T., & Meyer, N. (2002). *Graphic organizers and implications for universal design for learning: Curriculum enhancement report*. National Center on Assessing the General Curriculum.
- Swain, M. (2005). The output hypothesis: Theory and research. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 471-484). Mahwah, NJ: Lawrence Erlbaum.
- Swanson, P. N., & De La Paz, S. (1998). Teaching effective comprehension strategies to students with learning and reading disabilities. *Intervention in School and Clinic*, 33, 209-218.
- Taguchi, E., & Gorsuch, G. J. (2002). Transfer effect of repeated EFL reading on reading new passages: A preliminary investigation. *Reading in a Foreign Language*, 14, 43-65.
- Tang, G. (1992). The effect of graphic representation of knowledge structures on ESL reading comprehension. *Studies in Second Language Acquisition*, 14, 177-193.
- Tang, T. C. (1993). The English proficiency test in the university entrance examination: Diagnosis and recommendations. *Papers from the Tenth Conference on English Teaching and Learning in the Republic of China*, 649-676. Taipei: Crane.
- Tiangco, J. A. (2005). Using contemporary psychological perspectives in re-understanding Taiwanese EFL development: Observations and implications for tertiary education. *Asian EFL Journal*, 7, Retrieved July 12, 2005 from http://www.asian-efl-journal.com/march_05_jt.

- Tilestone, D. W. (2004). *What every teacher should know about effective teaching strategies*. Thousand Oaks, CA: Sage.
- Tonjes, M. J., Wolpow, R., & Zintz, M. V. (1999). *Integrated content literacy*. New York: McGraw-Hill.
- Trabasso, T., & Bouchard, E. (2002). Teaching readers how to comprehend text strategically. In C. C. Block, & M. Pressley (Eds.), *Comprehension instruction* (pp. 176-200). New York: Guilford.
- Vacca, R. T., & Vecca, J. L. (1999). *Content area reading: Literacy and learning across the curriculum* (6th ed.). New York: Longman.
- Vygotsky, L. S. (1962). *Thought and language*. Cambridge, MA: MIT Press.
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Wandersee, J. (1990). Concept mapping and the cartography of cognition. *Journal of Research in Science Teaching*, 27, 923-936.
- Wang, Y. H. (2003). *The effects of group discussion on EFL reading comprehension instruction*. Unpublished master's thesis, National Kaohsiung Normal University, Kaohsiung, Taiwan.
- Wang, Y. Q. (2003). Exploring the dominance of the grammar translation method over EFL teaching: View from china. In M. Lee, Hwa, H. F. & Chang, J. C. (Eds.), *Aspects of English language teaching and research* (pp. 73-104). Su-chou: Su-chou University Press.
- Wiersma, W., & Juro, S. G. (2005). *Research methods in education: an introduction* (8th ed.). Boston: Pearson.
- Willerman, M., & Mac Harg, R. A. (1991). The concept map as an advance organizer. *Journal of Research in Science Teaching*, 28, 705-712.
- Wisker, G. (2001). *The postgraduate research handbook*. New York: Palgrave.
- Wittrock. M. C. (1990). Generating processes of comprehension. *Educational Psychologist*, 24. 345-376.

- Yamashita, J. (2004). Reading attitudes in L1 and L2, and their influence on L2 extensive reading. *Reading in a foreign language* 16. 1-19.
- Yang, Y. F. (1995a). 英文重修生與一般生之觀點比較. 第一屆全國技職體系英語教學學術研討會論文集, 51-70. Taipei: Crane.
- Yang, Y. F. (1995b). 技職學院學生英語閱讀方法之分析. The National Science Council Report, NSC83-0301-H-224-011, NSC84-0301-H-224-012.
- Yang, Y. F. (1996a). L1 與 L2 閱讀策略運用之異同. *The Proceedings of the Fifth International Symposium on English Teaching*, 127-135. Taipei: Crane.
- Yang, Y. F. (1996b). 語言轉換與英文閱讀之相關性研探. *Studies in English Language and Literature*, 1, 95-100.
- Yang, Y. F. (1997). 英語文學習者生字解讀過程研究. *Proceedings of the Fourteenth Conference on English Teaching and Learning in the Republic of China*, 183-197. Taipei: Crane.
- Yang, Y. F. (2000). *English diagnosis and remediation for TVES college students reading difficulties*. The National Science Council Report, NSC89-2411-H-224-001.
- Yang, Y. F. (2002). Developing vocabulary size and analysis test for identifying TVES college students' reading levels. *Proceedings of the Nineteenth International Conference on English Teaching and Learning*, 489-499. Taipei: Crane.
- You, Y. L. (2004). 從四技二專統一入學測驗談提升高職學生英語能力. Curriculum and Research Development Center For Commerce Education. Retrieved January 26, 2004, from http://bcc.yuntech.edu.tw/e_news/第十二期/e_news_12.htm
- You, Y. L., Tsai, J. Y., Chuang, W. C., Kuo, J. F., & Lu, H. Y. (2000). 技職體系學生英語學習困難介入方案實驗—以雲科大機械系一年級學生為例. *Proceedings of the Nineteenth International Conference on English Teaching and Learning*, 640-649. Taipei: Crane.

- Yoshimura, F. (2000). Automaticity theory and EFL learning in Japan: With some specific application for reading. *Literacy Across Cultures*, 4, Retrieved December 12, 2004, from <http://www2.aasa.ac.jp/~dcdycus/LAC2000/LAC2000.HTM>
- Zhang, Z. (1997). Intensive reading: Getting your students to see the forest as well as the trees. *Forum*, 35, 40-43.

APPENDIX 1

Personal Data Questionnaire (PDQ)

1. Name/Student Number: _____
2. Age: _____ years
3. If Attended Cram School: _____
4. Residence: _____
5. High School Attended: _____
6. English Hours/Week: _____
7. Years Studied English: _____
8. Joint College Entrance Examination (JCEE) English Test Score: _____

APPENDIX 2

English Test of the Joint College
Entrance Examination (JCEE) in 2003



九十二學年度技術校院四年制與專科學校二年制 統一入學測驗試題

准考證號碼：

(請考生自行填寫)

共同科目

英文

【注意事項】

1. 請先核對考試科目與報考類別是否相符。
2. 本試題共 50 題，每題 2 分，共 100 分，請依題號順序作答。
3. 本試題均為單一選擇題，每題都有 (A)、(B)、(C)、(D) 四個選項，請選出一個最適當的答案，然後在答案卡上同一題號相對位置方格內，用 2B 鉛筆全部塗黑。答錯不倒扣。
4. 本試題紙空白處或背面，可做草稿使用。
5. 請在試題首頁准考證號碼之方格內，填上自己的准考證號碼，考完後將「答案卡」及「試題」一併繳回。

I. 字彙及慣用語：第 1 - 20 題，請選擇一個最適合的答案，以完成該句。

1. Mr. Lee bought the suit at half of the original price. It was a really good _____.
(A) loss (B) number (C) bargain (D) goal
2. The woman had trouble falling asleep, so the doctor gave her some _____ to take every night before going to bed.
(A) bills (B) hills (C) mills (D) pills
3. In the Olympic Games, the best athletes from all over the world try their best to _____ with one another.
(A) remember (B) compete (C) desire (D) calculate
4. When Jack asked Helen to go to the movies with him, she _____, but a few minutes later she finally agreed.
(A) hesitated (B) delighted (C) commented (D) removed
5. Because of the poor economy, reducing taxes has now become a _____ for the new government.
(A) necessity (B) community (C) generation (D) statue
6. The disease spreads very fast. Therefore, doctors suggest that everyone should wash hands to prevent _____.
(A) construction (B) infection (C) invention (D) instruction
7. When they try to hire workers for their companies, employers usually decide within five minutes whether someone is _____ for the job.
(A) different (B) stationary (C) suitable (D) vertical
8. Advance _____ of seats for the train is strongly recommended when travelers want to have a seat on their way home.
(A) resident (B) cancellation (C) protection (D) reservation
9. Eating fruit and vegetables does people good because such food is _____ in vitamin C.
(A) more (B) many (C) rich (D) well
10. With hard work and determination, Britney Spears (布蘭妮) has built a successful _____ in show business.
(A) emotion (B) lotion (C) career (D) coward
11. I haven't _____ my brother since he moved to China last year.
(A) touched down (B) seen out (C) looked down (D) heard from

12. A fire _____ in the hospital last night and killed 24 people.
(A) broke up (B) broke out (C) broke over (D) broke through
13. In Taiwan, the presidential election _____ every four years.
(A) takes place (B) takes out (C) takes off (D) takes in
14. He has an excellent memory; he can easily learn every name in this book _____.
(A) by heart (B) by nose (C) by way (D) by means
15. What the reporter said was a complete lie. I have never even heard of that man, _____ gone out with him.
(A) sit alone (B) let alone (C) keep out (D) fall out
16. Hospitals were crowded with injured people after the big earthquake, and nurses were busy _____ those patients without taking a rest.
(A) leaving for (B) turning on (C) using up (D) caring for
17. Judy does not like to attend Bill's birthday party, so she asked me to go _____ her.
(A) in place of (B) in connection with (C) in addition to (D) at the risk of
18. Because of poor money management, the company was _____ by a large firm last year.
(A) taken over (B) put on (C) run over (D) composed of
19. Tom hates to be alone, and he would like to _____ and have a family.
(A) wear out (B) settle down (C) sit up (D) throw away
20. The terrible train accident in Ali-Mountain (阿里山) _____ the death of many passengers.
(A) talked into (B) hung up (C) turned down (D) resulted in

II. 對話題：第 21 - 25 題，請依對話內容選出一個最適當的答案，使其成為有意義的對話。

21. Clerk: Good morning. Can I help you?
Sue: Yes, it's about the five-day tour to Singapore you advertised in the paper.
Clerk: Yes, certainly. _____
Sue: Well, I haven't really decided yet.
(A) What do you do in your leisure time? (B) Why were you going to Singapore?
(C) Which paper did you see it advertised? (D) When are you planning on going?

22. John: Excuse me, Mr. Wang. _____
 Manager: Why? What's the matter, John?
 John: It's my father. He's going to have an operation.
 (A) You're wanted on the phone. (B) The report is missing some pages.
 (C) I'd like to take a few days off. (D) The operation is scheduled for Friday.
23. Peter: Ted, do you happen to see my friend Catherine?
 Ted: I'm not sure, Peter. _____
 Peter: Tall and thin, with short and straight hair.
 (A) When did you last see her? (B) What does she look like?
 (C) How old is she? (D) What's she wearing?
24. Mary: What do you do in your free time, Julia?
 Julia: I play tennis.
 Mary: How often do you play?
 Julia: _____ What about you?
 (A) Early in the morning. (B) About an hour.
 (C) Three times a week. (D) A week ago.
25. Clerk: Can I help you?
 Customer: Yes, I want to try on these shoes.
 Clerk: _____
 Customer: I am not sure. Can you measure my feet?
 (A) Perhaps so. (B) Never mind. (C) I don't think so. (D) What size?

III. 綜合測驗：下面三篇短文共有 15 個空格，為第 26 - 40 題，每題有四個選項，請依各篇短文之文意，選出一個最適合該空格的答案。

One day the manager of the Grand Hotel in Taipei was called upon to deal with the complaint of a young lady. "I can't _____ 26 _____ the noise another minute," she told the manager _____ 27 _____. "You must tell the man across the hall to stop _____ 28 _____ the horrible noise." And, seeing the look of surprise on the manager's face, she added, "If you don't make him stop, I'll check out at once."

"I'm very sorry it's disturbing you," the manager said patiently. "That's Yo-Yo Ma (馬友友)." It was the lady's turn to look surprised. "What?" she said, much _____ 29 _____. "The great musician Yo-Yo Ma?" She was silent for a moment. "Well, of course, that's different. Please don't say a word to him."

Two days later, the manager happened to hear her talking to another visitor in the lobby. "It's so _____ 30 _____," she was saying, "I can open my door every morning and hear Yo-Yo Ma practice."

26. (A) stand (B) count (C) eat (D) repair
 27. (A) angrily (B) easily (C) happily (D) cheerfully
 28. (A) to make (B) making (C) to have made (D) make
 29. (A) embarrassing (B) embarrassed (C) embarrassingly (D) embarrassment
 30. (A) terrible (B) irritating (C) wonderful (D) unfortunate

For more than 30 years, the outstanding success of the Taiwan experience has had considerable impact on mainland China. For example, the special economic zones _____ 31 _____ on the mainland are modeled on Taiwan's export processing zones. Recently the Chinese government has also been _____ 32 _____ to follow the _____ 33 _____ of the Hsinchu Science-Based Industrial Park (新竹科學工業園區) south of Taipei.

_____ 34 _____ economic development, Taiwan has in recent years made great efforts to promote democracy, and this has also had notable _____ 35 _____ on China.

31. (A) which established (B) establishing (C) established (D) which establishes
 32. (A) broad (B) weak (C) moody (D) eager
 33. (A) criticism (B) meaning (C) order (D) example
 34. (A) Aside for (B) Apart from (C) As a result (D) With regard in
 35. (A) effects (B) problems (C) opinions (D) comments

People have different opinions about the dangers of children using the Internet. Some people think that it is a good way for children to find out about things, and that _____ 36 _____ in this way also helps children to get used to technology. Others, _____ 37 _____, feel that children should not be allowed to explore the Internet on their _____ 38 _____. They argue that unlike films and television, _____ 39 _____ are carefully controlled so that parents can decide what they will let their children _____ 40 _____. Information on the Internet is open to anyone, so children may be exposed to materials that are not appropriate for them.

36. (A) learn (B) learns (C) learned (D) learning
 37. (A) however (B) therefore (C) by the way (D) as a result
 38. (A) self (B) own (C) thing (D) way
 39. (A) those (B) these (C) which (D) what
 40. (A) smell (B) taste (C) dress (D) watch

IV. 閱讀測驗：下面有兩篇短文，其後共有 10 個題目，為第 41 - 50 題，請閱讀短文後，選出最適當的答案。

The elementary schools in Taiwan have begun teaching English, but it is difficult for those schools in remote, rural areas to hire qualified English teachers. Now the problem seems to be partially solved as forty American-born Chinese will be recruited to teach English in remote or rural areas this coming summer.

These young American-born Chinese will work as English teachers for nine weeks during their summer vacation. In return they will receive free lessons in Chinese and Chinese literature for their voluntary efforts.

Any interested individuals who are Chinese Americans aged over twenty and have a college degree are welcome to apply for the job via the Internet at the following email address: www.kingcar.com.tw before March 8, 2003.

41. When are the voluntary teachers going to teach English in Taiwan?
(A) When they are senior students. (B) During their winter break.
(C) During their summer vacation. (D) After they have the certificate.
42. Where will the voluntary English teachers be teaching when they come to Taiwan?
(A) At remote or rural elementary schools. (B) At city elementary schools.
(C) At elementary schools in Taipei. (D) At every elementary school.
43. What will the voluntary English teachers get in return for their teaching?
(A) Voluntary efforts. (B) Free Chinese lessons.
(C) Money. (D) Computers.
44. According to the article, with the forty volunteers coming to Taiwan, the problem of English teacher shortage is _____.
(A) completely solved (B) partially solved (C) totally overcome (D) getting worse
45. Which is NOT included in the qualifications (資格) for the job mentioned above?
(A) Being aged over twenty. (B) Having a college degree.
(C) Being Chinese Americans. (D) Having a teaching certificate.

The effect of physical and mental demands and pressures on the human body may be thought of as stress. Everyone's life has some stress. In day-to-day situations, your body can handle normal stress. Even when stress continues, the body will react by demanding physical and mental rest. After rest, it is again ready to take on stress.

In fact, a certain amount of stress is necessary. The right amount for you depends on your individual physical and mental makeup. Alicia, for example, is always **on the go**. She joins in all sorts of clubs and organizations in school. Out of school, she competes year-round in sailing races. Keeping up with all her activities requires her to handle a great deal of physical and mental stress.

Mike, on the other hand, is more easygoing. He spends time with his friends, works part-time at a record store, and keeps up with schoolwork. However, he would not be comfortable with Alicia's schedule of activities. To him, too much stress means distress.

46. What is this passage mainly about?
- (A) Stress and your body. (B) Stress and your friends.
(C) Stress and gender difference. (D) Stress and schoolwork.
47. The phrase "on the go" is closest in meaning to _____.
- (A) upset (B) scholastic (C) busy (D) noisy
48. According to the passage, which of the following statements is true?
- (A) The human body cannot handle stress in everyday life.
(B) Mike would feel comfortable with a lot of stress.
(C) No one suffers from stress.
(D) Some amount of stress is necessary for the human body.
49. Why does the author talk about Alicia and Mike?
- (A) To show how important it is to use makeup on your body.
(B) To prove that there is indeed some stress in day-to-day situations.
(C) To show that the right amount of stress may depend on individuals.
(D) To explain how trying to keep up with schoolwork causes a lot of stress.
50. This passage might appear in a book intended to help people _____.
- (A) know more about sailing races (B) maintain good health
(C) get used to modern technology (D) make good use of their talents

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APPENDIX 3

Personal Data Questionnaire (PDQ)

Descriptive Statistics Summary

Table A3.1

Frequency Percentage Distribution of Age

| Value | N | Percentage |
|-------|----|------------|
| 18 | 21 | 42.0 |
| 19 | 15 | 30.0 |
| 20 | 12 | 24.0 |
| 21 | 2 | 4.0 |
| Total | 50 | 100.0 |

Table A3.2

Frequency Distribution of Cram School Attended

| Value Label | N | Percentage |
|-------------|----|------------|
| No | 13 | 34.0 |
| Yes | 33 | 66.0 |
| Total | 50 | 100.0 |

Table A3.3

Frequency Percentage Distribution of Residence

| Residence | N | Percentage |
|------------------|----|------------|
| Taipei County | 4 | 8.0 |
| Chung-hwa County | 2 | 4.0 |
| Tainan City | 5 | 10.0 |
| Tainan County | 4 | 8.0 |
| Kaohsiung City | 14 | 28.0 |
| Kaohsiung County | 9 | 18.0 |
| Pin-tung City | 2 | 4.0 |
| Pin-tung County | 9 | 18.0 |
| Tai-tung City | 1 | 2.0 |
| Total | 50 | 100.0 |

Table A3.4

Frequency Percentage Distribution of High School Attended

| High School Attended | N | Percentage |
|--|----|------------|
| Cardinal Tien College of Nursing | 3 | 6.0 |
| Chung-Jen Vocational High School of Nursing and Midwifery | 2 | 4.0 |
| National Tainan Institute of Nursing | 3 | 6.0 |
| Min-Hwei College of Healthcare Management | 1 | 2.0 |
| Yuh-Ing Junior College of Healthcare and Management | 20 | 40.0 |
| Shu-Jen college of Medicine and Management | 2 | 4.0 |
| Kao-Mei College of Healthcare and Management | 1 | 2.0 |
| Mei-Ho Institute of Technology | 5 | 10.0 |
| Tzu-Hui Institute of Technology | 6 | 12.0 |
| General High Schools | 7 | 14.0 |
| Total | 50 | 100.0 |

Table A3.5

Frequency Distribution of English Hours per Week

| English Hours | N | Percentage |
|---------------|----|------------|
| <hr/> | | |
| 2 | 12 | 24.0 |
| 3 | 21 | 42.0 |
| 4 | 5 | 10.0 |
| 5 | 2 | 4.0 |
| 6 | 2 | 4.0 |
| 7 | 5 | 10.0 |
| 8 | 3 | 6.0 |
| Total | 50 | 100.0 |

Table A.3.6
Frequency Percentage of Years Studied English

| Years | N | Percentage |
|-------|----|------------|
| 6 | 22 | 44.0 |
| 7 | 15 | 30.0 |
| 8 | 7 | 14.0 |
| 9 | 3 | 6.0 |
| 10 | 3 | 6.0 |
| Total | 50 | 100.0 |

Table A3.7
Frequency Distribution of English Test Score of
the Joint College Entrance Examination JCEE

| Score | N | Percentage |
|-------|---|------------|
| 14 | 1 | 2.0 |
| 20 | 2 | 4.0 |
| 22 | 1 | 2.0 |
| 24 | 1 | 2.0 |
| 26 | 3 | 6.0 |
| 28 | 6 | 12.0 |
| 30 | 3 | 6.0 |
| 32 | 1 | 2.0 |
| 34 | 1 | 2.0 |
| 36 | 3 | 6.0 |
| 38 | 1 | 2.0 |
| 40 | 5 | 10.0 |
| 42 | 4 | 8.0 |
| 44 | 2 | 4.0 |
| 46 | 2 | 4.0 |

Table A3.7 (Continued)
Frequency Distribution of English Test Score of
the Joint College Entrance Examination (JCEE)

| Score | N | Percentage |
|-------|----|------------|
| 48 | 1 | 2.0 |
| 50 | 5 | 10.0 |
| 52 | 1 | 2.0 |
| 54 | 2 | 4.0 |
| 58 | 1 | 2.0 |
| 60 | 2 | 4.0 |
| 62 | 2 | 4.0 |
| Total | 50 | 100.0 |

Table A3.8

English Score of the Joint College Entrance Examination (JCEE)
Descriptive Statistics Summary

| English Score of JCEE | <u>Level of English Proficiency</u> | |
|-----------------------|-------------------------------------|--------|
| | High | Low |
| N : | 27 | 23 |
| Missing : | 0 | 0 |
| Range : | 24 | 22 |
| Minimum: | 40.00 | 14.00 |
| Maximum: | 62.00 | 38.00 |
| Mean : | 28.72 | 48.44 |
| Std Err : | 1.41 | 1.20 |
| Std Dev : | 7.30 | 5.78 |
| Variance : | 53.33 | 33.45 |
| Skewness: | .54 | -.43 |
| S E Skew: | .45 | .48 |
| Kurtosis : | -.88 | .45 |
| S E Kurt : | .87 | .94 |
| Sum: | 1308.00 | 649.00 |

APPENDIX 4

Texts

Wonders of the modern world

I don't believe that today's wonders are similar in kind to the wonders of the Ancient World. They are all buildings, such as the Pyramids in Egypt, or other architectural structures. In the past 100 years, we have seen amazing technological and scientific achievements. These are surely our modern wonders.

1. It is everywhere. More than half a billion people use it, and the number of people who are online increase by 100 million every year. In 1994 there were only a few hundreds web pages. Today there are billions.

It has revolutionized the way we live and work. But we are still in the early days. Soon there will be more and more interactivity between the user and the web site, and we will be able to give instructions using speech.

2. In 1969, Neil Armstrong stepped out of his space capsule onto the surface of the moon and made his famous statement: "That's one small step for a man, one giant leap for mankind." Since then, there have been space probes to Mars, Jupiter, Saturn, and even the sun. A space observatory will someday study how the first stars and galaxies began.

So far, it seems that we are alone in the universe. There are no signs yet that there is intelligent life outside our own solar system. But who knows what the future holds?

3. Surely nothing has done more for the comfort and happiness of the human race than the advances in health care! How many millions of people have benefited from the humble aspirin? How many lives has penicillin saved? Average life expectancy worldwide has risen dramatically over the past 100 years, from about 47 years in 1900 about 77 years today.

4. We are a world on the move. Airlines carry more than 1.5 billion people to their destinations every year. It is estimated that at any one time these days there are more people in airplanes than the total number of people who traveled abroad in the whole of the nineteenth century. (but I have no idea how they figured this out).

5. It is true that they are now commercialized, and there is greed and drug abuse. However, it is a competition in which every country in the world takes part. Every four years, for a brief moment, we see these countries come together in peace and friendship. We feel hope again for the future of mankind.

6. In 1855, an American senator named Edward Everett said, "Drop a grain of California gold into the ground, and there it will lie unchanged until the end of time. Drop a grain of wheat into the ground and – lo! – a mystery."

Farming had played an important role in the economics of the United States and Canada. Nowadays, we can't eat all food we produce, if only politicians would find a way to share it with those parts of the world where there is famine.

7. *We are still here!*

The last wonder of the modern world is simply that we are still here.

We have had nuclear weapons for over 30 years that could destroy the world, but we haven't used them to do it. This is surely the greatest wonder of all.

The Clown Doctor

PEGGY VOLZ is 31 and works as a “clown doctor” for the Magdalena’s Children’s Trust.

I’M A CLOWN DOCTOR; I CALL MYSELF “Dr. Banana.” I spend my time in the children’s hospitals being extremely silly. I make funny faces, tell jokes, and do magic tricks. I blow bubbles as I walk into the wards, shake hands with the kinds. I carry a “funky” radio and microphone, so I can do karaoke with children who are well enough to sing. We often meet kids who look really sick one week, but who are racing around yelling, “Hi, Dr. Banana!” when we get back a week later.

I’m naturally a very cheerful person. I’ve always been a clown. In school I was always in trouble for being the joker in class. After school I worked in a daycare center, taught drama, and traveled the world. I became a clown doctor because of a chance meeting with someone who works for Aid for Sick Children. I knew it was just the job for me. I still feel like a teenager in my work. I wear a big red coat, a striped shirt, and tights with big colored dots on them. Also I have a red rubber nose and a plastic banana in my hair.

Being a clown in hospital is very tiring, both physically and emotionally. You learn not to show your feelings, otherwise you’d be no help at all. Clown doctors are sensitive, but it’s not a side you often see. To other people we’re happy all the time. I’m still learning to allow myself to feel sad occasionally. There are special kids you get really close to. Right now I’m working with a very sick little girl from Costa Rica. We don’t have a common language, but we communicate through laughter. She’s been in and out of the hospital so many times for operations. She’s always in my thoughts.

At lunchtime we eat in the hospital cafeteria. That’s good because we meet the nurses and doctors. They tell us about particular kids who they think might benefit from a visit from us. We’re there to help nurses too. If a child is frightened – perhaps they’re getting a shot or some nasty medicine – we can distract them so the nurses can do their job.

Being a clown doctor makes the worries of everyday life seem small. We’re not paid like millionaires, but we’re rewarded in other ways. For me, this is definitely a millionaire job.

At six o’clock I take off my make up and change my clothes. I’m totally exhausted. Sometimes I have a girls’ night out with my friends. I love my life. At night I really come alive and party. I’m a 17-hour-a-day girl. Then bang! I fall into bed and I’m out like a light.

A World Guide To Good Manners: how not to behave badly abroad

by Eva Vorderman

Traveling to all corners of the world gets easier and easier. We live in a global village, but this doesn't mean that we all behave the same way.

Greetings

How should you behave when you meet someone for the first time? An American or Canadian shakes your hand firmly while looking you straight in the eyes. In many parts of Asia, there is no physical contact at all. In Japan, you should bow, and the more respect you want to show, (1) _____. In Thailand, the greeting is made by pressing both hands together at the chest, as if you are praying, and bowing your head slightly. In both countries, eye contact is avoided as a sign of respect.

Food and Drink

In Italy, Spain, and Latin America, lunch is the biggest meal of the day, and can last two or three hours. For this reason many people eat a light breakfast and a late dinner. In the United States, you might have a business lunch and do business as you eat. In Mexico and Japan, (2) _____. Lunch is the time to relax and socialize, and the Japanese rarely drink alcohol at lunch. In the United States and Britain, it's not unusual to have a business meeting over breakfast, and in China it's common to have business banquets, but you shouldn't discuss during the meal.

Clothes

Many countries have rules about what you should and shouldn't wear. In Asian and Muslim countries, you shouldn't reveal the body, especially women who (3) _____. In Japan you should take off your shoes when entering a house or a restaurant. Remember to place them neatly together facing the door you came in. This is also true in China, Korea, and Thailand.

Doing business

In most countries, an exchange of business cards is essential for all introductions. You should include your company name and your position. If you are going to a country where your language is not widely spoken, you can get the reverse side of your card printed in the local language. In Japan, you must present your card with both hands, with the writing facing the person you are giving to it.

In many countries, business hours are from 9 or 10 A.M. to 5 or 6 P.M. However, in some countries, such as Greece, Italy, and Spain, (4) _____. Japanese business people consider it their professional duty to go out after work with colleagues to restaurants, bars, or nightclubs. If you are invited, you shouldn't refuse, even if you don't feel like staying out late.

* Read the text "A World Guide to Good Manners." These lines have been taken out of the text. Where do they go?

- a. many people prefer not to discuss business while eating
- b. some businesses close in the early afternoon for a couple of hours
- c. for greeting, eating, and drinking
- d. the deeper you should bow
- e. should wear long-sleeved blouses and skirts below the knee

My kind of vacation

She travels for her job, but when it's her own vacation,
Karen Saunders stays home.

Karen Sanders has her own travel agency in San Francisco that sends people all over the world on their dream vacations. She needs to know where she's sending them, so she goes on working vacations four or five times a year.

My ideal vacation

My ideal vacation has a little bit of everything. I like lazing on a beach with a pile of books, but then I get bored and I need to do something. I love exploring new places, especially on foot, and poling around in churches, stores, museums, and restaurants. I'm very into cooling, so I love going around markets and food stores.

However, I must confess that my favorite "vacation resort" is home. I travel so much in my job that just waking up in my own bed is heaven. I putter around the house in my pajamas, read the paper, do some gardening, shop for some food, then make a delicious meal in the evening.

My business vacations

I have three trips coming up. I'm looking forward to going to Canada soon, where I'm staying for four nights at the ice hotel. This is a giant igloo situated in Montmorency Fall Park, just 10 minutes from downtown Quebec. It is made from 4,500 tons of snow and 250 tons of ice, and it takes five weeks to build. It will stay open for three months. When the spring arrives, it will melt. Then it will be built again next year—maybe in a different location! Each room is supplied with a sleeping bag made from deer pelts. The hotel has two art galleries featuring ice scriptures, and an ice movie theater. It also has a bar where all the drinks come in glasses made of ice. Of course, I'll visit them all!

In complete contrast to the Ice Hotel, I'm going to Dubai the following month, to stay a few days at the spectacular Burj al-Arab, which means the Arabian Tower. It's shaped like a giant sail, but it rises dramatically out of the Arabian Gulf. Each room has its views. I really want to try the restaurant in the tube at the top next to the helipad. Other must-dos include shopping in the markets, called souks. (You can buy designer clothes, perfumes, and spices, but what I want is some gold jewelry.) I'm going to visit the camel races.

The Baobab Rives Lodge in Selous, Tanzania—so remote, you arrive by boat.

What to see: Each tree-top room has views over the vast forested banks of the Rufiji River, which runs through one of the largest game reserves in Africa.

What to do: Safari by Land Rover in search of elephants, rhinos, and lions; or by boat along the Rufiji River in search of crocodiles, hippopotamus, and rare birds.

GLOBAL PIZZA

By Connie Odone

So you thought the hamburger was the world's most popular fast food? After, McDoanld's Golden Arches span the globe. But no, there is another truly universal fast food, the ultimate fast food. It's easy to make, easy to serve, much more varied than the hamburger, can be eaten with the hands, and it's delivered to your front door or served in fancy restaurants. It's been one of America's favorite foods for over 50 years. It is, of course, the pizza.

It's kind of silly to talk about the moment when pizza was "invented." It gradually evolved over the years, but one thing's for sure—it existed long before the discovery of the Americas. The ideas of using pieces of flat, round bread as plates came from the Greeks. They called them "plakuntos" and ate them with various simple toppings such as oil, garlic, onions, and herbs. The Romans enjoyed eating something similar and called it "picea." By about 1000 A.D. in the city of Naples, "picea" had become "pizza" and people were experimenting with more toppings: cheese, ham, anchovies, and finally the tomato, brought to Italy from Mexico and Peru in the sixteenth century. Naples became the pizza capital of the world. In 1889, King Umberto I and Queen Margherita heard about pizza and asked to try it. The invited pizza maker Rafaele Esposito to make it for them. He decided to make the pizza like the Italian flag, so he used red tomato, white mozzarella cheese, and green basil leaves. The queen loves it and the new pizza was named "Pizza Margherita" in her honor.

Pizza migrated to America with the Italians at the end of the nineteenth century. The first pizzeria in the United States was opened in 1905 at 53 1/2 Spring Street, New York City, by Genera Lombardi. But the popularity of pizza really exploded when American soldiers returned from Italy after World War II and raved about "that great Italian dish." Americans are now the greatest producers and consumers of pizza in the world.

THE TRAPEZE ARTIST

“You only live once, so why stay in a boring job?”

LINDA SPELMAN was a lawyer who found a new career in a circus. She now works as a trapeze artist, traveling with circuses throughout Canada, Europe, and East Asia.

How did you get the job? That’s quite a long story. My father’s a lawyer, so I thought I’d become one, too. Law school was really, really hard, so I took up gymnastics in the evenings to help me relax. When I finally pass my exams, I thought, “I need a break. I want to travel and learn a language.” I’d heard of the Ecole Naitotnale du Cirque in Montreal, so I thought, “I’ll join the circus.” I went to Canada and took a trapeze class and, amazingly, I was good at it.

What do you like most about it? The excitement and the travel. I always wanted to travel and learn languages and I’ve done all of that. Also, I get along really well with circus people. They’re all nationalities. I’ve learned so much about life from them.

What’s an average day like? Everyone has to help in the circus, so you begin the day in a new town hanging our flyers. In the afternoon, you work in the box office and rehearse. Then you do the act in the evening. At the end of a week, I’m so tired I spend a day in bed. Last month I twisted my shoulder and couldn’t work for a week.

Have you made any sacrifices to do this job? No, I haven’t, not really. I quit doing something that I hated and I’m doing something that I love. I so miss my family sometimes, but that’s all. And of course I earn a lot less than a lawyer.

What would you like to do next? I’m 34 now. I’d like to carry on doing this until I’m least 50. /there are /Russian trapeze artists still going strong in their fifties.

What advice would you give to someone who wanted to do your job? You need to have in good shape and strong and have a good head for heights. But generally, I’d say to anyone with a dream, “Go for it! You only live once, so why stay in a boring job?”

Who wants to be a millionaire? We do.

All over the world, lotteries create new millionaires every week. But what is it actually like to wake up one day with more money than you can imagine?

Nearly all of us have fantasized about winning the big prize in a lottery. We dream about we would do with the money, but we rarely stop to think about (1) _____?

For most of us, our way of life is closely linked to our economic circumstances. The different parts of our lives fit together like a jigsaw—work, home, friends, hobbies, and sports make up our world. This is where we belong and where (2) _____. A sudden huge windfall would dramatically change it all and smash the jigsaw.

For example, most people like the idea of not having to work but winners have found that without work there is no purpose to their day and no reason to get up in the morning. It is tempting (3) _____ in a wealthy neighborhood, but in so doing, you leave old friends and routines behind.

Winners are usually advised not to publicize their address and phone number, but charity requests and begging letters still arrive. If they are not careful, (4) _____ on lawyers' fees to protect them from demanding relatives, guards to protect their homes and swimming pools, and psychiatrists to protect their sanity!

Winners who lost it all

There are many stories about people who couldn't learn how to be rich. In 1999 Abby Wilson from Lake City, Minnesota, won 514 million on Powerball, and it brought her (5) _____. She immediately went on a spending spree that lasted for four years and five marriages. She is now broke and alone. "I'm a miserable person," she says. "Winning that money was the most awful thing that happened to me."

Then there is the story of William Church, 37, a cafeteria cook from Boston. He won the Massachusetts lottery, but it turned out to be (6) _____. Three weeks after winning, he dropped dead of a heart attack, brought on by ceaseless hounding from the press, the public, and relatives after his \$3.6 million win was made public.

Winners who survived

For some people, the easiest thing is to get rid of the money (7) _____. Jim Calhoun, a seaman from Canada, won \$2 million, and blew the money in 77 days. He withdrew thousands of dollars a day from the bank and handed it to former shipmates and strangers in the street. On one occasion, he handed out \$150,000 to homeless people in a Toronto park. Later he said he had no regrets about his wasted fortune.

Michael Kovalski was the biggest lottery winner at the time when he won \$40 million in the Illinois lottery. It has taken years to get used to the changes in his life. "I couldn't have done it without my family," he says. "There were so many lies about me in the press. They said I had dumped my girlfriend, bought an island in the Caribbean and become a drug addict. All wrong." His fortune has been divided (8) _____.

A final thought

When you next buy a lottery ticket, just stop for a minute and ask yourself why you're doing it. Do you actually *want* to win? Or are you doing it for the excitement of *thinking about* winning?

● These phrases have been taken out of the text. Where do they go?

- a. his unluckiest bet
- b. to move to a bigger house
- c. we feel at home
- d. among all the members of the family
- e. what the money would do to us
- f. as soon as possible
- g. most of their money will be spent
- h. nothing but misery

Debbie's Problem Page

Dear Debbie:

I'm 16 years old and totally depressed. I'm in love with Leon Rossi, the movie star. I think of him night and day. I just sit in room and watch videos of his movies over and over. I've written hundreds of letters to him and sent e-mails to his fan club, but all I get back are autographed photos. I dream that someday I'll meet him and that he'll feel that same way about me. My friends think I'm crazy, so I don't see them anymore. I can't concentrate on my homework, and I have final exam next month. I've tried to talk to my Mom and Dad, but they're both lawyers and much too busy to listen to me.

Please, please help me! I'm desperate. I'm thinking of running to Hollywood to meet him.

Yours in misery,
Lucy

Finally He Passes!

PRIEST PASSES DRIVING TEST AFTER 632 LESSONS OVER 17 YEARS

Father Daniel Hernandez is celebrating. He has finally passed his driving test. He has been learning to drive for the past 17 years, and he has had a total of 632 lessons.

Father Dan, 34, has spent over \$15,000 on driving lessons, he has had 8 different instructors, and he has crashed his car 5 times. Then last week he finally manages to pass. Father Dan, a parish priest in San Antonio, Texas, began driving at the age of 17. "My instructors have been telling me for years that I would never pass, but I was determined to prove them wrong."

Father Dan's luck changed when he took his test for the 56th time. He said, "When I was told that I'd passed, I got down on my knees and thanked God."

So how has he been celebrating? "I've been visiting all my friends and relatives and people who live in the small towns around here. I haven't seen some of them for years, because I haven't been able to get to them. Now I can go everywhere!"

FAMILY MATTERS

Two points of view on a family relationship

OLIVER DARROW, actor, talks about his daughter, Carmen.

“My first wife and I only had one child. It might have been nice to have more. I would have liked a son, but we just had Carmen.

I see her as my best friend. I think she always comes to me first if she has a problem. We have the same sense of humor and share many interests, except that she’s crazy about animals, obsessed with them—she has always had dogs, cats, and horses in her life.

We were closest when she was about four, which I think is a wonderful age for a child.

That’s when they need their parents most. But as soon as Carmen went to school, she seemed to grow up and grow apart from her family, and any father finds it difficult with a teenage daughter. She is very moody

*“I see her as
my best friend.”*

and had an odd group of friends. There was endless stream of strange young men coming to our house. I remember I once got annoyed with her in front of her friends and she didn’t talk to me for days.

I’ve always wanted the best for her. We sent her to a good school, but she wasn’t happy there. She left because she wanted to become an actress, so with my connections I got her into drama school, but she didn’t like that either. She worked for a while doing small roles in movies, but she must have found it boring because she gave it up, though she never really said why. She got married a few years ago; her husband’s a veterinarian. They must be happy because they work together, and she loves animal.

We have the same tastes in books and music. When she was younger, I used to take her to the opera—that’s my passion—but she can’t have liked it very much because she hasn’t come with me for years. I don’t think she goes to the movies or watches TV much. She might watch my movies, but I don’t know. It’s not the kind of thing she talks to me about.

I’m very pleased to have Carmen. She’s a good daughter, but I don’t think she likes my new wife very much because she doesn’t visit very often. I’m looking forward to being a grandfather someday. I hope she’ll have a son.”

CARMEN DARROW, an assistant vet in Vermont, talks about her father, Oliver.

“I don’t really know my father. He isn’t easy to get along with. I’ve always found him difficult to talk to. He’s kind of reserved, but he loves to be recognized and asked for his autograph. I think people see his movies and think he’s very easygoing, but he really isn’t. He’s won some awards for his movies, and he’s really proud of them. He used to show them

to my friends when they came to the house and that really embarrassed me.

He can't have been home much when I was a small child because I don't remember much about him. He mostly stayed away from family life. His work always came first, and he was often away from home making movies. I wasn't surprised when he and my mother split up.

He must have wanted the best for me, but the best was always what *he* wanted. He chose my school and I hated it. I had no friends there, I was miserable and didn't do well, so I was asked to leave. He must have been very disappointed, but he said nothing to me. He wanted me to be an actor like him but I'm not at all like him. I tried it for a while, but I was miserable until I met my husband. He's a veterinarian and I'm his assistant. I'm now doing what I always wanted to do, work with animals.

My father and I have always been so different. I love animals and he loves books and music, and above all opera, which I hate. If he comes to see us (we live on a farm),

"He's like a stranger." he always wears the totally wrong clothes, but we don't see much of each other these days. It's because he really didn't want me to marry George. He wanted me to marry a famous movie star or something, but of course I didn't. George and I don't want children,

we have our animals, but my father would love to have a grandson. Maybe his new wife will give him the son he wants, but probably not. She cares too much about being slim and beautiful.

I occasionally see one of his movies on TV. I find it hard to believe he's my father. He's like a stranger."

APPENDIX 5

Vocabulary List (An Example)

I. Vocabulary list

lawyer career circus trapeze artist throughout take up

gymnastics amazingly be good at something get along with nationality

an average day hang out flyer box office rehearse do the act

twist quit sacrifice carry on Russian give advice in good shape

II. Questions and answers

1. What did her father do?
2. Why did she take up gymnastics?
3. Did she pass the exam?
4. Did she work as a lawyer?
5. Why did she join the circus?
6. What's the main idea of this paragraph?

1. Did she enjoy her work? And why?
2. Where are the circus people from?
3. What's the main idea of this paragraph?

1. What's an average day like in the circus?
2. Does she sometimes get hurt?
3. What's the main idea of this paragraph?

1. Does she think she makes sacrifices for her work?
2. Does she make more money as a trapeze artist?
3. What's the main idea of this paragraph?

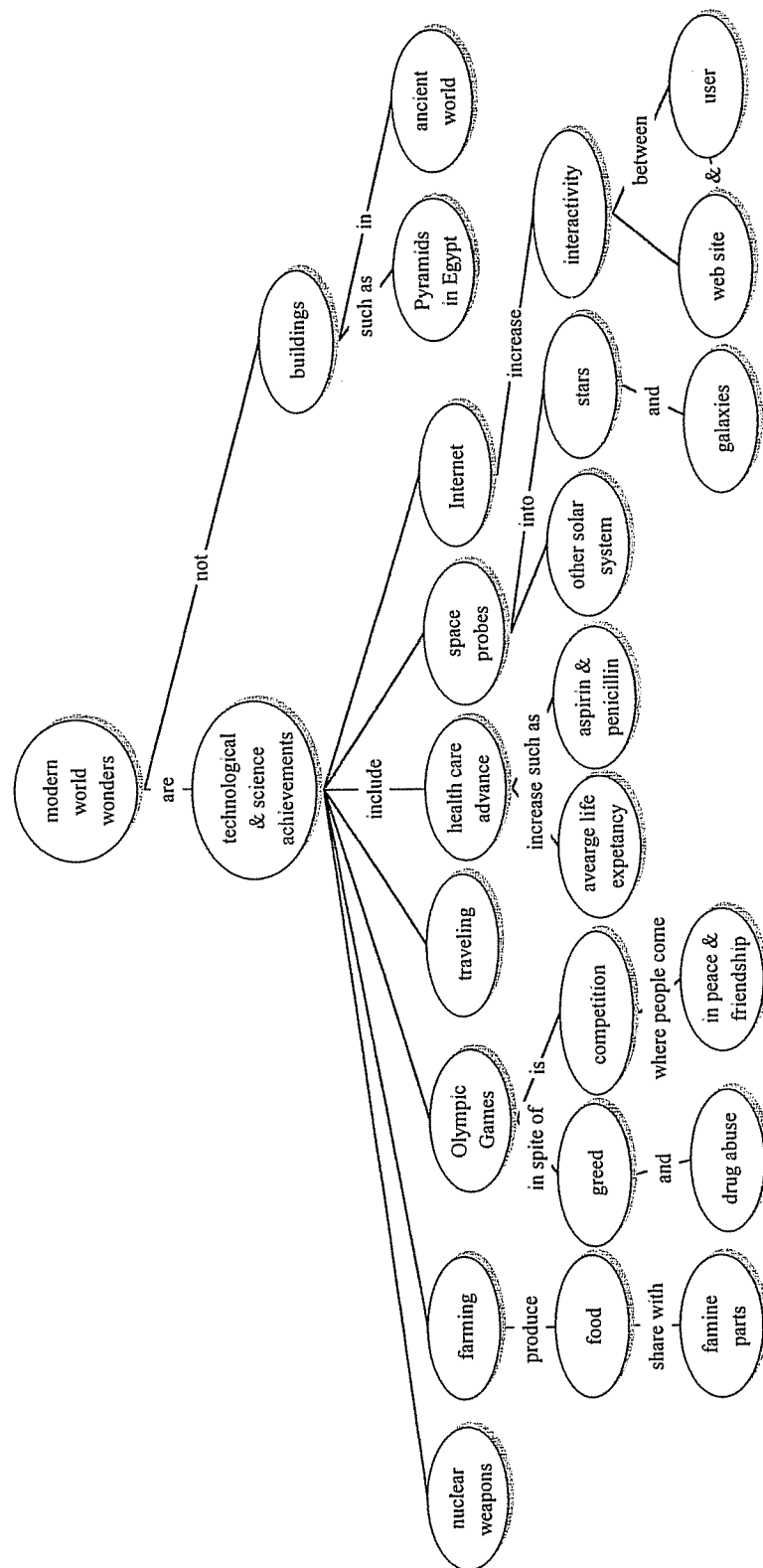
1. How old is she now?
2. How many more years does she want to work as a trapeze artist?
3. What qualities are necessary to be a trapeze artist?
4. What's the main idea of this paragraph?

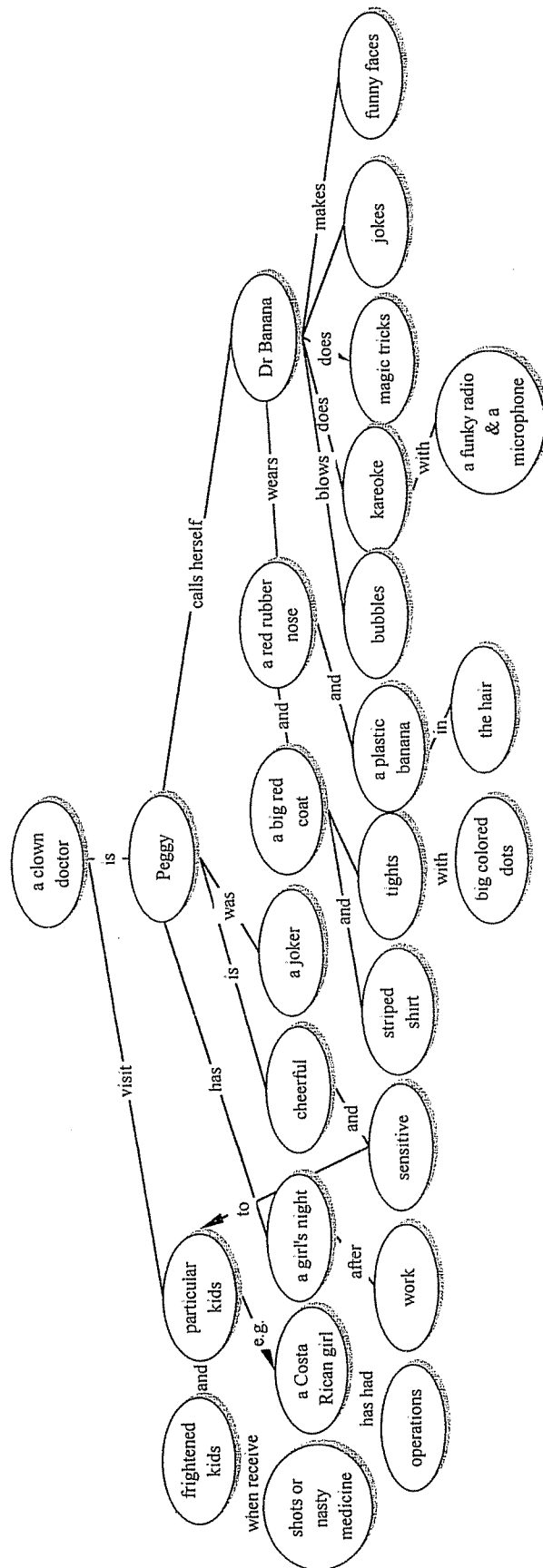
On your own

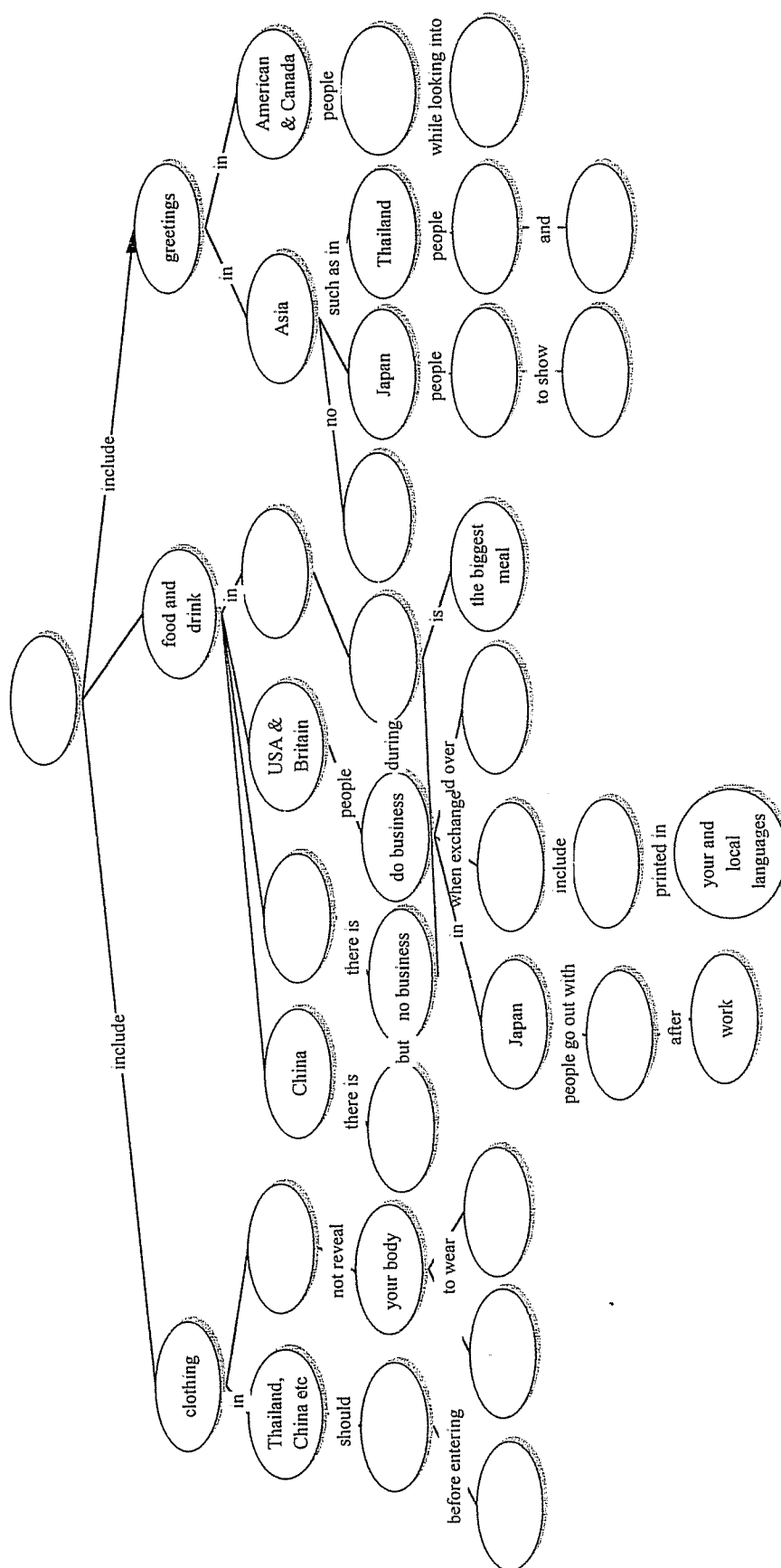
What is your dream job? What are the qualities required for this job?

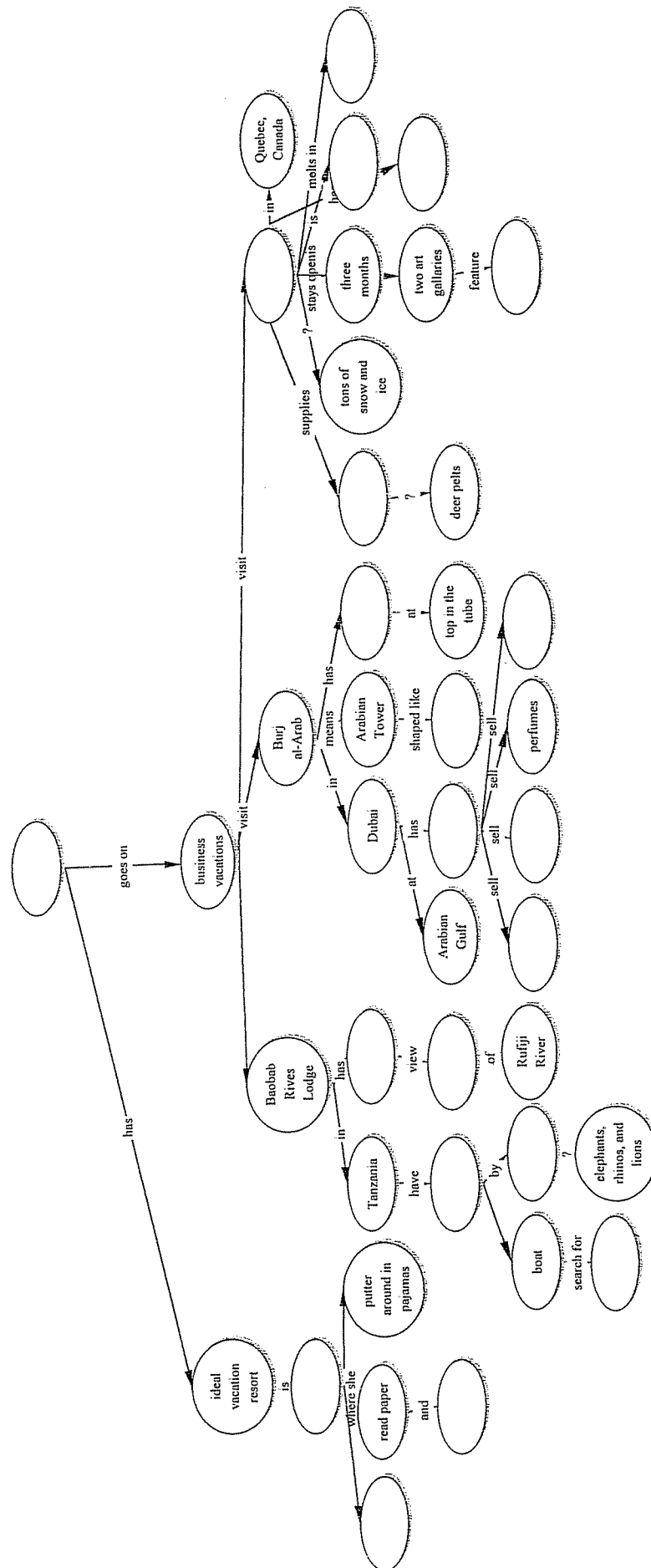
APPENDIX 6

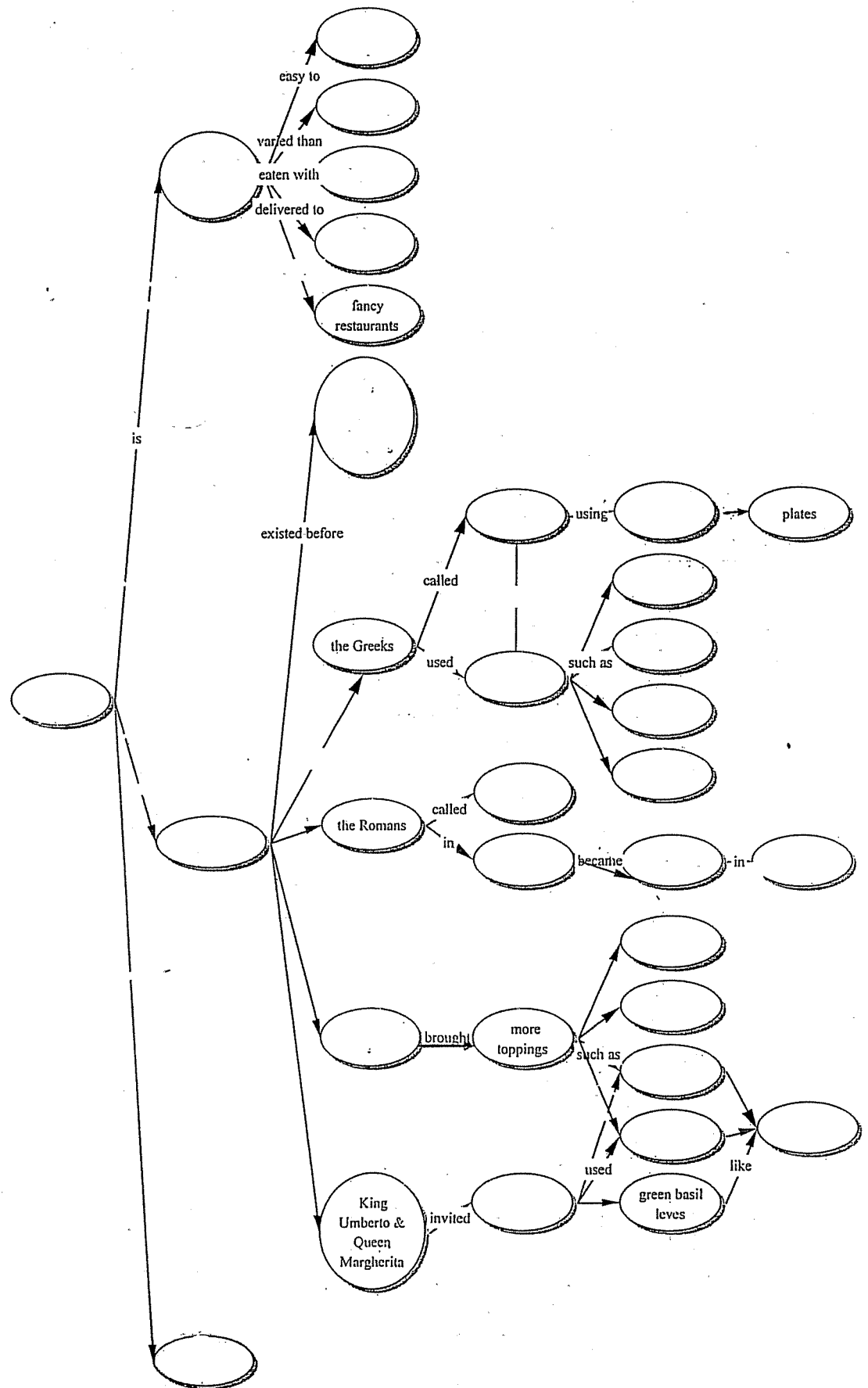
Teacher-generated Graphic Organizers











APPENDIX 7

Training Procedure

Training Procedure

1. The instructor explained the functions, purposes and components of graphic organizers.
2. The students read a short passage in Chinese provided by the instructor and identified key ideas and their relationships.
3. The students organized the ideas and links in a hierarchy according to the inclusiveness of the ideas.
4. The students read a short and simple passage in English provided by the instructor and repeated the mapping techniques.

Table A7.1 depicts the training procedure in the classroom.

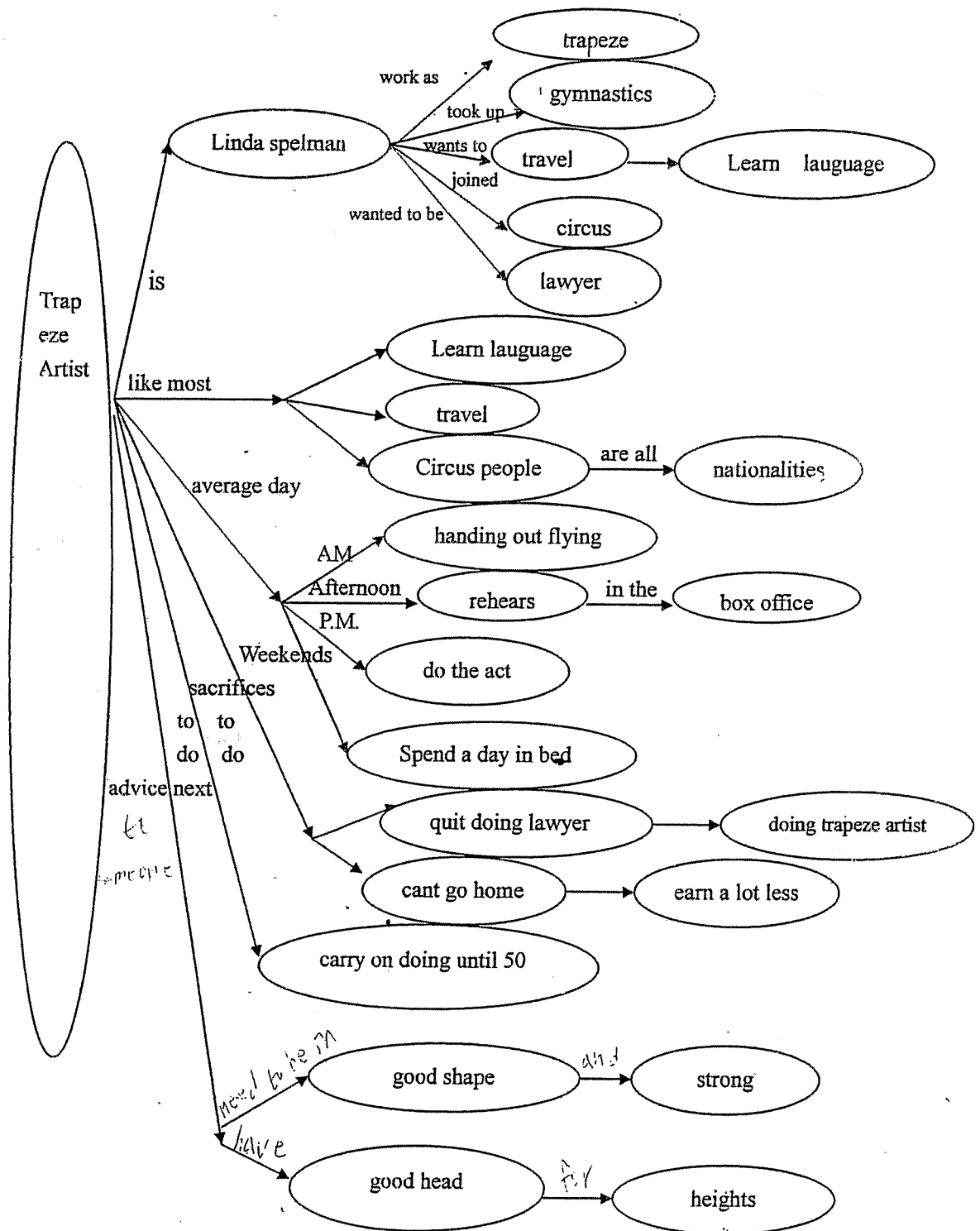
Table A7.1

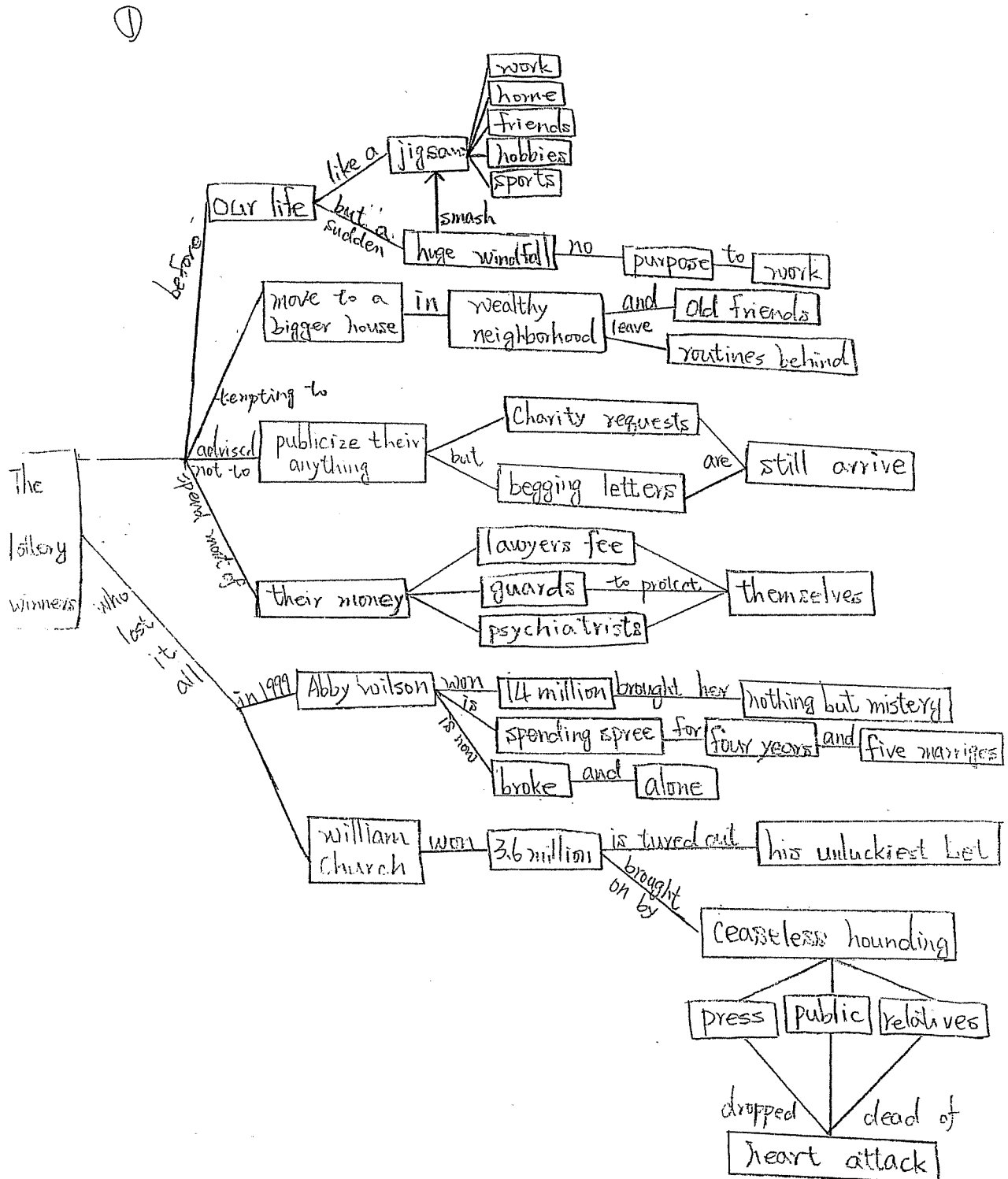
Unit Texts, Unit Activities and Corresponding Scaffolding Provided

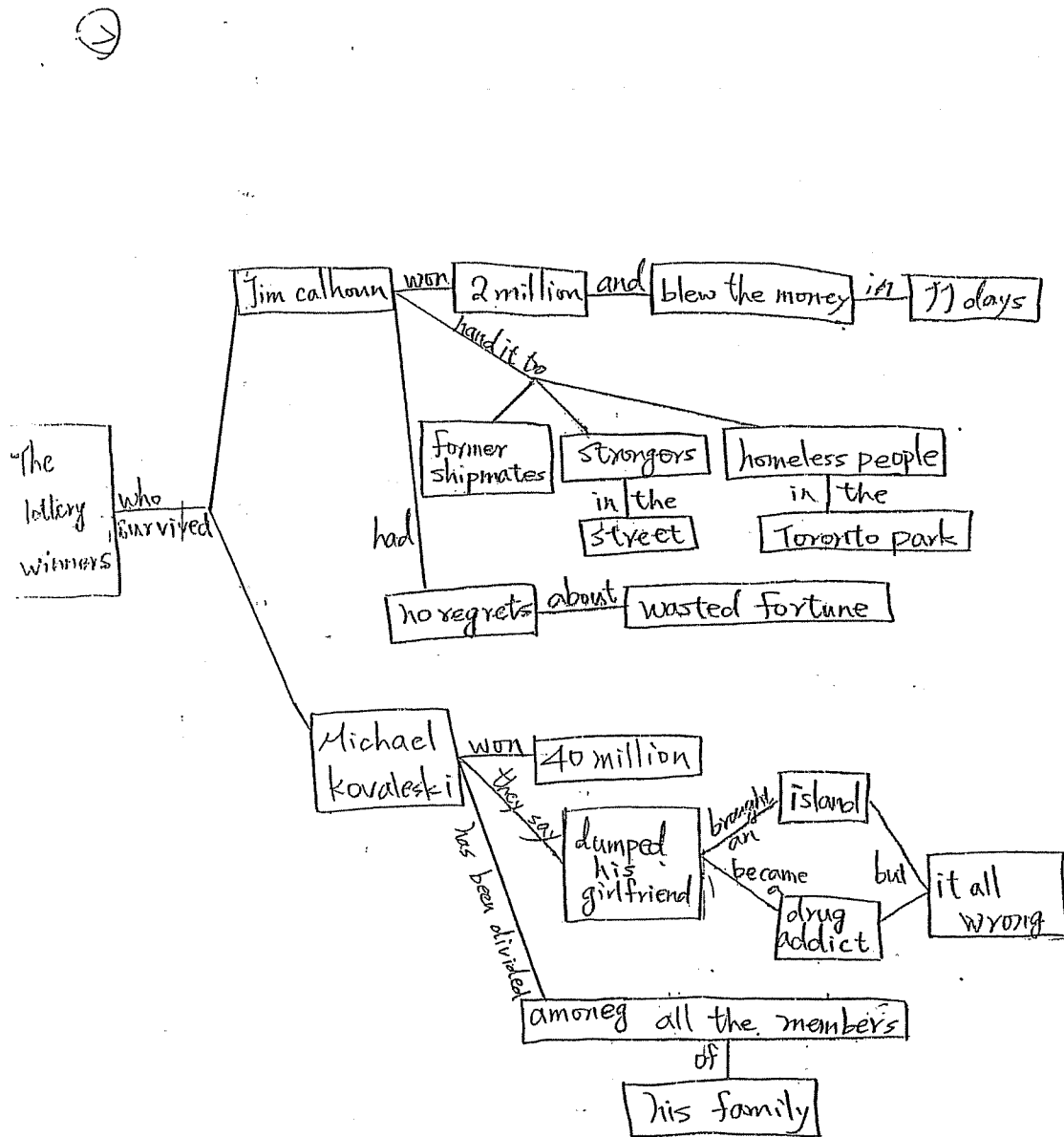
| Unit Text | Unit Activities | Scaffolding Degree |
|--|---|--|
| 1. Wonders of the Modern World | Students read the text | Teacher-generated graphic organizer |
| 2. The Clown doctor | Students read the text | Teacher-generated graphic organizer |
| 3. World Guide to Good Manners | Students read the text and fill in the blanks | Partially completed teacher-generated graphic organizer with key ideas and/or links blanked out |
| 4. My kind of vacation | Students read the text and fill in the blanks | Partially completed teacher-generated graphic organizer with key ideas and/or links blanked out |
| 5. Global Pizza | Student supplement the missing paragraph | Incomplete teacher-generated graphic organizer that requires reader's supplementation (group work) |
| 6. The Trapeze Artist | Only the text itself | Student construct graphic organizers (group work) |
| 7. The Trapeze Artist | Only the text itself | Student construct graphic organizers (individual) |
| 8. Who Wants To be Millionaire? We Do. | Only the text itself | Student construct graphic organizers (group work) |
| 9. Debbie's Problem Page/ Finally he Passes! | Only the text itself | Student construct graphic organizers (individual) |

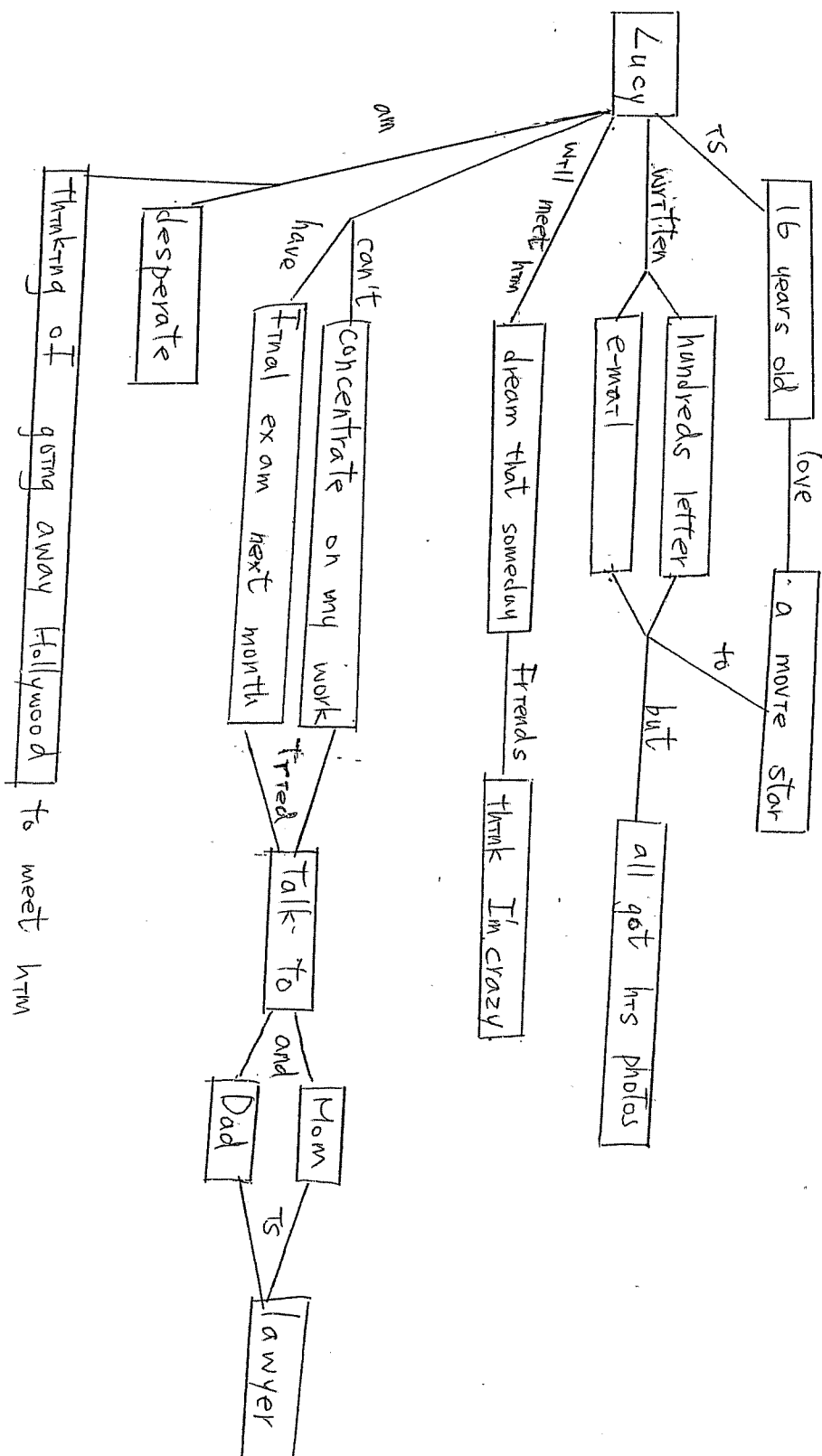
APPENDIX 8

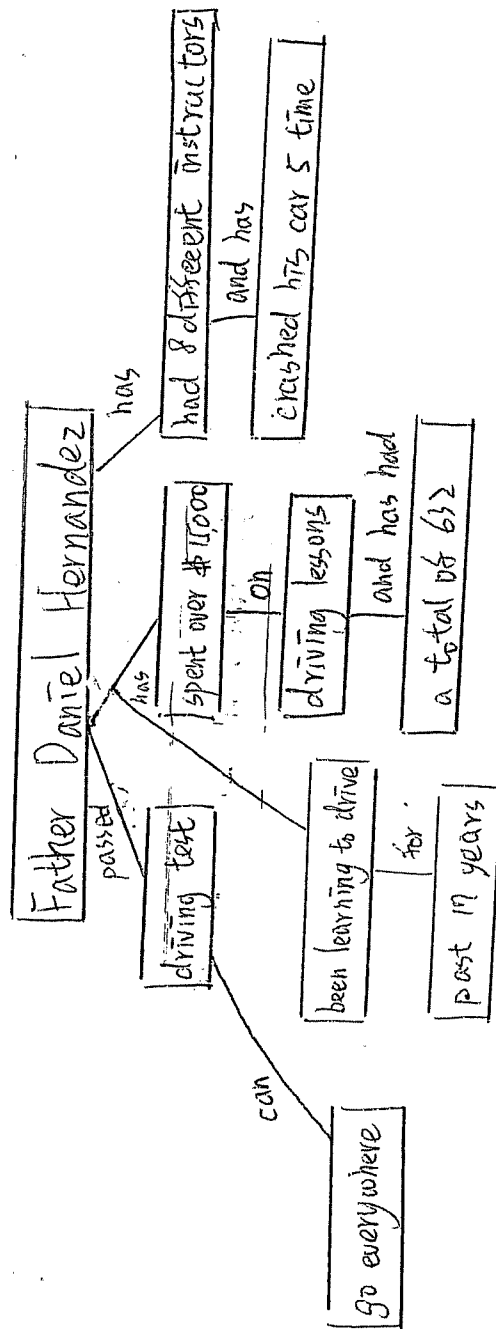
Examples of Student-generated Graphic Organizers











APPENDIX 9

Practice Tests before the Reading Comprehension Tests

Wonders of the Modern World

1. drug abuse 2. travel abroad 3. solar systems 4. life expectancy
5. interactivity 6. galaxies 7. online 8. Nuclear weapons
9. famine 10. destinations 11. destroy 12. commercialized
13. health care 14. surface 15. Farming 16. revolutionized
17. Pyramids 18. benefited from 19. peace and friendship
20. technological and scientific

The ancient world wonders were all buildings, such as the _____ in Egypt. The modern wonders in the past 100 years are all _____ achievements.

Internet, for example, has _____ the way we live and work. Today, more than a billion people are _____ every day. There is more and more _____ between the user and the website.

In 1969, Neil Armstrong landed on the _____ of the moon. Since then scientists have tried to study stars and _____. They even tried to find out if there is any life in other _____.

The advance in _____ science had done much comfort and happiness for mankind. Millions of people have _____ aspirin and penicillin. Average _____ has risen from 47 to 77 in the past 100 years.

Because of development of the aviation industry (航空工業), people _____ more often than in the last century. Airlines carry billions of people to their _____ in every part of the world.

Every four years more than 100 countries come together in _____ to take part in the competition. Although the Olympic Games are now _____, and there is greedy and _____, it is the moment we feel hope for the future of mankind.

_____ is important in the economics in the USA and Canada.
We should share food with other parts of the world, where there is _____.

_____ have been invented for more than 50 years. These weapons could easily _____ the world. We are lucky that we haven't used them.

The Clown Doctor

1. do karaoke
2. cheerful.
3. for operations
4. funny faces
5. cafeteria
6. colored dots
7. joker
8. sensitive
9. their feelings
10. magic tricks
11. distract
12. wards
13. benefit from
14. striped shirt
15. young
16. plastic banana
17. a girl's night
18. nasty medicine
19. physically and emotionally
20. in Peggy's thought

Peggy Volz is a clown doctor in a children's hospital. She calls herself "Dr Banana", because she wears a _____ in her hair and a red robber nose. She also puts on a big red coat, a _____, and tights with _____ on them.

When she works in the hospital, she makes _____, tell jokes, does _____. In the _____. She has a "funky" radio with microphone, so that she can _____ with children who are well enough to sing.

Peggy is a _____ person. She was a _____ when she was at school. She loves to work for children. The work as a clown doctor makes her feel _____.

Being a clown doctor is not an easy job. It's a tiring work both _____. Clown doctors are _____, but they have to learn not to show _____. Now a very sick girl is _____. The girl has been in and out of the hospital many times _____.

Clown doctors help doctors and nurses. At lunchtime they meet at the hospital _____. The doctors and nurses tell them that some special kids might _____ their visit. Clown doctors _____ the children's attention (注意力) when nurses are giving shots and _____ to frightened children.

After work, Peggy has _____ with her friends and party. Then she goes to bed and have a good rest.

APPENDIX 10

Reading Comprehension Tests

Midterm Examination

I. 請選用適當的字填入空格內 (填號碼即可) 64%

A. World Guide to Good Manners 32%

1. eye contact 2. do business 3. bow deeply 4. shake hands
5. take off shoes 6. press both hands 7. lunch 8. colleagues
9. reveal the body 10. manners 11. introductions 12. local language
13. greet 14. business banquet 15. relax and socialize
16. long-sleeved blouses

The world is a global village (地球村) now, but _____ are different in many countries.

People _____ each other in different ways in many countries. In America and Canada, people _____ and look into your eyes. But in some Asian countries, there is no physical contact. For example, in Japan, people _____ to show respect. In Thailand, people bow slightly and _____ together at the chest. In both countries, _____ is avoided.

Eating and drinking are different from country to country. In Italy, Spain, and Latin America, _____ is the biggest meal in a day. In the United States and Britain, people _____ during lunchtime and over breakfast. However, in Japan and Mexico, lunch is the time to _____. In China, it is usual to have a _____, but people do not discuss business during the meal.

When doing business, an exchange of name cards is important for _____. The name cards should include name, position, and printed in your language and the _____. Japanese business people like to go out with _____ after work. You should go if you are invited.

There are different customs (習俗) for clothing too. In some Asian countries, it is not right to _____. In Muslim countries, women wear _____ and skirts below their knees. In Japan, China, Korea, and Thailand, people _____ when entering a house or restaurant. The shoes should be placed neatly.

B. My Kind of Vacation 32%

- | | | | |
|--------------------|--------------------|----------------------|---------------------|
| 1. giant sail | 2. Land Rover | 3. business trips | 4. is very into |
| 5. vacation resort | 6. giant igloo | 7. camel race | 8. supplied with |
| 9. remote | 10. location | 11. puttering around | 12. gold jewelry |
| 13. melts | 14. ice sculptures | 15. forested banks | 16. dream vacations |

Karen Saunders owns a travel agency in San Francisco. She sends people all over the world to their _____. So she travels a lot for her business. There are three _____ coming up.

First, she is going to visit the ice hotel in Quebec, Canada. The hotel is a _____, made from tons of snow and ice. It stays for three months and _____ when spring comes. Next year, people build a new one, maybe in another _____. Each room in the hotel is _____ a sleeping bag made from deer pelts. The hotel has two art galleries featuring _____. In the bar all drinks come in ice glasses.

Then she'll go to Dubai to visit the Buri al-Arab. The hotel is shaped like a _____. She'll visit the restaurant in the tube next to the helipad. She will also buy some _____ in markets to. She'll visit the _____ too.

The last stop is the Baobab River Lodge in Tanzania. The hotel is very _____, so you have to arrive by boat. The tree-top rooms have views over the _____ of the Rufiji River. She'll go on Safari by _____ in search for wild animals.

But Karen's ideal _____ is home. She likes _____ in her pajamas, reading paper, and does gardening in the house. Because she _____ cooking, she'll shop some food and make a delicious dinner.

II. 文法測驗 36%**A. 請選擇適當的答案 16%**

- A: Why are you wearing your old clothes?
B: Because I (am, will, am going to) wash my car.
- A: Don't forget to call me if you need help.
B: Thanks. I (will, can, am going to).

3. A: Why are you making sandwiches?
B: Because we (will have, are having, can have) a picnic at the beach.
4. A: I'm going now.
B: What time (will you come, do you coming, have you come) back?
5. A: Please don't tell anyone. It's a secret (秘密).
B: Don't worry. We (can't tell, won't tell, are not telling) anybody.
6. A: I don't have enough money to pay for my car.
B: I (will, am going to, have) lend you some.
7. A: Can you meet me after school?
B: I'd love to. But John (has taken, will take, is taking me) out this evening.
8. A: What are you doing?
B: I (prepared, am preparing, will prepare) a surprise party for Mary. It's her birthday.

B. 請選擇適當的答案 20%

1. A: Excuse me. You (can't, can, should) smoke in the hospital.
B: I'm sorry.
2. A: I (can, mustn't, have to) go now. I have an appointment with my dentist.
B: OK. See you tomorrow.
3. A: Do you have a minute? (Must, Should, Can) I ask you a question?
B: Sure. What is it?
4. A: I called you last night, but I (shouldn't, couldn't, can't) get any answer.
B: Sorry. I was out with some friends.
5. A: (Can, Would, Could) you speak Japanese before you moved to Japan?
B: No. I learned it when I was in Japan.
6. A: I feel terrible. I have a bad headache.
B: You (have to, ought no to, shouldn't) go to see the doctor.
7. A: I want to get good grades at school.
B: Then you (can't, ought to, has to) study hard.
8. A: My father usually (has to, have to, could) work in the evening.
B: Why?
A: Because he teaches evening school.

9. A: The exam starts at 8:20 A.M. tomorrow.
B: Then I (must, could, can) get up early tomorrow.
10. A: My car always breaks down.
B: You (should, can, must not) buy a new one

Final Examination

I. 請選擇適當的字填入空格內 (填入號碼即可) 64%

A. The Trapeze Artist 30%

- | | | | |
|-------------------|--------------------------------------|--------------------|--------------------------|
| 1. sacrifices | 2. rehearses | 3. does the act | 4. nationalities |
| 5. circus | 6. carry on | 7. earns much less | 8. average day life |
| 9. good shape | 10. gymnastics | 11. height | 12. gets well along with |
| 13. trapeze class | 14. traveling and learning languages | 15. lawyer | |

Linda Spelman is a trapeze artist.

How did she become a trapeze artist? She said that her father is a _____ so she studied to become one too. But the law school was very hard so she took up _____ to relax. After she passed the exam, she wanted to travel and learn languages. She took a _____, and she found herself good at it. Later, she joined a _____ in Canada. The circus people are all _____. But she _____ them. She loves working as a trapeze artist, as she always loves _____. An _____ in the circus is quite routine. She hands out flyers, works and _____ in the box office, and _____ in the evening. On weekends, she usually rests for a whole day.

Has Linda made any _____ to do her work? She doesn't think so. The only things are that she misses her family and she _____ than a lawyer. But she loves her work.

As for her future plan, she'd like to _____ the work until she is 50. For the ones who are interested in her work, her advice is that a trapeze artist must have a _____, be strong, and a good head for _____.

B. Who wants to be a millionaire? We do. 34%

- | | | | |
|--------------------|--------------------------|----------------------|--------------------|
| 1. broke and alone | 2. former shipmates | 3. Lottery winners | 4. spending spree |
| 5. lies | 6. ceaseless hounding | 7. drug addict | 8. homeless people |
| 9. jigsaw | 10. fortune | 11. protect | 12. heart attack |
| 13. survived | 14. made public | 15. smash and change | |
| 16. unluckiest bet | 17. wealthy neighborhood | | |

Many people have dreamed about winning a big prize in a lottery. But they never know how the money could change their life. Most people's life is like a _____, which is made up of work, hobbies, home, friends, and sports. But winning a lottery might _____ the jigsaw. _____ might quit their work. They might move into a big house in a _____. They might need to spend plenty of money on lawyers, guards, and psychiatrists to _____ them if their names and phone number are _____.

In the following are some examples. Some winners lost everything. Abby Wilson won \$14 million. She went on a _____ for four years and had five marriages. But now she is _____. William Church won \$3.6 million. But it turned out to be his _____. Three weeks later, he dropped dead of a _____ because of the _____ from the press, the public and his relatives.

Some people _____ because they shared the money with others. Jim Calhoun, who was a seaman, won \$2 million. He gave the money to his _____, strangers on the street and _____ in a park. But he had no regrets. Michael Kovaleski won \$40 million. He shared his _____ with his family members. He said there were many _____ about him in the press. In fact (事實上), he didn't buy any Caribbean islands and he didn't become a _____.

II. 文法測驗 36%

A. 假設法 20%

1. If I (am, will be, were) taller, I (could be, will be, must be) a baseball player.
2. I work 80 hours a week. But if I (had, have, will have) more time, I (had played, can play, would play) golf.
3. You're a great cook! If I (can, could, must) cook like you, I (would open, will open, open) a restaurant.
4. If you (are, be, were) from the USA, you (could speak, must speak, will speak) good English.
5. Your neighbors are very noisy. If my neighbors (were, are, would be) so noisy, I (go, would go, will go) crazy.

B. 完成式與過去式 16%

1. A: How long (did you know, have you known, do you know) the teacher?

B: Since 2000.

2. A: How many years (will you study, you study, have you studied) English?

B: 6 years already.

3. A: Where is Peter? Have you seen him?

B: He (goes, went, had gone) to the movies.

4. A: (Have you ever been, Did you go, Will you go) to Australia?

B: Never. But I'd love to.

5. A: Where (do you go, did you go, have you been) for your vacation?

B: We went to Hawaii.

6. A: When (did you come, have you gone, do you come) back from Hawaii?

B: Last night.

7. A: Have you seen any good movies recently?

B: I (saw, have seen, see) one last week.

8. A: You went shopping today. What (did you buy, do you buy, have you bought)?

B: I bought a pair of shoes.

APPENDIX 11

English Reading Attitudes Questionnaire (ERAQ)

English Reading Attitudes Questionnaire

| | SA | A | D | SD |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. I feel it interesting to read English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. I like the content in English class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. I actively join the reading activities in class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. I like to exchange opinions or ideas with others when reading English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Discussing with others can improve my comprehension. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. I like to do outside reading in English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. I like the teaching method in the English class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. I adopt the reading method learnt in class to my English reading. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. I often observe my understanding to an article when reading English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. I summarize the content of an article when reading English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. I predict the content of an article when reading English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. I guess meaning from the context when reading English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. I summarize the important points in English teacher's lecture. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. I circle the important points in the textbook in English class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. I often concentrate on my study in English class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. I actively ask questions in English class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. I can find answers to the teacher's questions in English class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. I preview the English lessons. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. I review the learnt content and vocabulary. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. English classes improve my English ability. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. English classes arouse my interests in English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

各位同學：

您好！感謝您參與此次英語教學研究活動。為了解對英語閱讀及概念圖教學的興趣與態度，麻煩您填寫本問卷，提供您的寶貴意見。本問卷沒有標準答案，請讀完每一項敘述後，在量表上「非常同意」、「同意」、「不同意」、「非常不同意」勾選出您的答案。本問卷僅為個人研究使用，一切資料將予以保密。謝謝協助！

護理系教師 姜秋玲

09/2003

英語閱讀態度問卷

| | 非 常 不 同 意 | 不 同 意 | 同 意 | 非 常 同 意 |
|------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. 我覺得閱讀英文是一件有趣的事..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. 我喜歡英文課本裡的閱讀內容..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. 我積極參與英文課裡的閱讀活動..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. 我喜歡和老師或同學一起討論所閱讀的文章..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. 我覺得和他人討論有助對所閱讀文章的了解..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. 我喜歡在課外閱讀英文，如英文報紙、雜誌和小說等..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. 我喜歡英文老師的教法..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. 我會把英文課中所學到的閱讀方法應用在其他的英文閱讀上..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. 我在閱讀英文時，會注意自己是否真正了解所讀的文章..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. 我在閱讀英文時，會對文章內容做摘要整理，以了解大意..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. 我在閱讀英文時，會對文章內容做預測..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. 我在閱讀英文時，會從上下文去了解文章的意思..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. 我上英文課時，會將老師講解的重點摘記下來..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. 我上英文課時，會在課本上畫重點..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. 我上英文課時，通常會專心聽講..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. 我上英文課時，會主動發問..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. 我上英文課時，通常能回答老師所問的問題..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. 我會預習英文上課的內容..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. 我會主動複習英文課裡學到的生字和內容..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. 我認為上英文課能增進我的英文閱讀能力..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. 我認為上英文課能增進我的英文興趣..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

APPENDIX 12

Pilot Study of English Reading Attitudes Questionnaire (ERAQ) Descriptive Statistics Summary

Table A12.1

Pilot Study of English Reading Attitudes Questionnaire
(ERAQ) Descriptive Statistics Summary

Pilot ERAQ Scale

| | | |
|-----------|---|---------|
| N | : | 50 |
| Missing | : | 0 |
| Range | : | 34 |
| Minimum: | | 44.00 |
| Maximum: | | 78.00 |
| Mean | : | 56.19 |
| Std Err | : | 1.04 |
| Std Dev | : | 7.47 |
| Variance | : | 55.85 |
| Skewness: | | .54 |
| S E Skew: | | .91 |
| Kurtosis | : | .33 |
| S E Kurt | : | .47 |
| Sum: | | 2922.00 |

APPENDIX 13

Graphic Organizers Attitudes Questionnaire (GOAQ)

Graphic Organizers Attitudes Questionnaire

| | SA | A | D | SD |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. It is easy to find the words representing concepts in a text. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. It is easy to find the linking words. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Constructing a graphic organizer is easy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Graphic organizers decrease the difficulties of learning grammar. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Graphic organizers increase my interest to learn English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Graphic organizers help me to understand word meaning. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Graphic organizers can help me with vocabulary retention. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Graphic organizers help me to understand the text. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. I will use graphic organizers when studying other subjects. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Constructing a graphic organizer is difficult. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Constructing a graphic organizer is time-consuming. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Graphic organizers help me to get the gist of the content. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Graphic organizers help me to organize the key ideas in a text. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Constructing a graphic organizer helps with logical thinking. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. It is easy to construct a graphic organizer if you know the meanings of the words. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. It is easy to construct a graphic organizer if you understand the text. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Graphic organizers should be used first in Chinese subjects, then in English. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Constructing a graphic organizer changes my habit of rote learning. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. A Chinese translation is necessary. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Constructing a graphic organizer is interesting. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. My teacher's graphic organizers are helpful to understand a text. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. Constructing a graphic organizer is beneficial for high-level readers. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. Constructing a graphic organizer is beneficial for low-level readers. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. I prefer the traditional teaching method. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

概念圖學習態度問卷

| | | | |
|--------------------------------|--------------------------|--------------------------|--------------------------|
| | 非 | | 非 |
| | 常 | | 常 |
| | | 不 | 不 |
| | 同 | 同 | 同 |
| | 意 | 意 | 意 |
| 1. 選擇一篇英文文章的一些重要概念是一件容易的工作。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. 尋找適當的連接語去連接兩個概念是一件容易的工作。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. 一般而言，建立一個概念圖是一件容易的工作。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. 概念圖能減少學習文法的困難。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. 概念圖能增進我對學習英文的興趣。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. 概念圖有助於了解單字的意思。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. 概念圖能幫助我記憶單字。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. 概念圖是很好的方法去了解一篇英文文章。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. 在其它的課業中，我使用概念圖的方法幫助我學習。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. 概念圖很難學習。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. 建立一個概念圖是很費時間。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. 概念圖是一個表示我如何了解一篇文章的好方法。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. 概念圖幫助我組織文章裡的一些重要概念。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. 我認為概念圖有助於邏輯思考。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. 知道單字的意思後，概念圖會比較容易畫。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. 在了解文章內容後，概念圖會比較容易畫。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. 概念圖應該由中文的科目先開始再應用至英文。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. 概念圖能改變我以往死背的學習方式。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. 我畫概念圖時，需要先把課文翻譯成中文。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. 建構一個概念圖是很有趣的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. 老師的概念圖對我了解文章是很有用的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. 概念圖對英語程度好的學生有幫助。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. 概念圖對英語能力較弱的學生有幫助。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. 與概念圖比較起來，我喜歡傳統的文法翻譯式的學習方式。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

APPENDIX 14

Concept Mapping Attitude Questionnaire
(CMAQ) (Chyuan, 1992)

Concept Mapping Attitude Questionnaire (Chyuan, 1992)

| | SD | | | | | | SD |
|--|----------------------|---|---|---|---|---|----|
| | (Circle your answer) | | | | | | |
| 1. It is easy to find words representing the important concepts in physics. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. It is easy to arrange the important concepts in physics in a proper order. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. It is easy to find the linking words. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. It is easy to construct a concept map in physics. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I can easily to revise my concept maps. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I am willing to show my concept maps in the class on the blackboard or OHP. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. I will construct a concept map to understand a specific topic in physics. | 1 | 2 | 3 | 4 | 5 | 6 | 8. |
| 8. Concept maps can help me understand physics. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I will use concept mapping when studying other subjects. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. Constructing a concept map is difficult. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. Constructing a concept map is time-consuming. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. Concept mapping is useful of showing how well I understand the concepts in physics. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. Concept mapping can help me organize the key ideas of the text. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. Concept mapping is useful of showing the relationships of the concepts that I don't understand. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. Concept mapping is useful of showing the concepts that I need to study more. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. I hope my teacher would use concept mapping as a teaching strategy. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. I am capable of constructing a concept map. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. I am willing to discuss my concept maps with my teacher. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. Concept mapping should be taken as tests as it shows how well a student understands the content. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. Constructing a concept map is interesting. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. My teacher's concept maps are helpful to learn physics. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

普通物理學習調查表

| | 非常 不同意 | (圈上你的意見) | | | | | | 非常 同意 |
|--|-----------|----------|---|---|---|---|---|----------|
| 1. 選擇一個物理主題的一些重要概念是一件容易的工作。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 2. 把一個物理主題的一些重要概念按它們的相關性排序是一件容易的工作。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 3. 尋找適當的連接詞去橫跨並連接兩個概念是一件容易的事。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 4. 一般而言，建立一個物理主題的“概念圖”是一件容易的工作。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 5. 如果我設計的“概念圖”不十分理想，我可以很容易地再重建此概念圖。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 6. 在課堂上的黑板或 OHP 的投影，我願意顯示我的“概念圖”給全班同學。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 7. 如果我需要了解一個特別的主題，我願意建構它的“概念圖”。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 8. “概念圖”是一個很好的方法去了解物理。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 9. 在其他的課業中，我使用“概念圖”的方法幫助我學習。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 10. “概念圖”很難學習。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 11. 建立一個“概念圖”是很浪費時間的。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 12. “概念圖”是一個表示我如何了解一個主題的好方法。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 13. “概念圖”是幫助我有意義的組織一些概念的方法。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 14. “概念圖”是有用的，因為它會顯示出我不知道的概念間關係。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 15. “概念圖”是有用的，因為它告訴我需要再去學習什麼概念。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 16. 我希望我的老師使用“概念圖”來表現他所要教的教材。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 17. 我自信我有能力去建構一個“概念圖”。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 18. 我願意和我的老師說明並討論我的“概念圖”。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 19. “概念圖”應該代替物理考試，使它能決定一個學生知道多少。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 20. 建構一個“概念圖”是很有趣的。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 21. 物理老師的“概念圖”對我學習物理是很有用的。 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |

APPENDIX 15

Pilot Study of Concept Mapping Attitude Questionnaire
(CMAQ) (Chyuan, 1992) Descriptive Statistics Summary

Table A15.1

Pilot Study of Concept Mapping Attitude Questionnaire
(CMAQ) (Chyuan, 1992) Descriptive Statistics Summary

Pilot Study of CMAQ Scale

| | | |
|-----------|---|---------|
| N | : | 110 |
| Missing | : | 0 |
| Range | : | 66 |
| Minimum: | | 32.00 |
| Maximum: | | 98.00 |
| Mean | : | 64.26 |
| Std Err | : | 1.73 |
| Std Dev | : | 11.26 |
| Variance | : | 126.67 |
| Skewness: | | .07 |
| S E Skew: | | .23 |
| Kurtosis | : | .27 |
| S E Kurt | : | .46 |
| Sum: | | 7068.00 |

APPENDIX 16

Pilot Study of Graphic Organizers Attitudes Questionnaire (GOAQ) Descriptive Statistics Summary

Table A16.1

Pilot Study of Graphic Organizers Attitudes Questionnaire
(GOAQ) Descriptive Statistics Summary

Pilot Study of GOAQ Scale

| | | |
|-----------|---|---------|
| N | : | 52 |
| Missing | : | 0 |
| Range | : | 48.00 |
| Minimum: | | 33.00 |
| Maximum: | | 81.00 |
| Mean | : | 59.20 |
| Std Err | : | 1.38 |
| Std Dev | : | 9.92 |
| Variance | : | 98.49 |
| Skewness: | | - .26 |
| S E Skew: | | .33 |
| Kurtosis | : | .85 |
| S E Kurt | : | .65 |
| Sum: | | 3069.00 |

APPENDIX 17

Research Procedure

| Week | Focus of the Class | Tasks |
|------|---|--|
| 1st | <ul style="list-style-type: none"> ● Explained the purpose and functions of graphic organizers ● Practice of mapping with a short passage in Chinese ● ‘Wonders of the modern world’ | <ul style="list-style-type: none"> ● Personal Data Questionnaire (PDQ) ● Pre-English Reading Attitudes Questionnaire (ERAQ) |
| 2nd | <ul style="list-style-type: none"> ● ‘Wonders of the modern world’ | <ul style="list-style-type: none"> ● Teacher-generated graphic organizers (GOs) (wholly completed) |
| 3rd | <ul style="list-style-type: none"> ● ‘The clown doctor’ | <ul style="list-style-type: none"> ● Practice of reading comprehension test |
| 4th | <ul style="list-style-type: none"> ● ‘The clown doctor’ | <ul style="list-style-type: none"> ● Teacher-generated GOs (wholly completed) |
| 5th | <ul style="list-style-type: none"> ● ‘A world guide to good manners’ | <ul style="list-style-type: none"> ● Reading comprehension quiz on ‘The clown doctor’ |
| 6th | <ul style="list-style-type: none"> ● ‘A world guide to good manners’ ● ‘My kind of vacation’ | <ul style="list-style-type: none"> ● Teacher-generated GOs (partially completed and the students filled in the blanks) |
| 7th | <ul style="list-style-type: none"> ● ‘My kind of vacation’ | <ul style="list-style-type: none"> ● Teacher-generated GOs (partially completed and the students filled in the blanks) |
| 8th | <ul style="list-style-type: none"> ● Midterm Examination | <ul style="list-style-type: none"> ● Pre-Reading Comprehension Test (RCT) |
| 9th | <ul style="list-style-type: none"> ● ‘Global pizza’ | <ul style="list-style-type: none"> ● Mid-ERAQ ● Pre-Graphic Organizer Attitudes Questionnaire (GOAQ) ● Guided practice (students completed the missing paragraph of ‘Global pizza’) |
| 10th | <ul style="list-style-type: none"> ● ‘Trapeze artist’ ● ‘Debbie’s Problem Page: Lucy’s letter’ | <ul style="list-style-type: none"> ● Student-generated GOs independently on ‘Trapeze artist’ (group work) |

| | | |
|------|--|--|
| 11th | <ul style="list-style-type: none"> ● ‘Who wants to be millionaire? We do.’ | <ul style="list-style-type: none"> ● Student-generated GOs on ‘Debbie’s Problem Page: Lucy’s letter’ (individual work) |
| 12th | <ul style="list-style-type: none"> ● ‘Who wants to be millionaire? We do.’ | <ul style="list-style-type: none"> ● Student-generated GOs independently on ‘Who wants to be millionaire? We do.’ (group work) |
| 13th | <ul style="list-style-type: none"> ● ‘Family matters’ | <ul style="list-style-type: none"> ● Student-generated GOs independently (group work) on ‘Who wants to be millionaire? We do.’ |
| 14th | <ul style="list-style-type: none"> ● ‘Family matters’ | 14th |
| 15th | <ul style="list-style-type: none"> ● ‘Family matters’ ● ‘Finally he passes!’ | <ul style="list-style-type: none"> ● Student-generated GOs (individual) on ‘Finally he passes!’ ● Post-ERAQ ● Post-GOAQ |
| 16th | Final examination | Post-RCT |

APPENDIX 18

CONSENT FORM

TITLE OF PROJECT: THE EFFECT OF CONCEPT MAPPING ON
TECHNOLOGICAL/VOCATIONAL COLLEGE STUDENTS' READING
ATTITUDES TOWARD ENGLISH AS FOREIGN LANGUAGE

NAMES OF STUDENT RESEARCHER: MS CHIULING CHIANG

NAME OF SUPERVISOR: DR KEN SMITH

NAME OF PROGRAMME IN WHICH ENROLLED: POSTGRADUATE

I (*the participant*) have read (*or, where appropriate, have had read to me*) and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to participate in this activity, realising that I can withdraw at any time (*or stipulate the deadline by when the participant may withdraw*). I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

NAME OF PARTICIPANT:

SIGNATURE DATE

SIGNATURE OF STUDENT RESEARCHER:

DATE:.....

SIGNATURE OF SUPERVISOR:

DATE:.....

TO BE RETURNED TO THE RESEARCHER

APPENDIX 19

Interview Questions

1. Please state your previous experiences in reading in English.
2. Please state the reading difficulties you have had.
3. Please state the reading methods you have used.
4. Please state your attitudes towards reading in English.
5. Please provide your viewpoints of graphic organizers.
6. Please provide your comments on the reading material.

1. 請敘述你過去閱讀英文的經驗。
2. 請敘述你閱讀英文時所遇到的困難。
3. 請敘述你閱讀英文時所使用的方法。
4. 請談一下你對英語閱讀的看法。
5. 請談一下你對使用概念圖的看法。
6. 請敘述你對所使用的教材意見。

APPENDIX 20

Interview Data (An Example)

Time: 0501, 2004

Interviewees: YC, MF, and CU

Interviewer: the researcher (RR)

RR: Thanks you for coming to the interview. Would you please talk about your experiences of reading in English at secondary schools?

YC: The teachers taught first the vocabulary, then the text. They explained grammatical rules. When we were at senior high, the English texts were simple with fewer words. Compared with that, the texts at tertiary level had a lot of words. It seemed difficult when you first looked at them.

RR: How about you, MF and CU? You felt the same way?

YC: At senior high, the texts had only on page with large word size, about 16.

RR: What teaching methods did your teachers use?

CU: They explained the whole texts.

RR: Translation.

MF: My teachers did the same as YC's teachers. I found the textbook at senior high easy, if you had good basic English knowledge at junior high. The texts did not have many words. The texts at tertiary level had a great amount of vocabulary, and the texts were long.

RR: No wonder you all said that there was too many unfamiliar words at the beginning.

YC: There was a vocabulary list in the textbook at senior high. We could carry those pages with us and memorize those words anytime we wanted to.

CU: Yeah, I stapled those pages together.

RR: And Chinese definitions were supplied.

YC: When we were at junior high, the teachers would explain each English sentence in Chinese. I work part-time at a cram school. Those kids listened to the English pronunciation and they understood the words. If you speak Chinese, they did not understand what you were saying. They asked you to pronounce the words in English and they knew the words.

RR: I see. The reason why this book was chosen was that you will be required to read journal articles about Nursing when you become sophomores. If the texts were easy, there might a big gap and you might find those articles very difficult. In addition, you need to learn to read long texts and can't rely on translation all the time. Now I understand why you could not adapt to those texts at the beginning.

CU: I felt it was the way the texts were edited and the small words size. That made it look difficult.

RR: In fact?

YC: There were long words and lots of words we had not seen before. If there had not been too many unfamiliar words, it was ok.

RR: Your English is good.

MF & CU: the texts were interesting.

YC: They were more authentic. Not like the texts we had before stating what Hui-ze said.

MF, & CU: (laughed)

YC: It talked about a fish. How did you know a fish feels since you were not a fish.

Those texts were translated from Chinese into English.

MF & CU: (laughed)

RR: Did you like the English class?

CU: It was ok.

MF: I preferred the English class at junior high. But I didn't like it at senior high.

RR: I see.

CU: It was probably the teaching methods. Because I had been taught by the same teacher for three years at the senior high.

RR: How did you find the teaching methods?

YC: The teachers at junior high taught first the vocabulary. He put the words on the blackboard, read them aloud and linked the words to other words. He put everything on the blackboard. He taught us how to analyze clauses and how to know the meanings. We moved slowly forward, but I think he taught explicitly. The students were divided into groups based on the English scores. There were group leaders, co-leaders, and group members. The group leaders and co-leaders taught other students in the group. We used to memorize vocabulary words, the phonetics as well. The teacher even tested the phonetics. And Chinese, the whole text. If you did not do it well, you got the second chance.

RR: How did you like this way of teaching?

YC: He did not just keep lecturing. He sometimes gave some interesting examples.

RR: How about you two, girls?

MF: We used to sing English songs. We taped and played it in the class.

RR: Sound very interesting.

YC & CU: We sang as well.

CU: We picked our own songs and each group sang in front of the class.

YC: We practiced the song at home and taped it.

RR: It seems that English classes at junior high were more interesting than those at senior high.

CU: It was dull at senior high.

YC: If we didn't learn well at high schools, we wouldn't do well at colleges.

Because you can't keep moving forward, and there would be a break. Then we would not be familiar with the language. English is not our mother tongue, so that learning environment is very important.

RR: It seems that the teaching methods and materials do affect your interests in

learning English.

CU & MF: Yeah.

RR: Would you stay away from learning English because of that?

MF: No.

CU & YC: No.

RR: Could you tell me why?

YC: Because English is very important.

CU: Yes. Very important.

YC: I find the kids now are good in English. That scares me.

CU & MF: I think so too.

YC: I was very impressed by their English proficiency.

RR: Yeah! How did you find the English course at colleges?

MF: The teachers at senior high would teach you and repeat the text many times.

They did not teach much, they read repeatedly. I had two or three English teachers at senior high. Some taught you how to read, some asked you to memorize and then dictate. At colleges, you had to study on your own.

RR: Great change?

CU: I don't think so. I found vocabulary very important. It's also important that you must be able to pronounce it correctly. If you know how to pronounce them, it would be easier to remember them. Many kids learn vocabulary in that way.

RR: How was your experience at colleges? Which parts match your needs? What were the parts missed?

CU: You provided vocabulary lists.

MF: We had opportunities to speak English.

YC: There were not many interactions. I found it kind of dull.

CU: Yeah.

RR: When we were choosing the material, we focused on authenticity and the texts that might interest you. At the beginning, I found the texts were long for you and many unfamiliar words.

YC: The vocabulary was the main difficulty.

RR: I realized your difficulties too. You found it difficult if there were many unfamiliar words. I felt stressed too, and sometimes I might not realize what you needed. I didn't provide Chinese translation either.

CU: But you told us what the text was generally about.

MF: Actually, if we knew the meanings of the words, and we had learned most of the words before, we could generally know what the text was about. But we could not translate it very correctly. But we understood the big picture.

CU & YC: Exactly.

RR: How did you find the use of graphic organizers?

MF: At first I found it complicated when we were mapping on our own. Later it

was fun. Because you had to read through the text very carefully, then you were able to map. If you could complete a map that meant you already understood the text. You got a sense of achievement.

CU: I think so too.

RR: Did it consume a great deal of time?

MF: It did.

RR: How did you find the investment of time?

MF: It was worth it.

RR: Really?

CU: Yeah.

CU: I found graphic organizers helped you understand the content. You summarized the text after you completed the graphic organizer on the blackboard. Less important words could be omitted. It made the text easier to understand.

YC: But I think graphic organizers did not fit one of the units, the one referred to lottery and millionaire. I didn't know how to organize the ideas.

CU: The content was too complicated.

MF: Too many key ideas.

YC: It was difficult to capture the main ideas.

RR: I read your map of that unit. It was correct.

CU: But the map looked complicated.

YC: Yeah, very difficult.

RR: Was it because of the content?

YC: I was puzzled.

RR: I knew your difficulties. As a matter of fact, several times I attempted to construct a graphic organizer on the blackboard and explained the content to you. But I didn't do that. I would like you to try it. I really wanted to see how the results were. You all did well. Most of the maps were correct.

RR: How did you find the use of graphic organizers in English reading?

YC: We didn't have this kind of experience before. It was new to us. When you used it at the beginning, I found it easy to grasp the important ideas, even though we didn't review the text.

CU: You wouldn't just keep reading and reading and still didn't understand what the text meant.

MF: Yes.

RR: That is the basic purpose of graphic organizers. Did you feel that other ways may do as well?

YC: If we didn't know this strategy, and the text was long. We probably would simply quit.

RR: Some other classmates stated that they would just quit because there was only English in the textbook. At last, what are your other comments of the English class at the

tertiary level?

MF: I think it was ok.

RR: The teaching style?

MF & YC: It was ok.

RR: Any suggestions?

YC: You were too nice.

MF, & CU: (laughed)

RR: Why?

YC: If the teacher had been strict, the students would have paid more attention in the class.

RR: Thanks for the suggestion. I'll pay attention to that. Any comments on the material?

CU: Not enough room for taking notes. We put a lot of 3M stickers. That was a problem.

RR: The grammatical exercises?

MF: Sometimes it was confusing.

RR: What other comments you'd like to make?

YC: We'd like to have more opportunities to speak in English. Our vocabulary is limited and we often make mistakes when we speak English.

RR: How about the weekly English hours at tertiary level?

MF: Not enough.

RR: I find that you all want to learn English well. Any difficulties of learning English?

YC: Speaking and writing.

RR: So no problems with listening and reading?

YC & MF: Reading is ok.

RR: Thank you very much for the interview. Can you come again if there are other questions?

YC, MF, & CU: Certainly. No problem.

訪談記錄

時間 0501, 2004

受訪人員：YC、MF、CU

老師：謝謝你們接受訪問，請先談一談過去閱讀英文的經驗。

YC：我們是先上單字，然後課文，有文法的地方就解釋文法，護校的課文內容很少，比較淺顯明白，大一的課文就覺得內容很多，字很小，看起來密密麻麻的，有看不懂的感覺。

老師：嗯，你們也有這樣的感覺。

YC：高職的課文大概只有 A4 的紙的一面，字體很大，大概 16 號字。

老師：那時你們老師用何種文法上課。

CU：講整篇。

老師：翻譯。

MF：我們的上法也像 YC 這樣，像我們以前用的課本，如果國中基礎好的話，護校課文很簡單，單字其實也不會很多，課文份量很少，不像大一時，覺得單字量變很多，而且課文又很多很多。

老師：難怪剛開始時你們都說生字太多了。

YC：護校課本會幫我們整理單字在後面，我們有單字表可以背，還可以撕下來帶著背。

CU：對對對，可以釘起來。

老師：單字還附中文解釋。

YC：我們以前從國中上來，老師會解釋一句英文，一句中文，像我在補習班打工，小朋友聽發音，就開始會聽，你若說中文，她們反而聽不懂，她們說，你要唸英文給我聽，我才會講那個字。

老師：我了解了。那時我不了解，釋考慮到二年級開始，護校老師會要求你們看一些期刊，萬一選的太淺，會有一個大的鴻溝，到時你們會辛苦，其次，你們必須練習閱讀長的文章，也不能永遠依賴翻譯，所以現在我能了解為何你們不適應。

CU：但我感覺是它編排的方式與字體的大小，密密麻麻看起來很難很多。

老師：事實上呢？

YC：內容的單字較長，很多我們以前沒看過，如果沒有太多單字的話，應該還好。

老師：我覺得你們三個程度很不錯。

MF & CU：課文很有趣。

YC：比較生活化，不像以前的課文說惠子說什麼。

學生：(笑)

YC：就是敘述一條魚，你又不是魚，你怎麼知道魚的感受，然後翻成英文。

MF & CU：(笑)

老師：那會不會喜歡上英文課？

CU：還可以。

MF：我覺得國中較喜歡，到高中英文就不好了。

老師：這樣子。

CU：可能是老師的教法，因為我們三年都同一個老師教。

老師：你覺得老師教法怎樣？

YC：我們國中的老師會先教單字，他會把每個單字都寫在黑板上，寫字、唸，他可以把這個單字延伸到其他的字，他上課把東西都寫在黑板上，把字句畫起來像關係子句，教我們怎麼看，怎麼解釋，那時候我們上的很慢，可是他教的很完整，我們有分小組，組長、副組長、第一小組員、第二小組員…依分數來分，上課時分組上課，組長、副組長負責指導功課比較不好的學生，我們以前背單字，音標也背，音標也考，還有中文，然後課文全部都考，考不好，補考。

老師：你覺得老師的教法如何？

YC：他不曾一直講，也會講一些有趣的例子。

老師：你們呢？

MF：我們以前上英文課會唱歌，我們分組錄音，唱給全班聽。

老師：很有趣。

YC & CU：我們以前也有唱歌。

CU：自己選歌，然後每組上台唱給全班聽。

YC：我們還回家練習，我們有錄音。

老師：聽起來，國中英文課比護校還有趣，護校變得很單調。

CU：很沉悶。

YC：如果護校上不好，大學就不會上得好，如果一直好，一直好，延續下去，突然中斷，可能會比較陌生，因為畢竟不是我們這邊的語言，所以環境有差。

老師：看起來老師的教學法與使用的教材真的會影響你們學習的興趣？

CU & MF：嗯。

老師：會不會因為這樣就逐漸不再去碰英文。

MF：不會。

CU & YC：不會。

老師：為什麼？

YC：因為英文很重要。

CU：對，非常重要。

YC：而且我覺得現在小朋友愈來愈厲害，我覺得太恐怖。

CU & MF：對啊。

YC：我有切身的感覺。

老師：是啊？

老師：大一時上課時的情況如何？做一個比較？

MF：護校時是老師帶著看，會重複一直唸，一直唸，一節課不會教很多，重複唸，因為高中換過兩、三個英文老師，有的會教你唸，有的會叫你背，然後默寫，大一要你自己看。

老師：很大的改變？

CU：也不會，只是我覺得生字是很重要的，而且會不會唸很重要，因為要會唸，你就會背，就會很容易去記得那個字，所以現在很多小朋友唸就會背。

老師：大一的上課經驗如何？哪些有符合你們的需要？哪部分沒有？

CU：有給單字。

MF：有講英文的機會。

YC：可是互動沒有那麼多，比較沉悶。

CU：對啊。

老師：當時再選課文時，盡量選較生活化，與你們的生活經驗較符合的題材，可是當我開始上的時候，跟 YC 剛才說的一樣，我覺得課文太長，單字太多。

YC：生字比較困難。

老師：對，我也體會到你們的困難，生字太多，壓力就會很大，在教學過程中，我也覺得有壓力，有時會忽略你們的需要，而且我沒給翻譯。

CU：可是你有講裡面的大意。

MF：其實如果單字知道，大部分的字都是以前學過的，整篇的意思大概知道，可是可能沒有辦法翻的非常標準（語氣強調），但可以知道大意。

CU & YC：對。

老師：對概念圖的感覺如何？

MF：一開始不太會畫，覺得有點複雜，後來我覺得好像滿好玩的。因為如果在畫之前你一定要先把課文看得很仔細，之後畫成概念圖，會覺得很有成就感，因為你畫出來表你已經懂這個東西了。

CU：對。

老師：會不會花很多時間？

CU：會。

老師：這樣的時間投資你覺得如何？

MF：值得。

老師：真的？

CU：嗯。

CU：我覺得概念圖比較懂，老師在黑板上畫完之後，按照圖把整課唸一遍，比較不重要的字，就可以跳過去，很容易了解。

YC：但是，有一課，百萬富翁那一課，不適合用概念圖，不知道怎麼樣去組合。

CU：內容太多了。

MF：感覺它重點好像很多。

YC：不知道怎麼抓。

老師：你們交的圖，我看，大致都對。

CU：可是畫起來很多。

YC：對啊，很困難。

老師：因為課文本身就多。

YC：很困擾。

老師：其實有一、兩次，我想一面解釋一面畫，可是我想讓你們試試看，我想看看你們對這課了解的程度如何。你們的圖也大多正確。

老師：把概念圖用在一篇英文閱讀上，你們的感覺如何？

YC：以前沒有這樣的經驗，覺得滿新鮮的，因為老師剛開始用的時候，就算沒有複習過這篇，也很容易把重點抓出來。

CU：不會課文一直看，好像看不到什麼重點的感覺。

MF：嗯。

老師：這是概念圖最基本的功用，可是會不會覺得不需要概念圖也可以？

YC：如果沒有這種方法，課文內容又很長的話，可能看一半就看不下去。

老師：聽同學說，打開課本一看都是英文，就不想看了？

老師：最後請談一下對英文教學的建議。

MF：可以接受。

老師：上課的方式？

MF, YC：可以。

老師：需要改進的地方？

YC：老師可以再兇一點。

MF & CU：笑。

老師：為什麼？

YC：老師兇一點的話，學生會比較注意上課。

老師：謝謝你的建議，我以後會注意。

老師：對教材的看法？

CU：空間太少，字寫不進去，我們都用貼的，很麻煩。

老師：文法習題的編排？

CU：有點雜亂。

老師：還願意補充什麼？

YC：增加交談的部分，因為認識單字太少，不知怎麼講，而且怕講錯。

老師：四技的英文時數夠不夠。

MF：很少，太少了。

老師：我覺得你們都很願意把英文學好。困難在哪裡？

YC：說與寫。

老師：聽與讀沒什麼問題。

YC & MF：沒有。

老師：多謝你們！若有問題可以再請教你們嗎？

YC, MF, & CU：可以。

APPENDIX 21

Approval of Conducting the Present Study at Chung-hua College of Medical Technology

To whom it may concern.

04/11/2003

The purpose of this letter is to certify that Chung-hua College of Medical Technology (CCMT) has granted the request of Ms Chiu-ling Chiang to access the students of CCMT to participate in her research: The Effects of Graphic Organizers on Taiwanese Tertiary Students' EFL Reading Comprehension and Attitudes Towards Reading in English.

Sincerely,

A handwritten signature in cursive script that reads "King Pong Lin".

King Pong Lin
Director of Academic Affairs
Chung-hua College of Medical Technology

APPENDIX 22

Ethics Clearance Approval of Australian Catholic University



Australian Catholic University

Trescowthick School of Education (Victoria)

Telephone 61-3-9953-3257 Fax 61-3-9953-3495 Email: k.smith@patrick.acu.edu.au Web: www.acu.edu.au/fed/vic

Dear Participant,

Title of Project: **The Effects of Graphic Organizers on Taiwanese Tertiary Students' EFL Reading Comprehension and Attitudes Towards Reading in English**
 Name of Student Researcher: **Ms. Chiu-ling Chiang**
 Name of Supervisor: **Dr Ken Smith**
 Name of Programme In Which Enrolled: **EdD**

The purpose of this research is to investigate the effect of graphic organizers on technological/vocational college students' EFL reading comprehension and attitudes towards reading in English as foreign language. The potential benefit of this study is to enhance EFL reading comprehension and cultivate positive reading attitudes of technological/vocational college students toward English as foreign language.

As a participant you will be invited to answer two questionnaires, which are the English Reading Attitudes Questionnaire (ERAQ) and Graphic Orgnaizers Attitudes Questionnaire (GOAQ). The ERAQ will take place at the beginning, in the middle and the end of the treatment, while the GOAQ will take place at the beginning and the end of the reserch period. It is estimated that answering the questionnaires will take approximately 20 minutes. The information provided by your questionnaires will offer valuable insights into the effect of graphic organizers on Tiwanese tertiary students' EFL reading and attitudes towards reading in English.

As a participant in this study, you are free to refuse consent altogether without having to justify that decision, or to withdraw consent and discontinue participation in the study at any time without giving a reason. It is also important to note that any withdrawal will not prejudice your future care or academic progress at all.

Confidentiality will be maintained, as no identification of you is required. During the study, all the questionnaires will be locked in a cabinet in my office and data stored in my personal computer. After the completion, your data will be kept in locked cabinets in the supervisor's office located at St Patrick's campus in the Australian Catholic University, Australia. All the questionnaires and electronic data will be destroyed after five (5) years.

Any questions regarding this project should be directed to the Student Researcher, Chiuling Chiang on (886 6) 2671214 ex: 564 in the Nursing Department of Chung-hwa College of Medical Technology, 51, Wen-hwa First Street, Jen-de Hsiang, Tainan Hsien, Tainan, and/or Dr. Ken Smith on (61 3) 99533257 in the School of Education at St. Patrick's Campus, 115 Victoria Parade, Fitzroy, Victoria, 3065.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern about the way you have been treated during the study, or if you have any query that the Investigator has not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee: Research Services Unit:

Chair, HREC, C/o Research Services, Australian Catholic University, St Patrick's Campus
Locked Bag 4115, FITZROY VIC 3065, Tel: 03 9953 3157, Fax: 03 9953 3315

Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome. If you agree to participate in this study, you need to sign both copies of the Informed Consent Form, as one will be retained for your records and the other one will be returned to the investigator.

Thank you for your assistance in this research activity.

Sincerely,

Chiuling Chiang

APPENDIX 23

Reading Comprehension Tests

Descriptive Statistics Summary

Table A23.1

Participants' Pre- and Post-Reading Comprehension Tests
(RCT) Descriptive Statistics Summary

| Reading Comprehension Test | Pre-RCT | Post-RCT |
|-------------------------------|---------|----------|
| N : | 50 | 50 |
| Missing : | 0 | 0 |
| Range : | 46.00 | 38.00 |
| Minimum: | 18.00 | 26.00 |
| Maximum: | 64.00 | 64.00 |
| Mean : | 41.28 | 49.68 |
| Std Err : | 1.75 | 1.36 |
| Std Dev : | 12.40 | 9.63 |
| Variance : | 153.76 | 92.79 |
| Skewness: | -.04 | -.49 |
| S E Skew: | .34 | .34 |
| Kurtosis : | -.94 | -.54 |
| S E Kurt : | .66 | .66 |
| Sum : | 2064.00 | 2484.00 |

Table A23.2

High-scorers' Pre- and Post-Reading Comprehension Tests
(RCT) Descriptive Statistics Summary

| Reading Comprehension Test | Pre-RCT | Post-RCT |
|-------------------------------|---------|----------|
| N : | 27 | 27 |
| Missing : | 0 | 0 |
| Range : | 42.00 | 28.00 |
| Minimum: | 22.00 | 36.00 |
| Maximum: | 64.00 | 64.00 |
| Mean : | 45.70 | 53.26 |
| Std Err : | 2.12 | 1.48 |
| Std Dev : | 11.03 | 7.69 |
| Variance : | 121.76 | 59.12 |
| Skewness: | -.35 | -.78 |
| S E Skew: | .45 | .45 |
| Kurtosis : | -.75 | -.46 |
| S E Kurt : | .87 | .87 |
| Sum : | 1234.00 | 1438.00 |

Table A23.3

Low-scorers' Pre- and Post-Reading Comprehension
Tests (RCT) Descriptive Statistics Summary

| Reading Comprehension Test | Pre-RCT | Post-RCT |
|-------------------------------|---------|----------|
| N : | 23 | 23 |
| Missing : | 0 | 0 |
| Range : | 44.00 | 38.00 |
| Minimum: | 18.00 | 26.00 |
| Maximum: | 62.00 | 64.00 |
| Mean : | 36.09 | 45.48 |
| Std Err : | 2.52 | 2.11 |
| Std Dev : | 12.10 | 10.13 |
| Variance : | 146.36 | 102.63 |
| Skewness: | .46 | .01 |
| S E Skew: | .48 | .48 |
| Kurtosis : | - .32 | - .41 |
| S E Kurt : | .94 | .94 |
| Sum : | 830.00 | 1046.00 |

APPENDIX 24

English Reading Attitudes Questionnaire (ERAQ) Descriptive Statistics Summary

Table A24.1

Participants' Pre-, Mid-, and Post-English Reading Attitudes
Questionnaire (ERAQ) Descriptive Statistics Summary

| English Reading Attitudes Questionnaire | Pre-ERAQ | Mid-ERAQ | Post-ERAQ |
|--|----------|----------|-----------|
| N : | 50 | 50 | 50 |
| Missing : | 0 | 0 | 0 |
| Range : | 27.00 | 42.00 | 41.00 |
| Minimum: | 42.00 | 35.00 | 43.00 |
| Maximum: | 69.00 | 77.00 | 84.00 |
| Mean : | 57.16 | 57.74 | 61.90 |
| Std Err : | .87 | 1.05 | .95 |
| Std Dev : | 6.13 | 7.42 | 6.74 |
| Variance : | 37.57 | 55.05 | 45.40 |
| Skewness: | -.06 | -.06 | .27 |
| S E Skew: | .34 | .34 | .34 |
| Kurtosis : | -.41 | 1.40 | 2.28 |
| S E Kurt : | .66 | .66 | .66 |
| Sum : | 2858.00 | 2887.00 | 3095.00 |

Table A24.2

High-scorers' Pre-, Mid-, and Post-English Reading Attitudes
Questionnaire (ERAQ) Descriptive Statistics Summary

| English Reading Attitudes Questionnaire | | Pre-ERAQ | Mid-ERAQ | Post-ERAQ |
|--|---|----------|----------|-----------|
| N | : | 27 | 27 | 27 |
| Missing | : | 0 | 0 | 0 |
| Range | : | 20.00 | 32.00 | 32.00 |
| Minimum: | | 49.00 | 45.00 | 52.00 |
| Maximum: | | 69.00 | 77.00 | 84.00 |
| Mean | : | 59.00 | 58.78 | 63.22 |
| Std Err | : | 1.23 | 1.43 | 1.44 |
| Std Dev | : | 6.38 | 7.45 | 7.49 |
| Variance | : | 40.69 | 55.49 | 56.10 |
| Skewness: | | -.11 | .46 | .71 |
| S E Skew: | | .45 | .45 | .45 |
| Kurtosis | : | - 1.24 | .30 | .86 |
| S E Kurt | : | .87 | .87 | .87 |
| Sum | : | 1593.00 | 1587.00 | 1707.00 |

Table A24.3

Low-scorers' Pre-, Mid-, and Post-English Reading Attitudes
Questionnaire (ERAQ) Descriptive Statistics Summary

| English Reading Attitudes Questionnaire | Pre-ERAQ | Mid-ERAQ | Post-ERAQ |
|--|----------|----------|-----------|
| N : | 23 | 23 | 23 |
| Missing : | 0 | 0 | 0 |
| Range : | 21.00 | 36.00 | 25.00 |
| Minimum: | 42.00 | 35.00 | 43.00 |
| Maximum: | 63.00 | 71.00 | 68.00 |
| Mean : | 55.00 | 56.52 | 60.35 |
| Std Err : | 1.07 | 1.53 | 1.15 |
| Std Dev : | 5.15 | 7.36 | 5.49 |
| Variance : | 26.55 | 54.17 | 30.15 |
| Skewness: | - .71 | - .73 | - 1.80 |
| S E Skew: | .48 | .48 | .48 |
| Kurtosis : | .53 | 2.86 | 4.00 |
| S E Kurt : | .94 | .94 | .94 |
| Sum : | 1265.00 | 1300.00 | 1388.00 |