

## Chapter Three

### Method

This chapter describing the research design of the study is comprised of four sections. Section One reports subjects and grouping. Section Two illustrates the materials. Section Three presents the testing procedures. Sections Four decides the method of data-analysis.

#### *Subjects*

The subjects were seventy-five third-year students (46 males and 29 females) from a public vocational high school in Taipei. Half of them major in mechanical engineering, and the other half major in commercial management. They range in age from seventeen to nineteen years, with an average age of eighteen years. English is a compulsory subject for the consecutive three years. Based on the scores of a reading proficiency test, the subjects were divided into three performance groups: high, medium, and low. The total scores of the test were 25, one point for each question. The subjects with the test scores of 11~17 ( $n=24$ ) were assigned to the high group, those with the scores of 9~10 ( $n=25$ ), the medium group, and those with the scores of 5~8 ( $n=26$ ), the low group. Three from the high group and 6 from the low group were eliminated because of mismatch between the placement test and daily academic performance. The final number of the subjects of the high group was 21, that of the mid group was 25, and that of the low group was 20.

Table 2 displays the mean scores and standard deviations for the three groups.

One-way analysis of variance (ANOVA) indicated significant differences among the three groups [ $F(2, 63) = 112.113, P < 0.05$ ]. Scheffé multiple comparison showed that the mean scores of the high group ( $M = 12.67$ ) were significantly higher than those of the medium group ( $M = 9.08$ ), which, in turn, were significantly higher than those of the low group ( $M = 6.90$ ). In order to investigate the relationships between proficiency levels and reading comprehension, the present study focused on the performances of the high and low groups.

Table 2

ANOVA Results of the English Reading Proficiency Test

<i>Proficiency level</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>F</i>	<i>Sig.</i>
High	12.67	1.742	21		
Medium	9.08	0.862	25	112.133	.000***
Low	6.90	1.021	20		

\*Significant at  $p < .001$ 

### **Materials**

Three types of materials were used for classification of subjects and also for data collection, just as follows:

- (1) Materials for English reading proficiency placement
- (2) English reading comprehension tests for determination of the effects of conjunctions
- (3) A rational multiple-choice cloze test for examination of the difficulty order of the four types of conjunctions

***The reading placement test.*** The English reading test, which was employed to place the subjects into three proficiency groups: high, medium, and low, were comprised of the test items selected from the English tests of Technological and Vocational Education (TVE) joint college entrance examination<sup>2</sup> developed by Testing Center for Technological and Vocational Education (TCTE) from the year of 2003 to 2006. Since TVE joint college entrance exam has been widely recognized as a standardized placement test, the English reading test in this study, thus, is of validity and reliability. The details of the test are illustrated below. The placement test was made up by a cloze section and a multiple choice reading comprehension section. The cloze section included two passages. Some of the words or phrases from each passage were removed and then replaced by four options for the subjects to choose the most proper one. Each passage consisted of eight test items, so the cloze section contained a total of sixteen test items. The reading comprehension section also covered two passages. One was followed by five comprehension questions, and the other, four. Each question contained one correct option for the subject to choose among the four. To sum up, the present test included twenty-five test items in total.

***Reading comprehension instruments.*** The subjects were administered two types of reading comprehension tests which were specially designed for the purpose of this study. One was a multiple-choice reading comprehension test, and the other was a rational multiple-choice cloze tests. Cloze tests, approved by (J. R. Bormuth, 1967; J. R. Bormuth, 1968b; Greene, 2001) and many others, can provide a valid

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<sup>2</sup> The proficiency level of JVE-JCEE is between the elementary and intermediate level of GEPT. The elementary level is designed for the graduates of junior high school students and the intermediate level is for those of senior high. Since the level of vocational high school students is in between, TVE-JCEE is more suitable than GEPT to be chosen as the materials for the placement test.

assessment of reading comprehension. Both types of the tests adopted passages of expository texts. Compared with narratives, expository texts usually describe new information that the readers do not know and better reflect the influence of text characteristics to guide the construction of a meaning representation (Sanders, 2000). A detailed description of the two types of the tests in the present study is given below:

The multiple-choice comprehension test was organized in the following way. First of all, the test passages were carefully selected from a variety of EFL reading materials. Forty-three passages were chosen for the first round as the result of their satisfaction of the following five requirements. (1) They included clear logical relations. (2) Their themes were more appropriate for Taiwanese students. (3) They had at least two types of conjunctions. (4) They involved more than four conjunctions. (5) The number of the words in each passage was within 200. Second, twenty-one passages out of 43 were selected by the vocabulary criteria, basic words 4000-5000, established by MOE for vocational high school students. Third, the SMOG formula (McLaughlin, 1969) were utilized to differentiate the readability of the 21 passages. According to its classification, grades 9, 10, 11 are for some high school students. Given that the passages with grades 9 to 10 were better suited to the Taiwanese vocational high school students, seven passages out of 21 were chosen as the final ones. Fourth, the 7 passages were rewritten into a different version with the absence of conjunctions, which were replaced by full stops or semicolons. In other words, the multiple-choice reading comprehension test consisted of two versions, the original passages and the rewritten ones. Fifth, each passage was followed by 3 to 4 multiple-choice comprehension questions. In the total 20 questions, ten were for

global understanding and 10 for local understanding. Each question had four especially-designed options. Finally, the orders of the passages in the two versions were varied, and so were those of the options in each question. The following is a sample passage including conjunctions in Version One and excluding conjunctions in Version Two.

Version One:

Hiking can be very enjoyable but also dangerous at times. Taiwan is home to a number of poisonous snakes, some of them deadly. As long as you follow a few simple safety rules, you and your friends can go ahead and still have a safe and fun experience. **First of all**, be aware of when might be walking into a snake's territory. **For example**, most snakes like grassy areas or places near the water. **In addition**, snakes are most dangerous when they are surprised or scared. Tying bells to your shoes or bringing along with you a walking stick, which slightly shakes the ground as it hits, will let snakes know you are coming and give them a chance to get out of the way. If, **nevertheless**, you or a friend ends up getting bitten, get to a hospital as soon as possible. (Liu, 2005)

(1) Snakes may be scared away by the sound of \_\_\_\_\_.

- (A) dogs                      (B) bells                      (C) bees                      (D) water

(2). What is the best title for the passage?

- (A) Hiking and snakes                      (B) The benefits of hiking  
(C) The danger of snakes                      (D) Ways of enjoying hiking

Note: The conjunction shown in bold here were not shown in bold in the papers used for the test.

Version Two:

Hiking can be very enjoyable but also dangerous at times. Taiwan is home to a number of poisonous snakes, some of them deadly. As long as you follow a

few simple safety rules, you and your friends can go ahead and still have a safe and fun experience. (First of all,) be aware of when might be walking into a snake's territory. (For example,) most snakes like grassy areas or places near the water. (In addition,) snakes are most dangerous when they are surprised or scared. Tying bells to your shoes or bringing along with you a walking stick, which slightly shakes the ground as it hits, will let snakes know you are coming and give them a chance to get out of the way. If, (nevertheless,) you or a friend ends up getting bitten, get to a hospital as soon as possible. (Liu, 2005)

(1) What is the best title for the passage?

- (A) The benefits of hiking                      (B) Hiking and snakes  
(C) The danger of snakes                      (D) Ways of enjoying hiking

(2) Snakes may be scared away by the sound of \_\_\_\_\_.

- (A) dogs                      (C) bees                      (B) bells                      (D) water

Note: The conjunction shown in the parenthesis were not shown in the paper used for the test.

The rational multiple-choice cloze test will be illustrated as follows. In the beginning, as the reading comprehension test, 23 passages were selected by the criteria of clear logical relations, appropriateness for Taiwanese students, and conformation to readability of grade 9 or 10 in the SMOG formula as well as the vocabulary standard set by MOE. Second, out of the 23 passages, 8 were determined to be the final ones according to two requirements. 1. Each of them had at least two conjunctions. 2. The number of words was within 150. Next comes to the design of the test items. Each conjunction removed from the sentence was replaced by four options for the subjects to choose. Then, each option fell into a different category of the four logical relations. At last, the test paper was presented with 24 questions in

total, 5 for temporal relations, 6 for adversative relations, 5 for additive relations and 8 for causal relations. The following passage is an example.

Different poses of yoga examine different aspects of the body: breathing, the senses and the soul. The aim of the different poses is to relax and focus individual areas of the body and soul as well as to encourage a feeling of peace. The poses reflect nature, such as imitating trees, snakes and eagles. Certain poses are to build up strength and to help achieve a clear mind. \_\_\_1\_\_\_, sitting and lying poses are meant to focus you on the present, regulate your breathing and help you feel relaxed. There are hundreds of majority of people, as they require a significant level of strength. \_\_\_2\_\_\_, a very difficult pose does not mean it is any better than any of the easier poses. In fact, the best poses are usually simple ones. (Liu, 2005)

- ( ) 1. (A) At last      (B) However      (C) For example      (D) Therefore  
 ( ) 2. (A) At last      (B) However      (C) For example      (D) Therefore

To sum up, the testing instruments were as follows:

- (1) A multiple-choice reading comprehension test with the passages including conjunctions;
- (2) A multiple-choice reading comprehension test with the passages excluding conjunctions; and
- (3) A cloze test with the conjunctions removed.

### ***Testing procedures***

The three tests were administered respectively by the researcher during a regular English class. The multiple-choice reading comprehension test without

conjunctions was conducted six weeks after the test with conjunctions. Even though the two versions shared similar content of the texts and comprehension questions, the memory factor could be ruled out on the basis of Atkinson & Shiffrin model of memory, which stated that rehearsal was a must to convert short-term memory to long-term memory (Atkinson, 1968). The subjects in the present study had no chance to get familiar with the passages and practice the questions during the six weeks, so they were unlikely to memorize the content of the first reading comprehension test. Finally, the cloze test was administered six weeks after the second test.

Pilot testing established the amount of time the subjects needed to answer the test. Based on the pilot study, forty minutes were allotted for the subjects to complete each version of multiple-choice reading comprehension tests and 60 minutes for the cloze test. At the beginning of each test, the subjects were told that the test was designed to measure how much effort they had devoted to English studying and their performance would determine part of their final grades.

### ***Data analysis***

***Scoring.*** In all the three tests, each test item stands for one point. For each correct answer, one point was given. So, in each version of the reading comprehension test, the total scores were twenty: ten for global understanding and ten for local understanding. In the cloze test, the total scores were twenty-four: five for temporal, six for adversative, five for additive and five for causal. The rate of correctness was presented by percentage in the analysis. Twenty questions for the reading comprehension test and twenty-four for cloze test remained unchanged for the purpose of maintaining the naturalness of the passages. In order to maintain the

naturalness and authenticity of the passages and comprehension questions, the number of the questions for the reading comprehension test, twenty, had not been added up to twenty-four, as the number of questions for the cloze test.

*Statistics Treatments.* The collected data was computed with SPSS statistical software. The data obtained from the multiple-choice reading comprehension test was dealt with by paired *t*-tests, and that from the rational multiple-choice cloze test was treated by a one-way analysis of variance (ANOVA), post hoc LSD multiple comparison, independent *t*-tests, and error analysis.

In the reading comprehension test, paired *t*-tests were performed to determine the significance of the differences on:

- (1) the total scores between the two versions of the test;
- (2) the scores on global understanding between the two versions;
- (3) the scores on local understanding between the two versions;

In the rational multiple-choice cloze test, an ANOVA was first run on the mean scores of the four types of logical conjunctions, and a post hoc LSD test further explored the difference among them. Independent *t*-tests were also employed to decide the significance of the differences on the total scores between the two placement groups as well as the rate of correctness in the four types of conjunctions between the two placement groups.

Finally, error analysis checked the correct and incorrect responses from the cloze test in order to determine the favoring selecting tendency of the conjunctions between high and low achievers.