

## **Chapter 2**

### **Methodology**

#### **2.1 Design**

##### *2.1.1 Design*

The design of this study is based on the methodology used in Bouden, Greenslade, & Sanz (1999) as well as in VanPatten (1990) and is a conceptual replication of both studies. Both studies hypothesized that focusing a L2 learner's conscious attention towards lexical content items would not affect comprehension while taking the opposite position in regards a definite article and a bound morpheme or a verbal inflection. VanPatten (1990) included four tasks, and the form of input used in this study was aural with his subjects being L2 Spanish learners. Bouden, Greenslade, & Sanz (1999) was a conceptual replication of VanPatten (1990) and the input used was written. Task I was the control task and consisted of listening to a passage for content. Task II consisted of listening to the passage for content and simultaneously noting a key lexical item. Task III consisted of listening for content and simultaneously noting a definite article. Task IV consisted of listening for content and simultaneously noting a bound morpheme or a verbal inflection.

#### **2.2 Subjects/Population**

##### *2.2.1 Subjects/Population*

A total of 105 subjects were selected from an existing population of intermediate and advanced L2 English learners at a private Mexican institution. Two levels of classes were chosen for this study: Level I and Level III. All Level I subjects that participated in

the study attended intermediate level L2 English classes, which consisted of intermediate university level development of reading comprehension, writing, listening comprehension, and speaking in English. All Level III subjects attended advanced level L2 English classes consisting of L2 English literature classes and L2 English business communication classes. In total, nine intact classes were used to carryout the experiment, including five intermediate L2 English classes and four advanced L2 English classes.

As in VanPatten (1990) and Bouden, Greenslade, & Sanz (1999), subjects were chosen from intact classes for testing instead of using volunteers in order to assure a more accurate sample of typical college-level language students. The subjects were given the option not to participate in the study. All subjects were selected in accordance with the following criteria:

Criteria for Subject Participation of intermediate and advanced L2 English learners:

- I. The subject must be attending intermediate or advanced L2 English classes at the private Mexican institution.
- II. The subject must complete a background information questionnaire in order to show that he or she has no significant reading disabilities.
- III. The subject must be a native Spanish speaker.

Of the 105 subjects that participated in the study, three were eliminated from the intermediate level for not properly following the instructions, and one was eliminated from advanced level for being a native English Speaker. In total, 52 intermediate level subjects and 49 advanced level subjects participated (see Table 3 for numbers of subject according to task groups).

**Table 3.** Number of Subjects per task by level.

	Task I	Task II	Task III	Task IV
Intermediate Level	13	14	13	12
Advanced Level	12	12	12	13

## 2.3 Materials

### 2.3.1 Instruments

The first instrument was a questionnaire (see Appendix A). The purpose of the questionnaire was to assure that the subjects had no significant reading disabilities, that they were native Spanish speakers, and that they were at the appropriate intermediate or advanced L2 level to participate in the study. Subjects were also asked for their last four digits of their student identification number, which was put on the upper-right hand corner of all instruments so that all instruments used in the study could be matched to the questionnaire.

The second and third instruments were the warm-up text (see Appendix B) and the experimental text (see Appendix C). The purpose of the warm-up text was to familiarize the subjects with the overall procedure of the experiment before beginning the experimental task and to allow the subjects to focus on comprehension in their L2 before performing the task. As in VanPatten (1990) and Bouden, Greenslade, & Sanz (1999), the warm-up text was shorter than the experimental text and comparable in level of lexical and grammatical complexity to the actual experimental text. While reading the warm-up text, the subjects performed tasks similar in complexity to those that they would perform during the reading of the experimental text. The control group read for comprehension only. The lexical content item selected was the word *education*, the bound morpheme chosen was *-ed*, and the non-content lexical item chosen was the word *of*. Different lexical and grammatical items were chosen to be marked in the warm-up text and the experimental text to ensure that no one group would have an advantage over another when working with the

experimental text. This was not done in VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) and might have inadvertently increased the recall scores of the experimental groups in those studies that marked the same lexical or grammatical items in both the warm-up and the experimental text over the recall scores of the experimental groups that did not. Results from the warm-up text were not used in the final scoring and analysis of this experiment.

The experimental text was designed based on the length, the number of sentences, and the word count of the original VanPatten (1990) experimental text. As in VanPatten (1990) and Bouden, Greenslade, & Sanz (1999), the experimental text was designed with an average of 22.6 words between the individual lexical and grammatical items found throughout the text. The lexical and grammatical items marked throughout the text by the subjects participating in the experimental groups are as follows: Lexical content item *commerce*, which occurred ten times; the bound morpheme *-ing*, which occurred thirteen times; and the non-content lexical item *the*, which occurred eleven times. An attempt was made to assure that each lexical and grammatical item would occur the same number of times, but in some cases it was found that the text's syntax would be altered if a specific grammatical or lexical item was removed. This did not appear to adversely affect the results of the study because the number of target items marked by each subject was less than 10 (see Chapter 3 for more detail).

The fourth instrument was the Data Elicitation Protocol (see Appendix D). The Data Elicitation Protocol provided the researcher with a consistent set of instructions to follow while applying the instruments in order to ensure uniformity between the different classes that participated in the study. It also provided instructions about the time limit that the subjects had to read for both the warm-up and experimental text. Lastly, in order to

ensure that the subjects (native Spanish speakers) and the researcher (native English speaker) thoroughly understood the procedures, the Data Elicitation Protocol consisted of instructions in Spanish and in English.

The fifth instrument was the written instructions for the subjects that participated in the study (see Appendix E). There were four sets of written instructions, one for each task group, designed in Spanish using the verb form *tú* in order to avoid misinterpretations of the instructions that can occur while reading instructions containing the verb form *usted*. The verb form *tú* is used in Spanish informal speech and the verb form *usted* is used in Spanish formal speech. Unlike Bouden, Greenslade, & Sanz (1999), it was decided to give aural as well as written instructions to the subjects in order to allow the researcher to administer all four tasks in a single classroom. This permitted a more representative sample to be selected from the individual classes participating in the study. Also, the researcher was able to apply the instruments to an additional group of subjects from the intermediate level L2 English classes in order to ensure that each task group consisted of at least 12 subjects.

The final instrument was the Idea Unit Analysis (see Appendix F). The Idea Unit Analysis was designed to identify the idea units within the passage in order to score the subjects' comprehension using their free writing recalls. This assessment has been shown to be a valid experimental evaluation of reading and listening in Carrell (1985), VanPatten (1990), Lee (1996), and Bouden, Greenslade, & Sanz (1999); however, a modified protocol was used in the current study to provide a more rigorous analysis of the free writing recalls. The idea units were taken directly from the experimental text and consisted of single clauses, which were main or subordinate and included adverbial or relative clauses, infinitival constructions, gerundives, nominalized verb phrases, conjuncts, and optional and/or heavy prepositional phrases. After identifying the idea units found in the text,

semantic and syntactic heads were then identified within the each idea unit in order to facilitate the coding of the free writing recalls. There were 47 idea units in total (see Chapter 3 for more detail).

## **2.4 Procedure**

### *2.4.1 Procedures*

The procedures were based on VanPatten (1990) and Bouden, Greenslade, & Sanz (1999). One researcher administered the experiment, which consisted of eight task groups, four task groups for intermediate L2 English learners and four tasks groups of advanced L2 English learners. For each group, consistency was assured for the administration of the questionnaires, the warm-up paragraph, the experimental text, and the free writing recall by means of a standardized data elicitation protocol and individual group instructions, which were strictly followed for each task group (as detailed in the previous section).

Because the modality for the experiment was written rather than aural, it was necessary to establish a reasonable exposure time for the warm-up and the experimental text. This was done in the Bouden, Greenslade, & Sanz (1999) because a reading time compensates for the differences between aural input, which is a linear speech stream, and written input, which can be non-linear if the subjects backtrack (Bouden, Greenslade, & Sanz, 1999, p. 73). In order to establish a reading time, a pre-pilot study was conducted in which five beginning level L2 English learners and three advanced level L2 English learners volunteered to read the warm-up and experimental text while being timed. Based on the results of pre-pilot, the time established for the warm-up text was two minutes, and the time established for the experimental text was three minutes.

To ensure that the procedures, the instructions, and the Data Elicitation Protocol were methodologically valid, the instruments were piloted with an intact class of L2 English learners that had a similar level to that of the intermediate L2 English classes. Of the fifteen volunteers that participated in the pilot study, one failed to follow the instructions properly. The reading times were also shown to be valid as all of the participants in the pilot study agreed that they had enough time to read both texts but did not have enough time to backtrack. The participants in the pilot study informed the researcher that they did not understand the target lexical item *trade* in the experimental text. As a result of the pilot study, the target lexical item *trade* was replaced with the target lexical item *commerce*. This was done because *commerce* is a close synonym of the word *trade* and would be better understood by the subjects because it is a cognate of the Spanish word *comercio*.

#### Summary of Tasks:

- Task I: Read for content only (control task), no independent variable
- Task II: Read for content while noticing a key content word
- Task III: Read for content while noticing a verb morpheme
- Task IV: Read for content while noticing a non-content word (definite or indefinite article)

The experiments were carried out at the private Mexican institution in regular class times and rooms during a one week period from February 16, 2005 to February 26, 2005. An equal number of morning and afternoon classes were used in the experiment in order to ensure that subjects' emotional and physical state at different times during the day would not adversely affect the results. The subjects first read and completed the assigned tasks using the warm-up. Next, the subjects carried out the assigned task using the experimental

text. As in VanPatten and Bouden, Greenslade, & Sanz (1999), schemata were controlled for by giving the subjects a brief description of the text in Spanish. Immediately after the subjects read and completed the assigned task while reading the experimental text, the subjects then carried out free writing recall in their native language describing everything they remembered about the experimental text without giving their opinion. This was to ensure that the subjects' actual comprehension was accurately reflected and as a control for the subjects' limited L2 writing ability (Lee, 1986, p. 38).

## **2.5 Task Group Codes**

In order to more easily explain the results of this study, the following codes were assigned to the eight task groups that participated in this thesis.

### *2.5.1 Intermediate Level*

I-NoMarking	Intermediate L2 English level Task group I
I-Content	Intermediate L2 English level Task group II
I-BoundMorph	Intermediate L2 English level Task group III
I-NonContent	Intermediate L2 English level Task group IV

### *2.5.2 Advanced Level*

A-NoMarking	Advanced L2 English level Task group I
A-Content	Advanced L2 English level Task group II
A-BoundMorph	Advanced L2 English level Task group III
A-NonContent	Advanced L2 English level Task group IV