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Form Versus Content in Comprehending L2 Reading Texts

Tesis profesional presentada por **Brent Matthew Tieber**

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Abstract

This thesis is a conceptual replication of VanPatten (1990) and Bouden, Greenslade, and Sanz (1999). It is a quantitative study about the effects that consciously focusing on form while reading for meaning will have on a L2 learner's comprehension due to the limited attentional capacity of working memory. Data was gathered from 101 subjects at a private Mexican institution, 52 at the intermediate L2 English level and 49 at the advanced L2 English level, by way of brief exercises to measure text comprehension while focusing on a lexical content item, a bound morpheme, or a non-content lexical item. Subject's reading comprehension was measured using a modified version of Carrell's (1985) idea unit analysis, after which a statistical analysis was used to obtain the overall comprehension scores for each task group. The statistical analysis revealed that L2 learners of English have difficulty focusing on a bound morpheme and a non-content lexical item while reading for comprehension in the L2. It also demonstrated that focusing on a content lexical item does not adversely affect L2 comprehension. The implications for this study include providing evidence that L2 learners at the intermediate and advanced stages have difficulty consciously focusing on form while reading for meaning in the L2. It also provides evidence that working memory is a limited capacity processing system.

Chapter 1

Literature Review

1.1 Introduction

1.1.1 L2 Reading

Understanding second language acquisition (SLA) has been a topic of study for many years. L2 reading has been studied from many different perspectives such as the importance of L1 transfer in learning to read in a second language, mental translation as an L2 reading strategy, social influences of L2 reading development, and understanding the limited knowledge of L2 readers in relation to cultural and contextual factors (Grabe, 2002, pp. 52-55).

The purpose of this study is to investigate L2 text comprehension from the perspective of language processing within the field of cognitive science, especially with reference to attentional resources. The role of attention in second language acquisition with regard to the notion of detection is a crucial aspect of L2 aural and written comprehension (Tomlin and Villa, 1994; VanPatten, 1996). As a function of attention, detection selects specific elements found in the input to be registered in working memory where they are subject to further processing by the L2 learner. During attention, more specifically detection, VanPatten (1996) posits that form and meaning, which are not independent of one another, compete for the limited cognitive resources available to the adult L2 learner, especially, in the early stages of second language acquisition. Consequently, in these early stages, the demands of comprehending a message deplete the attentional system making it more difficult for the L2 learner to process for linguistic form and content or meaning at the

same time (Tomlin and Villa, 1994; VanPatten, 1996). The overall purpose of this thesis is not to establish that second language acquisition results from conscious or subconscious processes, but is to determine the effect of attention to form versus attention to meaning while processing input for meaning during the intermediate and advanced stages of second language acquisition (Bouden, Greenslade, & Sanz, 1999, p. 66).

1.1.2 A Cognitive Perspective on L2 Aural and L2 Text Comprehension

Bouden, Greenslade, & Sanz (1999, p. 69) claim that L2 learners approach both listening and reading tasks with a number of L1 processes, skills, and strategies that can be transferred to an L2 context with the ability to assist in decoding and comprehending information. This often involves a complex interaction between lower-level processes such as subconscious phonological recognition of words as well as accessing lexical entries and higher-level metacognative processes such as interpretation and making inferences. Due to the limited capacity to attend to a large amount of input at one given time, not all incoming input is able to be processed. While this is apparent in one's first language, it becomes more obvious in L2 listeners and readers when limited attentional abilities must compete between processing for meaning and processing for form (VanPatten, 1996, p. 16). If the limited attentional capacity of L2 learners must process for meaning and form, what effects will this have on their comprehension (Bouden, Greenslade, & Sanz, 1999, pp. 70-71; VanPatten, 1990)?

There are a number of studies that have examined this problem. Lee (1998) investigated the relation between comprehension and input processing with beginning level L2 learners of Spanish to determine if they are affected by morphological characteristics of verbs in the input (such as subjunctive morphology versus non-subjunctive morphology)

and found that the subjunctive morphology adversely affected comprehension while nonsubjunctive morphology did not. Doughty (2002) investigated deriving meaning from focus on form. Deriving meaning from focus on form involves drawing the early stage L2 learner's conscious attention to linguistic elements of a text such as lexical and grammatical items, as a way to derive further meaning from a text after an initial sense of meaning of a L2 text had been established. More specifically, Doughty (2002) proposes that focus on form is an instructional expedient for addressing pervasive, systematic, remediable or persistent L2 learning problems. VanPatten (1990) examined the problem of detection of L2 aural comprehension to determine if comprehension would be affected if a L2 learner was obligated to focus conscious attention on lexical items or grammatical items while listening for meaning in Spanish. Bouden, Greenslade, & Sanz (1999) carried out a conceptual replication of VanPatten (1990) in order to test the results of his study with L2 text comprehension instead of L2 aural comprehension. The purpose of the present study is to build on VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) by testing conscious focus of attention on content and form using L2 learner's of English in Mexico.

1.1.3 Motivation for Research and Methodological issues

The motivation for this thesis is to investigate attention to form versus attention to content in the comprehension of L2 reading texts. The purpose of exploring this issue is to contribute to the overall body of knowledge with regards to the role of attention in second language acquisition, especially during detection; and to gain a fuller understanding of working memory and its limited processing capacity of detected L2 input. This thesis will also attempt to test and to contribute to a greater understanding of VanPatten's (1996) two

principles of second language input processing with regard to written L2 input (see Section 1.24 of this Chapter).

This study is a conceptual replication of VanPatten (1990) and Bouden, Greenslade, and Sanz (1999), altering various features of the original study such as the L2 language being tested, the experimental and warm-up text, and the number of subjects (VanPatten, 2002, p. 779). While both of the previous studies were carried out with L2 learners, they only examined L2 language acquisition with native English speakers learning Spanish. This study contributes to a complete account of the issue by examining intermediate and advanced L2 English learners. Bouden, Greenslade, & Sanz (1999) and VanPatten (1990) posit that in the early stages of second language acquisition, attention to form and to content will compete for the limited cognitive resources available because the process of comprehending a message in a second language has not yet been automatized. This study has examines both intermediate and advanced L2 text comprehension with L2 English learners to address this issue.

1.1.4 Research Question and Overall Design

Does processing for form and content compete in intermediate and advanced L2 learners of English? Since this study is a conceptual replication, it follows the methodological precedents of VanPatten (1990) and Bouden, Greenslade, and Sanz (1999). The methodological design of the previous studies is experimental research and will be reviewed later in sections 1.3.1 and 1.5.1 of this chapter.

1.2 Theoretical Background

This section provides an account of language processing and text comprehension (section 1.2.3) with regards to how they relate to input processing and the processing of input (section 1.2.1) in working memory (1.2.2), the derivation of intake from L2 input, and the role of attention/detection in comprehension of L2 input (section 1.2.4).

1.2.1 Language Processing

Understanding language processing is crucial to understanding how L2 learners acquire a second language. From the psycholinguistic perspective, processing can be described in terms of levels. Processing of language starts with input, occurs in working memory, and is handled by a number of functionally specialized processors known as modules, although there is disagreement about how these modules are connected and how they function (Harley, 2001, p. 20). Language processing can be defined as the perception, comprehension or decoding of input, and the production of language (Carrol, 1986, p. 50; Smith and Truscott, 2004, p. 1).

In language comprehension, speech perception begins with the reception of a lower level phonetic code. Phonetics studies the physical speech sounds that are made while articulating speech and is a speech sound prior to lexical access. Once the phonetic code is detected by the mental lexical, it becomes a higher level phonological code. The phonological code is the speech sounds that are represented in the mind (Harley, 1995, pp. 38-41). By way of the phonological form representation in the mental lexicon, word recognition occurs. The mental lexicon contains all information about a recognized word such as its phonological form representation, its syntactic frame representation, and its semantic information, which is the underlying concept behind a word's meaning (Harley, 1995, pp. 53-58). After all lexical information has been identified and each word's

syntactic category is determined such as a noun, verb, adjective, etc., this information is used to form the syntactic structure of a sentence. The syntactic component is responsible for organizing the words in a particular phrase structure according to a particular language's grammar. This process of computing the syntactic structure of a sentence is known as syntactic parsing (Harley, 1995, p.140).

In the syntactic parsing stage of language processing, there are two differing views on how the syntactic frame representation and semantic conceptual information are used in syntactic parsing: the autonomous model and the interactive model. According to the autonomous' perspective, the semantic information of a particular word or sentence can only begin to be processed after a major syntactic unit has been parsed. According to the interactive model, the construction of a semantic representation occurs simultaneously and is used to guide syntactic parsing (Harley, 1995, p. 297). Once syntactic parsing as well as semantic processing have occurred, the linguistic information must now be integrated into a mental representation. The end of language processing and the beginning of representing new information in memory begins with propositional representation (see Section 1.2.3), which is vital to the comprehension of speech and of text (Harley, 1995, pp. 225-226).

Comprehension of linguistic information involves computations in working memory and storage or representation of that same information involves long-term memory. The next section will describe working memory and long-term memory.

1.2.2 Memory

Working memory is a limited-capacity memory system that places a constraint on how input is managed. The function of working memory is to extract from the input anything relevant for ongoing comprehension (Skehan, 1998, pp.43-45). Although working memory can process a number of computations simultaneously, if the task demands exceed the available working memory resources, the storage capacities of working memory and the computation functions within it will degrade, causing input available for ongoing comprehension not to be comprehended. For example, as already mentioned, detection is a subprocess of attention and detected information interferes with processing of other information and will exhaust a large amount of resources (VanPatten, 1996, p. 16; Tomlin and Villa, 1994, p. 192). Working memory is a temporary memory where knowledge of specific events or linguistic information is represented for a short period of time. Depending on the processes that occur in working memory and the task demands placed on it, linguistic information processed in working memory will either be lost or stored in long-term memory (Skehan, 1998, p. 57).

While working memory is where comprehension and production of ongoing language occurs, long-term memory contains a rule-based analytical knowledge system, a memory-based formulaic system, a knowledge of grammar, lexical information, and general schematic knowledge. Long-term memory is also where concepts or mental representations are stored, the same mental representation that is the underlying concept behind a word's meaning. Long-term memory interacts with working memory to change or represent new information (Skehan, 1998, p. 58). When there is new information in working memory, changes may occur in long-term memory and old information may be altered in accordance with this new information. This new information may or may not become a mostly permanent representation in long-term memory (Harley, 2001, p. 275). An important aspect of L1 and L2 text comprehension is how information from text is processed by working memory and stored in long-term memory.

1.2.3 Text Comprehension

Text comprehension is the way that information from within a text from different sentences is integrated into a single representation (Stevenson, 1993, 103). In this study, text is defined as printed or written material that consists of a number of sentences. These sentences must somehow be processed by working memory into a single representation that may or may not eventually be stored in long-term memory as a concept (Harley, 2001, p. 311). When text is understood, its meaning is processed and a mental representation of its semantic information is constructed (Noordman and Vonk 1992, p. 373). From the psycholinguistic perspective, it is assumed the text is represented in two basic stages: The first is a propositional representation and the second is Johnson-Laird's (1983) notion of "Mental Models" (Garnham, 1987, pp. 158-159 & Stevenson, 1993, p. 104).

A proposition or a propositional structure is the simplest complete unit of thought encoded by language with the literal meaning of linguistic expressions (Feinstein, Garfield, Baker-Ward, Rissland, Rosembaum, Stillings, & Weisler, 1989, p. 23). A proposition is believed to be held in a middle-memory between working memory and long-term memory where with some minimal inferences, the information in the text is constructed (Harley, 2001, pp. 327-328). Their structure is not equivalent to the words and phrases that they represent. They are considered to be the sense of the words and the phrases that they represent and have a rapidly fading linguistic form (Johnson-Laird, 1983, p. 148). Propositions with some minimal inferences form a text-based representation. Studies of text recall have shown that people generally do not recall a linguistic expression used but recall propositions as complete semantic units (Kintsch, 1974, cited in Stevenson, 1993, p. 106). For example:

1(a)

Tim ate pizza off of Mr. Jones' head.

In the case of example 1(a), a person would be likely to recall this particular proposition as a whole unit by possible saying: *From Mr. Jones' head, Jim ate Pizza* or *Pizza was eaten by Jim from Mr. Jones' head*, regardless of how implausible that it may seem and regardless of the phrase's linguistic structure. So what gets processed as a propositional unit, gets recalled as a single semantic unit (Stevenson, 1993, p. 106).

Mental Models are the second kind of text-representation that is believed to assist in the integration of text into a single representation and concerns the comprehending of text by way of the making of inferences (Stevenson, 1993, p. 104). Johnson-Laird (1983) posits that an organism carries a small-scale model of their environment that allows it to look for alternatives to its current situation, choose options that are conducive to a particular situation, react to future situations before they arise, utilize the knowledge of past events to deal with future situations, and react to a situation in a competent manner. Similarly, these models of reality need neither be wholly accurate nor correspond completely with what they model in order to be useful. This is the central insight of what is known as the theory of Mental Models (Johnson-Laird, 1993, p. 3). Carreiras, Garnham, & Oakhill (1996) suggest that if the theory of Mental Models allows for an interaction between superficial and content-based representation and is an appropriate framework for understanding how people comprehend text.

Understanding text requires inferences that relate to the propositions in the text and to the reader's knowledge of the world (Noordman and Vonk 1992, pp. 375-376). Inferences are formulated as a text is being read and are necessary to establish a coherent reading of it (Garnham and Oakhill, 1992, p. 199) Inferences demonstrate that the listener or the reader is going beyond the initial information communicated to him or her by the text and has begun to form a representation of the text in long-term memory (Harley 2001, p. 311).

Johnson-Laird (1983) suggests that there are two major forms of inferences in Mental Models: implicit *bridging* and explicit *elaborative inferences* (Garnham and Oakhill, 1992, 199). An implicit *bridging* inference is made to establish coherence between a present piece of text and a preceding text. An explicit *elaborative* inference is drawn to embellish textual information. For Example:

Tim rode to New York.	(2a)
The bicycle got a flat tire in Stroudsburg.	(2b)

In (2b) there is no antecedent for the definite noun phrase *the bicycle*. In order to construct a mental model of the situation, it is necessary to infer that it was a bicycle that Tim rode and not a horse. This is a bridging inference (Stevenson, 1993, p. 112). Implicit *bridging* inferences are necessary to understand written or spoken discourse. In fact, without these inferences, discourses would be beyond anyone's competence to understand (Johnson-Laird, 1983, p. 128). Explicit inferences on the other hand are made only if the reader needs to answer some question about the text and are not necessary for the comprehension of the text (Garnham, 199 and Oakhill, J p. 199). For example:

Jim put a large rock on Tina's finger. (3a) One might make an inference from example (3a) that Jim and Tina are getting married even though that information is not necessary to understand the text. In summary, propositional representation together with the making of inferences is the way in which text is represented and comprehended (Stevenson, 1993, pp. 104-105).

The following section will discuss how comprehended input, aural and written, is vital to second language acquisition.

1.2.4 Input/Intake and Comprehension in Second Language Acquisition

VanPatten (1996) claims that input is a critical aspect of second language acquisition and that one might think there are many studies about input. Unfortunately, this is not the case. The main concern of input processing research is how L2 learners derive intake from input regardless of the language being learned and regardless of context (VanPatten, 2002, 757). Intake is input that that is detected by working memory and that has been comprehended by the L2 learner, after which it is made available for second language acquisition. Wong (2003) points out that the field of second language acquisition is witnessing an increasing interest in the idea that drawing learner's attention to the formal, grammatical features of L2 input to derive intake is beneficial, and in some cases necessary for optimal L2 development.

In regards to second language learning, Krashen (1985) claims that L2 learners and humans in general, acquire language by receiving and understanding messages from comprehensible input. MacWhinney's (2001) Competition Model is a functional model of L2 acquisition that is designed with regards to input. MacWhinney (2001) posits that language comprehension is based on the detection of a series of L1 cues and that the reliability and availability of these L1 cues determine the degree to which a L2 message is comprehended. The Competition Model recognizes the importance of surface phrase structure, but relates all sentence processing to cue detection and interpretation. Because the L1 cues are highest in reliability and availability, they will be the ones that most affect language comprehension. In Second Language Acquisition, L2 learners may use L1 cues to derive intake from the L2 input that has been received (MacWhinney, 2001, pp.69-71).

In recent years, there has been a focus on discovering strategies used by L2 learners during the decoding of a message (LoCoco, 1987, p. 119). There is a consensus among second language researchers that input and more importantly the derivation of intake, is an essential component in second language acquisition, and learners use input to construct a mental representation of the grammar that they are acquiring (VanPatten, 1996, p. 13). Although there are differing opinions, Schmidt (2002) posits that attention must be directed toward the evidence that is relevant for a particular learning domain. In other words, the receiving of input in the L2 and the derivation of intake from that input is essential to acquire phonology as well as vocabulary, morphology, syntax, and meaning by way of contextual information.

As mentioned previously, L2 learners do not process all of the input that they receive, and comprehended input is reduced to a subset of input called intake, which is made available for second language acquisition (VanPatten, 1996, 13). The derivation of intake from input occurs because the L2 learner unconsciously considers some forms of input more important than other forms of input. The input that the L2 learner unconsciously considers more important will be attended to and detected by working memory, through which it will become available to become intake (Schmidt, 2002, p. 32). Krashen (1981) suggests that intake is essential to L1 learning as well as L2 learning and that intake is the first of all input to be understood. Krashen (1985) takes the Universal Grammar approach and claims that second language acquisition does not require attention to form in the input in order the to incorporate new material into a developing interlanguage system, while Schmidt (2002) takes an opposing position, arguing for a central role for conscious processing of grammatical forms in the input. In either case, attending to

incoming information is effortful and only so much data can be attended to at a given time because of the limited attentional capacity of working memory.

VanPatten (1996) posits that attention is an important construct for learning, especially L2 learning, and that learning takes place by way of it. Since unattended stimuli persist in working memory for only a matter of seconds, attention is a necessary and sufficient condition for intake to be derived from input and for long-term memory storage to occur (Schmidt, 2002, p. 16). So if input is not attended to or detected by working memory, intake will not be derived from the input and the input will be lost. At issue is that detecting input takes effort and that working memory has only a limited capacity to deal with stimuli. Moreover, the human cognitive activity of language comprehension consumes a great deal of attentional resources (VanPatten, 1996, p. 16).

As mentioned, detection is a process by which data are registered in working memory and is what makes a particular piece of data available for further processing (Tomlin and Villa, 1994, p. 192). Detection is a subprocess of attention, which is the aspect of input processing that most directly relates to the derivation of intake. However, detection causes interference with the processing of other information, and it occupies a large amount of attentional resources. So not all input that is attended to or detected will become available for the derivation of intake. It is also important to note that even if incoming L2 information is comprehended or understood, it may not become available for the derivation of intake (VanPatten, 1996, p. 16). VanPatten (1996) posits that because not all incoming linguistic information becomes available for intake, L2 learners may have a subconscious preference for the processing of L2 information.

From this idea VanPatten (1996) developed two principles of second language input processing:

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Principle 1:

-L2 Learners process input for meaning before they process it for form.

This means that if a L2 learner with basic comprehension is attempting to get meaning out of the input, he or she will most likely process for the meaning in the input before processing formal features of language.

-L2 Learners process content words in the input before anything else. For example:

John is the owner of the car. (3b)

In example (3b) the L2 learner will process the words that best express the meaning of the utterance such as *John*, *owner*, and *car*.

-L2 Learners prefer processing lexical items to grammatical items for semantic information. For example:

Yesterday John studded his boots. (3c)

In example (3c), the L2 learner will process the lexical item *yesterday* instead of the bound morpheme *-ed* to figure out that the action took place in the past (VanPatten, 1996, pp. 17-19).

Principle 2:

For L2 learners to process form that is non-meaningful, e.g. third person -s, they must be able to process informational or communicative content at no or little cost to attentional resources. For example:

(4a)

John looks tired.

In example (4a), the L2 learner must be advanced enough in his or her second language to understand the meaning of *John*, *look*, and *tired* in order to process the bound morpheme -s

with little or no cost to comprehension. A number of studies have been carried out to determine how L2 learners process for input and meaning in their second language, and these are summarized in the following section.

1.3 Relevant Studies in Aural and Text Comprehension

1.3.1 Major Studies on Second Language Aural and Text Comprehension and Input

VanPatten (1990) explores the question of whether or not L2 learners can focus conscious attention on both form and meaning when processing L2 input. VanPatten (1990) hypothesized that if L2 learners have difficulty directing attention toward both content and form, then a task involving the conscious focus of attention on a non-content grammatical item in the input will negatively affect comprehension. If these same L2 learners perform a task involving the conscious focus of attention on a content lexical item, comprehension will not be negatively affected. Lastly, he hypothesized that more advanced learners should be more able to direct attention to form and attention to content at the same time since they are better equipped to attend to content.

VanPatten (1990) tested these hypotheses using beginning level, intermediate level, and advanced level L2 learners of Spanish. The subjects were assigned to one of four groups: (1) listen to the passage only (Task I), (2) listen to the passage and make a checkmark for any and all occurrences of the content word *inflación* (Task II), (3) listen to the passage and make a checkmark for any and all occurrences of the definite article *la* (Task III); (4) listen to the passage and make a checkmark for any and all occurrences of the verbal inflection -n (Task IV). After listening to the passage, the subjects carried out a free writing recall, from which, an idea analysis was used to obtain the subjects mean recall scores which represented the idea units that the subjects were able to recall from the

experimental text. Mean Recall Scores from VanPatten (1990) are displayed in Table 1.

and level					
	Task I	Task II	Task III	Task IV	
Beginning	9.13	6.90	3.75	2.75	
Intermediate	10.13	10.00	5.50	6.96	
Advanced	19.15	16.35	13.07	6.27	

 Table 1. VanPatten (1990) Mean Recall Scores by task

 and level

Note. From "Attending to form And Content in the Input," by Bill VanPatten (1990), Studies in Second Language Acquisition, 12, 287-301. Copyright 1990 by Cambridge University Press.

At the beginning and intermediate levels, VanPatten (1990) found that the mean recall scores demonstrated a pattern of higher recall rates for Task I and Task II when compared to Task III and Task IV. At the advanced level, VanPatten found a similar pattern to that of the beginning and advanced levels. Task I and Task II received the highest recall score while Task III and Task IV demonstrated a pattern of lower recall scores.

The mean recall scores, as well as a statistical analysis, seemed to support VanPatten's (1990) hypotheses. Lower level beginning and intermediate L2 learners, appeared to have difficulty attending to meaning and form when consciously focusing attention on a non-content grammatical item. However, these same learners did not appear to have difficulty attending to meaning and form when consciously focusing attention on a content lexical item. As mention previously, VanPatten (1990) predicted that advanced level learners will not exhibit the same patterns of performance on the tasks as the early stage learners.

The mean recall scores and a statistical analysis offered mixed support for this hypothesis. In the case of Task III, comprehension was not negatively affected. At the

advanced level, the mean recall scores of Task III when compared to that of the mean recall scores of Task III at the beginning and intermediate levels demonstrated that advanced level L2 learners were able to focus attention on a non-content lexical item, while the lower level L2 learners were not, offering evidence to support VanPatten's (1990) hypothesis. However, Task IV received significantly lower recall scores than Task I, Task II, as well as Task III and demonstrated the same patterns found at the beginning and intermediate levels, offering evidence that does not support VanPatten's (1990) hypothesis.

The evidence found in VanPatten (1990) suggests that lower level L2 learners have difficulty directing conscious focus of attention on meaning and on non-content grammatical form, a non-content lexical item and a bound morpheme, at the same time. At the advanced level, the evidence found in VanPatten (1990) suggests that L2 learners may or may not have difficulty directing conscious focus of attention on meaning and on non-content grammatical form depending on which non-content grammatical form is being focused on.

Lee (1998) examined a similar question by investigating the relationship of verb morphology to second language reading comprehension and input processing. Lee's (1998) research question states: "Are comprehension and input processing affected by the morphological characteristics of the input?" Subjects for the study were enrolled in a second semester Spanish course at a Midwestern university in the United States. The subjects consisted of 71 individuals in four different classes. Three versions of a passage were used in the experiment. In passage (A), nine targeted verbs appeared in their original subjunctive form. In version (B), the nine targeted verbs were substituted with their infinitive forms so that they would maintain their semantic value but no longer be morphologically encoded. In version (C), the nine targeted verbs were substituted with invented morphological endings. The verbs still maintained semantic value because the stems still carried lexical meaning. The subjects were given three packets of material to read and were instructed to read for 20 minutes without reviewing what they had read. The students were then asked to do a written recall that was scored with an idea unit analysis (Lee, 1998, pp. 37-42).

What Lee (1998) found was that linguistically and contextually appropriate verb forms yield significantly lower comprehension than infinitival and substituted verb forms with invented morphological endings. This may have occurred because the subjunctive verb forms were more varied and linguistically richer than the infinitival and the substituted verb forms (Lee, 1998, pp. 41-42). Lee (1998) posited that noticing and detecting the subjunctive verb form occupied a large amount of attentional resources, and because of this, the subjects were not able to focus on the text's meaning even though the subjects were not directed to focus conscious attention on the subjunctive morphology.

This seems to support VanPatten (1990), demonstrating that the detection of a grammatical item, in this case a bound morpheme, may cause comprehension to be negatively affected. Lee (1998) and VanPatten (1990) demonstrate that detection of a given form does not mean that it will be comprehended and that detected information causes interference with comprehension of aural or written input (Lee, 1998, p. 42).

Bouden, Greenslade, & Sanz (1999) tested the results of VanPatten (1990) by investigating the affects of conscious focus of attention on a grammatical item or a lexical item in the comprehension of L2 reading texts. Bouden, Greenslade, & Sanz (1999) hypothesized that, at the early stages of L2 acquisition, processing for meaning and processing for form compete for the L2 learner's limited attentional capacity and that when L2 learners are instructed to focus attention on a lexical content item in the text, their comprehension will not be negatively affected. Bouden, Greenslade, & Sanz (1999) was a conceptual replication of the VanPatten (1990) because while using the same experimental text and task groups as used in VanPatten (1990), Bouden, Greenslade, & Sanz (1999) used written instead of aural as the primary form of input. Bouden, Greenslade, & Sanz (1999) also only tested intermediate L2 learners of Spanish while VanPatten (1990) tested beginning, intermediate, and advanced. The subjects were assigned to one of four groups: (1) read the passage for content only (Task I), (2) read the passage for content and circle any and all occurrences of the definite article la (Task III); (4) read the passage and circle any and all occurrences of the verbal inflection -n (Task IV).

After reading the passage, the subjects carried out a free writing recall in their native language, from which an idea analysis was used to obtain the subjects mean recall scores, which represented the idea units that the subjects' were able to recall from the experimental text. Mean Recall Scores from Bouden, Greenslade, & Sanz (1999) are displayed in Table 2.

Table 2. Bouden, Greenslade, and Sanz (1990)Mean Recall Scores by task and level

	Task I	Task II	Task III	Task IV
Intermediate	22.50	18.00	12.79	13.73

Note. From "Attending To From And Content In Processing L2 Reading Texts," By Bouden, L., Greenslade, T.A., & Sanz, C. 1999, *Spanish Applied Linguistics, A Forum For Theory and Research*, 3, 65-89. Copyright 1999 by SAL.

At the intermediate level, the mean recall scores demonstrated higher recall scores for Task I as well as Task II and demonstrated lower recall scores for Task III and Task IV. This was similar to what the mean recall scores of VanPatten (1990) demonstrated. As in VanPatten (1990), the mean recall scores were submitted to statistical analyses (ANOVA and Tukey's HSD). A significant difference was found between Task I and Task III as well as between Task I and Task IV. A significant difference was also found between Task II and Task III as well as Task II and Task IV. No significant difference was found between Task I and Task II or between Task III and Task IV. These results reflected the results of VanPatten (1990) at the intermediate level.

The results of the study seem to confirm their hypotheses (Bouden, Greenslade, & Sanz, 1999, pp. 76-77). At the early stages of L2 acquisition, processing for meaning and processing for form compete for the learner's limited attentional capacity. As in the VanPatten (1990) study, when meaning and form compete for attentional resources, comprehension is hindered because of attentional constraints in the detection of input. However, in the early stages of L2 acquisition, conscious focus of attention on a content lexical item in the text does not produce the same detrimental effects on comprehension as conscious focus of attention on a non-content grammatical item, even though attentional resources may be diverted.

The results of VanPatten (1990), Lee (1998), and Bouden, Greenslade, & Sanz (1999) are important because they demonstrate that during the early stages of L2 acquisition, conscious or subconscious focus of attention on form can detrimentally affect L2 aural and text comprehension. However, VanPatten (1990) found conflicting results at the advanced L2 level, Lee (1998) only tested lower level L2 learners, and Bouden, Greenslade, & Sanz (1999) only tested the intermediate L2 level.

1.4 Hypothesis

1.4.1 Hypotheses

Based on the literature review and the above mentioned studies, the following

hypotheses have been formulated to better understand conscious focus of attention on form

and content at the intermediate and advanced levels. Hypothesis I is essentially the same as

that of VanPatten (1990) and Bounden, Greenslade, & Sanz (1999). Hypothesis II is an

adaptation of the hypotheses from VanPatten (1990) and Bounden, Greenslade, & Sanz

(1999) that have been adjusted for the purposes of this thesis.

-Hypothesis Ia. A L2 reading task requiring conscious focus of attention on a lexical content item will not adversely affect L2 reading comprehension when compared to the same L2 reading task that does not require conscious focus of attention on a lexical content.

-Hypothesis Ib. A L2 reading task requiring conscious focus of attention on a grammatical item will adversely affect L2 reading comprehension as compared to a L2 reading task that does not require conscious focus of attention on a grammatical item.

-Hypothesis IIa. While advanced L2 learners of English will demonstrate higher reading comprehension scores than intermediate L2 learners of English, consciously focusing attention on a lexical content item will not adversely affect intermediate and advanced level L2 reading comprehension.

Hypothesis IIb. Consciously focusing attention on a grammatical item will adversely affect both intermediate and advanced level reading comprehension.

1.5 Methodological Precedents

The purpose of this section is to lay out the theoretical foundation for the

methodology used in this thesis.

1.5.1 Methodological Precedents

The relevance of Carrell (1985) to the methodology of this thesis was the use of an

idea unit analysis to test whether instruction which focuses on text structure improves

comprehension for readers with poor comprehension. To test this, Carrell (1985) conducted a study with a heterogeneous group of 25 high-intermediate proficiency ESL students, Level 4, enrolled in the intensive English program for foreign students at the Center for English as a Second Language. The subjects that participated in the study where asked to read a number of naturally occurring texts that were selected from a variety of sources. Schemata effects were controlled for by having the subjects read about relatively unknown issues (Carrel, 1985, pp 734-735). The test consisted of reading each text, writing an immediate free recall, and identifying the text's overall organization by answering an openended question. Then the text recall was scored by counting the quantity of idea units recalled. The idea units consisted of a single clause, which was main or subordinate and included adverbial or relative clauses. Also, each infinitival construction, gerundive, nominalized verb phrase, conjunct, and optional and/or heavy prepositional phrases was identified as a separate idea unit. (Carrell, 1985, pp. 737, 738, & 741).

VanPatten (1990) used the Carrell (1985) idea unit analysis to analyze his study's results. VanPatten (1990) was carried out by asking L2 Spanish learners at the beginning level, the intermediate level, and the advanced level to listen to a short passage on inflation in their second language. There were 202 subjects in total and an average of 17 subjects per task. The subjects were assigned to one of four groups: (1) listen to the passage only; (2) listen to the passage and note any and all occurrences of the content word *inflación*; (3) listen to the passage and note any and all occurrences of the definite article *la*; (4) listen to the passage and not any and all occurrences of the verbal inflection -n. Having the subjects attend to a specific lexical item or grammatical item was operationalized by having the subjects make a check mark, a slash, or any other mark on a blank sheet of paper each time they heard the target item. The passage was constructed so that the content word, the

definite article, and the verbal inflection were evenly distributed throughout the passage. After reading the text, the subjects completed a free writing recall of the text which was analyzed using Carrell's (1985) idea unit analysis (VanPatten, 1990, pp. 291-294).

As mentioned, the Bouden, Greenslade, & Sanz (1999) study is a conceptual replication of VanPatten (1990) using written input instead of aural. The same instruments and procedures were used, and noting the grammatical items as well as the lexical items was operationalized by underlining, circling, or putting a check mark next to the target item (Bouden, Greenslade, & Sanz, 1999 pp. 72-73). The participants in the Bouden, Greenslade, & Sanz (1999) study were third-semester, college level Spanish students in four sections with three different instructors at Georgetown University. The subjects were selected from intact classes at random; a total of 53 subjects participated. A background questionnaire was used to eliminate subjects with learning disabilities. Four researchers administered the experiment using a standardized data elicitation protocol in order to insure that the experimental procedures were followed. After filling out the background questionnaire, the subjects were asked to read a warm-up paragraph at the same level of grammatical and lexical complexity as the experimental passage in order to prime the subjects to read the experimental text. The subjects were then given the experimental text to read and asked to note a specific lexical item or grammatical item. This consisted of the same four tasks as the VanPatten (1990) study. The subjects were given 2 minutes and 30 seconds to read the experimental passage in order to avoid backtracking of the text. This was done to insure that the passage would be read in a linear fashion in order to compensate for the linear nature of aural input as a continuous speech stream (Reading a text is not considered to be a linear activity) (Bouden, Greenslade, & Sanz, 1999 pp. 70-73). The administrators of the experiment gave subjects the relevant schematic information before

the experimental text was administered to insure that a lack of this information would not interfere with their reading comprehension. This was done by telling the subjects about the basic content contained in the text (Eisterhold and Carrell, 1983, pp. 553-556). The passage was the same used in VanPatten's (1990) study about inflation in Latin America (Bouden, Greenslade, & Sanz, 1999 p. 73).

After completing the experimental task, the subjects were asked to do a free writing recall, which was analyzed using Carrell's (1985) idea unit analysis. The test passage contained 53 semantic and syntactic idea units. Each participant's score was computed according to the raw number of idea units contained in the written recall. After data from all tasks groups were scored, the mean recall scores for each task group were calculated. The raw scores were submitted to two separate one-way analyses of variance (ANOVA), one on Text Scores and another on Recall scores with Task (*control, inflación, -n*, and *la*) as the independent variable. The Alpha was set at .05 level. The ANOVA on Text scores or the number of marked words was to used determine if there were significant differences between the groups on the number of target items noticed in the text. The ANOVA on Recall scores was used to determine if there were significant differences between groups with respect to the number of idea units recalled from the passage. Scores were then compared post hoc wherever significant factors were identified by means of a Tukey's Test for the Honest Significant difference with the Alpha set at the .05 level (Bouden, Greenslade, & Sanz, 1999 pp. 73-74).

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 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).

	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 $t\dot{u}$ in order avoid misinterpretations of the instructions that can occur while reading instructions containing the verb form *usted*. The verb form $t\dot{u}$ is used in Spanish informal speech and the verb from *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

Chapter 3

Results and Analysis

3.1 Scoring and Analysis

3.1.1 Recall Scores

After the experimental stage was completed, the recall protocols were scored according to the number of idea units recalled (Carrell, 1985; Lee, 1986; VanPatten, 1990; & Bouden, Greenslade, & Sanz, 1999). The experimental text contained 47 semantic and syntactic idea units. Each subject's score was computed according to the raw number of idea units contained in the written recall (see Appendix F). A drawback of the original VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) studies was that recall protocols were scored based on the researcher's subjective opinion that an idea unit found in the free writing recall was similar to one found in the experimental text, with no other way to verify that it was actually the same idea unit. In order to remedy this problem, a point system was developed to more rigorously score each individual idea unit. The selection of an individual idea unit within the free writing recall was based on the following criteria:

a). The similarity of the idea unit written in the free writing recall to that of one of the 47 idea units found in the experimental text (VanPatten, 1990; & Bouden, Greenslade, & Sanz, 1999).

b). The number of semantic heads, which are content words found within an idea unit that the idea unit's meaning is built around, and syntactic heads, which are syntactic categories found in an idea unit that the idea unit's phrase structure is built around, contained within a particular idea unit.

Example 1.

36) (countries) that opened their markets to global commerce

a) que abrieron algo. (Similar to Idea Unit 36, 33.3% of syntactic or semantic heads identified, 0 points)

b) que abrieron sus mercados. (Similar to Idea Unit 36, 66.6% of syntactic or semantic heads identified, 1 point)

c) que abrieron sus mercados al comercio. (Similar to Idea Unit 36, 100% of syntactic and semantic heads identified, 2 points)

After an idea unit had been identified, the number of semantic and syntactic heads found in the idea unit was counted. If the idea unit from the free writing recall contained less than fifty percent of the syntactic and semantic heads found in that of the idea unit from the experimental text such as in Example 1a, the subject received no points for that particular idea unit. If the idea unit from the free writing recall contained more than fifty percent but less than one hundred percent of the syntactic and semantic heads found in that of the idea unit from the experimental text such as in Example 1b, the subject received one point for that particular idea unit. If the idea unit from the free writing recall contained one hundred percent of the syntactic and semantic heads found in that of the idea unit from the experimental text such as in Example 1c, the subject received two points for that particular idea unit.

After the data from the eight task groups were scored, the number of recall units was determined, and the mean recall scores for each task group were calculated. This procedure is consistent with VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) studies.

3.1.2 Text Scores

As in VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) mean text scores for each group were determined by calculating the average of the number of target items marked per task group. The target items were the content lexical item *commerce*, the grammatical item -ing, the non-content lexical item *the* marked by the subjects while reading the experimental text for content.

3.2 Results

3.2.1 Recall Scores

Intermediate level mean idea unitrecall scores are displayed in Table 4, and Advanced level mean recall scores are displayed in Table 5.

Task Group	n	Idea Unit	Std. Dev.
I-NoMarking	13	8.077	4.786
I-Content	14	6.643	4.568
I-BoundMorph	13	4.923	3.947
I-NonContent	12	6.250	3.864

Table 4. Intermediate Level Mean Recall Scores

 Table 5.
 Advanced Level Mean Recall Scores

Task Group	n	Idea Unit	Std. Dev.
A-NoMarking	12	13.917	6.708
A-Content	12	14.667	7.011
A-BoundMorph	12	10.500	5.018
A-NonContent	13	11.154	4.652

At the intermediate level, I-NoMarking received the highest recall score, I-Content received the second highest recall score, I-NonContent received the third highest recall score, and I-BoundMorph received the fourth highest recall score. At the advanced level A-Content received the highest recall score, A-NoMarking received the second highest recall score, A-NonContent received the third highest recall score, and A-BoundMorph received the fourth highest recall score.

For statistical analysis of intermediate recall scores , this study adopted an alpha level of p<0.05. At the intermediate level, the results of an ANOVA revealed no significant differences between tasks for the intermediate level recall scores (F(3,48)=1.171, p<0.0001). This suggests that the variation between tasks was not greater than expected by chance. The results of a post-hoc Tukey's .HSD revealed no significant differences between tasks at the intermediate level (p<0.05).

For statistical analysis of advanced recall scores , this study adopted an alpha level of p<0.05. At the advanced level, the results of an ANOVA revealed no significant differences between tasks for the advanced level recall scores (F(3,45)=1.449, p<0.0001). This suggests that the variation between tasks was not greater than expected by chance. The results of a post-hoc Tukey's .HSD revealed no significant differences between tasks at the advanced level (p<0.05).

3.2.2 Text Scores

Intermediate level text item-detection scores are displayed in Table 6.

Task Group	n	Item	Std. Dev.
I-Content	14	7.357	3.478
I-BoundMorph	13	8.923	2.813
I-NonContent	12	5.333	2.498*

Table 6. Intermediate Level Text Item-Detection Scores

I-BoundMorph yielded the highest text score, I-Content yielded the second highest text score, and I-NonContent yielded the lowest text score.

For a statistical analysis of intermediate text scores, this study adopted an alpha level of p<0.05. The results of an ANOVA reveal significant differences between tasks for intermediate level text scores (F(2,36)=4.524, p>0.0001). The results of a post-hoc Tukey's .HSD revealed a significant difference between the I-BoundMorph and I-NonContent text scores (p>.05) However, a comparison between I-Content and I-BoundMorph and between I-Content and I-NonContent yielded no other significant differences (p<0.05).

A-Content	12	9.917	0.2887	
A-BoundMorph	12	9.917	3.029	
A-NonContent	13	8.231	1.964	

Advanced level text scores are displayed in Table 7. The advanced level text scores demonstrated a similar pattern to that of the mean intermediate text scores. A-BoundMorph yielded the highest text score, A-Content yielded the second highest text score, and A-NonContent yielded the lowest text score.

For a statistical analysis of advanced text scores, this study adopted an alpha level of p<0.05. Unlike the intermediate text scores, the results of an ANOVA revealed no significant differences between advanced level text scores (F(2,34)=2.750, p<0.0001). This suggests that the variation between means for the text scores greater than expected by

chance. The results of a post-hoc Tukey's .HSD revealed no significant differences between tasks for the text scores at the advanced level (p<0.05).

3.3 Scoring and Analysis: Adjusted Recall Scores

3.3.1 Rational for Adjusted Recall Scores

A further drawback of the original VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) studies was that the analyses and the results of these studies were based principally on the recall scores and not on the text scores. Although both studies submitted their text scores to an ANOVA and a Tukey's Test for Honest Significant Difference, they did not address how a lower or higher text score of a particular task group might affect that task group's mean recall scores.

For example, in this study, I-BoundMorph had a lower recall score than I-NonContent. However, I-BoundMorph had a significantly higher text score than I-NonContent. According to the recall scores it appears as though I-NonContent performed better than I-BoundMorph in regards to the number of idea units recalled from the experimental text. But, did I-NonContent acquire higher recall scores because that group marked less target items than I-BoundMorph, or did I-NonContent acquire higher recall scores than I-BoundMorph because the target item that was marked while reading the experimental passage for content caused less of a strain on attentional resources in working memory? To resolve this issue, the recall scores and the text scores must be combined in order to better compare the mean recall scores. So to reliably compare the recall scores between the experimental task groups, the text scores must be balanced and the recall scores must be adjusted according to the differences found between the mean text scores of each task group. This must be done to account for the differences between the text scores in each experimental group.

3.3.2 Adjusted Recall Scores

The formula for the adjusted recall scores was developed while working with a statistician. Adjusted recall scores were calculated by multiplying the recall score of a particular task group by the text score of that same task group and then dividing that number by the highest average text score at a given level (see Example 2 for details). The recall scores I-NoMarking and A-NonContent were not adjusted because they did not receive the treatment, but were included in the adjusted recall scores in order to make comparisons between the control group and the experimental groups that received the treatment.

Example 2. Formula for Adjusted Recall Scores

Recall Score X Text Score/Highest Average Text Score=Adjusted Recall Score

3.4 Results of Adjusted Recall Scores

3.4.1 Adjusted Recall Scores

Intermediate level mean adjusted recall scores are displayed in Table 8 and Table 4 has been repeated in order to facilitate a comparison between intermediate level mean recall scores and intermediate level adjusted recall scores.

Task Group	n	Idea Unit	Std. Dev.
I-NoMarking	13	8.077	4.786
I-Content	14	6.643	4.568
I-BoundMorph	13	4.923	3.947
I-NonContent	12	6.250	3.864

Table 4. Intermediate Level Mean Recall Scores

 Table 8. Intermediate Level Adjusted Recall Scores

Task Group	n	Idea Unit	Std. Dev.
I-NoMarking	13	8.077	4.786
I-Content	14	5.483	3.770
I-BoundMorph	13	4.923	3.947
I-NonContent	12	3.763	2.328*

I-NoMarking received the highest adjusted recall score, I-Content received the second highest adjusted recall score, I-BoundMorph received the third highest adjusted recall score and I-NonContent received the lowest adjusted recall score. The intermediate adjusted recall scores appear to demonstrate a similar pattern to that of the intermediate mean recall scores. I-NoMarking and I-Content yielded the highest recall scores for both the recall scores and the adjusted recall scores. Additionally, I-BoundMorph and I-NonContent yielded the lowest recall scores. However, in the adjusted recall scores I-BoundMorph yielded the third highest adjusted recall score and I-NonContent yielded the lowest adjusted recall score. In the recall score, I-NonContent yielded the lowest adjusted recall score. In the recall score, I-NonContent yielded the third highest and I-BoundMorph yielded the lowest at the intermediate score.

For a statistical analysis of intermediate adjusted recall scores, this study adopted an alpha level of p<0.05. The results of an ANOVA revealed significant differences between

tasks for intermediate level adjusted recall scores (F(3,48)=2.864, p>0.0001). The results of a post-hoc Tukey's HSD revealed a significant difference between the I-NoMarking and I-NonContent text scores (p>.05) However, there were no significant differences found between any other task groups for the intermediate adjusted recall scores (p<0.05).

A-NoMarking 12 13 917 6 708	Task Group	n	Idea Unit	Std. Dev.
	A-NoMarking	12	13.917	6.708
	A-BoundMorph	12	10.500	5.018
A-BoundMorph 12 10.500 5.018	A-NonContent	13	11.154	4.652

 Table 5.
 Advanced Level Mean Recall Scores

 Table 9.
 Advanced Level Adjusted Recall Scores

Task Group	n	Idea Unit	Std. Dev.
A-NoMarking	12	13.917	6.708
A-Content	12	14.667	7.011
A-BoundMorph	12	10.500	5.018
A-NonContent	13	9.255	3.857

Advanced level adjusted recall score are displayed in Table 9 and Table 5 has been repeated in order to facilitate a comparison between advanced level mean recall scores and advanced level adjusted recall scores. A-NoMarking received the highest adjusted recall score, A-Content received the second highest adjusted recall score, A-BoundMorph received the third highest adjusted recall score and A-NonContent received the lowest adjusted recall score. The advanced adjusted recall scores appear to demonstrate a similar pattern to that of the advanced mean recall scores. A-NoMarking and A-Content yielded the highest recall scores for both the recall scores and the adjusted recall scores. Additionally, A-BoundMorph and A-NonContent yielded the lowest recall and adjusted recall scores. However, in the adjusted recall scores, A-BoundMorph yielded the third highest adjusted recall score and A-NonContent yielded the lowest adjusted recall score. In the recall scores, A-NonContent yielded the third highest and A-BoundMorph yielded the lowest at the intermediate level. These patterns in the adjusted recall scores appear to hold for both proficiency levels.

For statistical analysis of advanced adjusted recall scores , this study adopted an alpha level of p<0.05. At the advanced level, the results of an ANOVA reveal no significant differences between tasks for the advanced level adjusted recall scores (F(3,45)=2.559, p<0.0001). This suggests that the variation between tasks was not greater than expected by chance. The results of a post-hoc Tukey's .HSD revealed no significant differences between tasks for adjusted recall scores at the advanced level (p<0.05).

Chapter 4

Discussion and Conclusions

4.1 Interpretation and Analysis

4.1.1 Interpretation of Recall Scores and Adjusted Recalls Scores

Upon preliminary review of the mean recall scores, differences between the control group and the individual task groups at the intermediate and advanced L2 English levels were found. Consistent with VanPatten (1990) and Bouden, Greenslade, & Sanz (1999), the task groups that yielded the highest mean recall scores were A-NoMarking, A-Content, I-NoMarking, and I-Content; however, unlike VanPatten (1990) at the advanced level, A-Content yielded a higher mean recall score than A-NoMarking. Also, consistent with the above mentioned studies, A-BoundMorph, I-BoundMorph, A-NonContent, and I-NonContent generated the lowest mean recall scores.

The pattern demonstrated by the mean recall scores appeared to support the idea that attending to incoming L2 information occupies a large amount of attentional resources (VanPatten, 1996, p. 16). More importantly, the pattern demonstrated by the mean recall scores seemed to lend support to the idea that conscious focus of attention on L2 lexical content items will occupy less attentional resources and conscious focus of attention non-content lexical items as well as bound morphemes will occupy more attentional resources during detection. This is demonstrated by the higher mean recall scores for A-Content as well as I-Content and the lower mean recall scores for A-BoundMorph, I-BoundMorph, A-NonContent, and I-NonContent and is consistent with VanPatten's (1996) principles of second language processing: L2 Learners process input for meaning before they process it for form, L2 Learners process content words in the input before anything else, L2 Learners

prefer processing lexical items to grammatical items for semantic information, and L2 learners must be able to process informational or communicative content at no or little cost to attentional resources.

The adjusted mean recall scores also demonstrated a similar pattern to that of the mean recall scores: A-NoMarking, I-NoMarking, A-Content, and I-Content yielded the highest adjusted mean recall scores and A-BoundMorph, I-BoundMorph, NonContent, and I-NonContent yielded the lowest adjust mean recall scores. However one difference occurred in the adjusted mean recall scores when compared to the mean recall score. In the adjusted mean recall scores, I-BoundMorph and A-BoundMorph yielded higher adjusted scores than I-NonContent and A-NonContent. The opposite occurred in the mean recall scores. The pattern demonstrated by the adjusted mean recall scores also appeared to support the above mentioned idea that attending to incoming L2 information occupies a large amount of attentional resources. The importance of the pattern found in the mean recall scores and the adjusted mean recall score is that they both yield a definite pattern that is consistent with Hypothesis I as well as Hypothesis II and that is consistent with the findings of VanPatten (1990) and Bounden, Greenslade, & Sanz (1999).

However, while mean recall scores and adjusted mean recall scores appeared to show a pattern in the data, a statistical difference was not. Both mean recall scores and adjusted mean recall scores represent only a portion of the data gathered and must be compared with other data gathered in the experiment.

4.1.2 Interpretation of Statistical Analysis of Recall Scores

The statistical analysis here revealed, as did the statistical analyses of VanPatten (1990) and Bouden, Greenslade, & Sanz (1999), that there were no statistical differences

found between I-NoMarking and I-Content, nor was there a statistical difference between I-BoundMorph and I-NonContent. Unlike in VanPatten (1990) and Bouden, Greenslade, & Sanz (1999), there was no evidence of a significant difference between I-NoMarking/I-Content and I-BoundMorph/I-NonContent. In short, these results do not offer evidence that there will be a significant drop in comprehension when intermediate L2 learners are directed to read for content while marking a specific lexical or grammatical item.

There were no statistical differences found between the advanced L2 level task groups. Overall, this suggests, as VanPatten (1990) had hypothesized, that the more advanced L2 learners should be more able to direct attention to form since they are better equipped to attend to content. Conversely, this differs from the results of VanPatten (1990) at the advanced level, in which there was a significant difference found between the task group that listened for content while marking the bound morpheme -n and the control group, the lexical content item task group, and the non-content lexical item task group in VanPatten (1990).

VanPatten (1990) offered two reasons for the significant difference between the bound morpheme task group and the non-content lexical item task group, a difference that had not occurred at the beginning and intermediate levels in his study. The first was that the communicative value of definite articles is greater than that of a bound morpheme because a definite article is closer to being word-like than is a bound morpheme. The second is that for early stage learners, listening to Spanish is nothing but a stream of syllables, but for advanced learners, word boundaries become more salient. Thus free morphemes are more recognizable whereas bound morphemes may still be missed since they are not as acoustically salient. In turn, additional resources are occupied in attempting to recognize a bound morpheme. The evidence from this study's advanced level text scores supports VanPatten's (1990) second explanation by demonstrating that when the input received is written, aural and acoustical salience no longer plays a role in recognition of specific grammatical items and bound morphemes are not necessarily less recognizable than free morphemes.

4.1.3 Interpretation of Text Scores

Table 6 and Table 7 from Chapter 3 have been repeated in this section to facilitate a comparison of the text scores.

Table 6. Intermediate Level Text Item-Detection Scores

Task Group	n	Item	Std. Dev.	
I-Content	14	7.357	3.478	
I-BoundMorph	13	8.923	2.813	
I-NonContent	12	5.333	2.498*	

Table 7. Advanced Level Text Item-Detection Scores

Task Group	n	Item	Std. Dev.	
A-Content	12	9.917	0.288	
A-BoundMorph	12	9.917	3.029	
A-NonContent	13	8.231	1.964	

Upon preliminary review of the mean text scores, Task I-Content and I-BoundMorph marked a similar number of target items, while at the advanced level, A-Content and A-BoundMorph marked the same number of target items. Although no discernible pattern could be established between I-Content and I-BoundMorph or between A-Content and A-BoundMorph, this was not the case in regards to I-NonContent and A- NonContent. The subjects that participated in the task groups I-NonContent and A-NonContent marked the fewest number of target items of the three experimental task groups. The statistical analysis revealed no significant difference between mean text scores at the advanced level but there was a significant difference between I-BoundMorph and I-NonContent.

This seems to support the initial evidence presented in the mean text scores that I-NonContent subjects appeared to have difficulty consciously focusing attention on the noncontent lexical item *the* and reading for content at the same time. VanPatten (1996) posits that learners process input for meaning before they process it for form, and when a L2 learner's conscious attention is drawn to a grammatical form that has little or no semantic meaning, processing for meaning will suffer because the L2 learner has only limited attentional resources in the L2. It appeared that when I-NonContent was directed to read for content while marking the non-content lexical item *the*, the opposite occurred. The evidence suggests that reading for content may have interfered with the conscious recognition of form.

The question is why did this occur? It is possible that during the experiment, the L2 learners chose to ignore the researcher's instructions and read mostly for content regardless of the researcher's instructions to consciously focus on a specific grammatical item. This seems highly unlikely because it would have lead to lower text scores in all intermediate level task groups. Another possible explanation is that the non-content lexical item *the* was not salient and was difficult to identify. This is unlikely because unlike VanPatten (1990), this study was carried out with written input. The most likely explanation was that, in this case, the communicative value of the bound morpheme -ing was greater than the communicative value of the non-content lexical item *the* at the intermediate level.

This contradicts VanPatten's (1990) explanation of the differences found between his advanced level bound morpheme group -n and his non-content lexical item group la. The evidence from the current study suggests that just because the definite article *the* stands alone and can be translated to *el/la* in Spanish, this does not mean that its communicative value is greater than that of -ing. However, VanPatten (1990) used a bound morpheme that does not have a direct translation into English. The -ing in English can be translated to *iendo/ando* in Spanish, thus, allowing the intermediate level subjects of this study to recognize its communicative value.

Another factor that may have influenced this was that the bound morpheme *-ing* was also bound to a number of content words in the passage. This may have increased its communicative value, however, this does not explain the lower recall scores of I-BoundMorph. Another explanation is that *-ing* occurred 13 times in the passage and *the* only occurred 11 times. This may have given I-BoundMorph an opportunity to obtain higher text scores than I-NonContent. While this may have been a contributing factor, the content lexical item *commerce* occurred only 10 times, and there was no significant difference found between I-Content and I-NonContent. Also, the significant differences came from the average proportion of target items marked per task group and not the raw number of target items marked. This negates any significant difference occurring between text scores because of one target item occurring more than another. A final explanation is that the non-content item *the* was not recognized because it was part of an automatised process in working memory. Thus, it was more difficult for the subjects in I-NonContent to recognize and mark it because they were so accustomed to processing it in working memory, thus, processing it became so automatic that they failed to recognize it (Field, 2003, p. 113). However, it may not have been any one factor that caused the significant

difference found between I-BoundMorph and I-NonContent, but a combination of the above mentioned factors.

4.1.4 Interpretation of Statistical Analysis of Adjusted Recall Scores

As stated in Chapter 3, the adjusted mean recall scores are the mean recall scores adjusted for the differences found between the mean recall scores and the mean text scores. The adjusted recall scores did appear to correct for the differences found between the mean text scores of the three experimental task groups. This was demonstrated by the change in numerical position of the mean recall scores that occurred between I-BoundMorph and I-NonContent.

The statistical analysis of the intermediate level adjusted recall scores revealed a significant difference between I-Content and I-NonContent. This appeared to support, at least in part, the notion that when beginning L2 learners are consciously directed to focus on a non-content lexical item while reading for content, comprehension will become more difficult. In part, this result also appears to be consistent with the findings of VanPatten (1990) in regards to the recall scores of a non-content lexical item at the intermediate levels. Lastly, the statistical analysis of the adjusted mean recall scores yielded no other significant differences at the intermediate or the advanced levels. An examination of how the above mentioned information relates Hypotheses I and II will be addressed in the next section.

4.2 Discussion of Hypotheses

4.2.1 Discussion of Hypotheses Ia and IIb

The principal purpose of this study was to ascertain the affects that directing a L2 English learner to consciously focus attention on a particular lexical or grammatical item would have on his or her reading comprehension due to the limited attentional resources possessed by the L2 learner.

-Hypothesis Ia. A L2 reading task requiring conscious focus of attention on a lexical content item will not adversely affect L2 reading comprehension when compared to the same L2 reading task that does not require conscious focus of attention on a lexical content.

-Hypothesis IIa. While advanced L2 learners of English will demonstrate higher reading comprehension scores than intermediate L2 learners of English, consciously focusing attention on a lexical content item will not adversely affect intermediate and advanced level L2 reading comprehension.

Evidence supporting Hypotheses Ia and Hypothesis IIa would demonstrate that I-Content and A-Content were able to consciously focus on a lexical content item while attending to the experimental text's content without significantly affecting comprehension when compared to I-BoundMorph, I-NonContent, A-BoundMorph, and A-NonContent. Any significantly adverse affects to L2 comprehension for I-Content as well as A-Content when compared to I-BoundMorph, I-NonContent, A-BoundMorph, and A-NonContent will not support Hypothesis Ia and Hypothesis IIa. Evidence that appears to support these hypotheses can be found in the mean recall scores and the adjusted mean recall scores. Upon reviewing the mean recall scores, I-Content received the highest recall scores of the three experimental task groups at the intermediate level and A-Content yielded highest recall scores of all task groups at the advanced level. At the intermediate level, focusing on a lexical content item did not appear to strain attention resources, and the subjects apparently were able to focus on a lexical content at the advanced level obtained the highest recall scores of the two experimental task groups and the control group. This seems to support Hypothesis Ia and Hypothesis IIa and indicates that intermediate and advanced level L2 learners were able to consciously focus attention on a lexical content item while reading for content, without adversely affecting comprehension.

The statistical analysis of the mean recall scores and the adjusted mean recall scores yielded similar results at the intermediate and the advanced levels. There were no significant differences found between I-Content any other of the three task groups at the intermediate level or between A-Content and any other of the three task groups at the advanced levels. This seems to support the initial conclusions made about Hypothesis Ia and Hypothesis IIa based on the mean recall scores and the adjusted mean recall scores; that is, comprehension will not be adversely affected by consciously focusing on a lexical content item.

However, I-Content did not yield a significantly higher recall score than I-BoundMorph or I-NonContent, and A-Content did not yield a significantly higher recall score than A-BoundMorph or A-NonContent. This does not appear to support Hypothesis Ia and Hypothesis IIa because it does not demonstrate that consciously focusing on a content lexical item while reading for comprehension was be easier than consciously attention focusing on a bound morpheme or a non-content lexical item.

As demonstrated by a statistical analysis of the data gathered, consciously focusing on a lexical content item did not adversely affect comprehension. This indicates that the intermediate and advanced level L2 learners may have read for content while consciously or subconsciously focusing on content words in the text without an adverse affect to comprehension. This is consistent with the findings of VanPatten (1990) using aural input in Spanish as the primary medium with beginning, intermediate, and advanced L2 Spanish learners and Bouden, Greenslade, & Sanz (1999) using written input in Spanish as the primary medium with intermediate level L2 Spanish learners. This also partially lends support to VanPatten's two principles of second language input processing.

However, while the mean recall scores and the adjusted mean recall scores demonstrated a pattern that appeared to be consistent with Hypothesis Ia and Hypothesis IIa, there were no significant differences found either in the mean recall scores or in the adjusted mean recall scores when individual groups are compared at the intermediate and advanced levels. This indicates that there is little difference between focusing on a lexical content item, on non-content lexical item, and on a bound morpheme at the intermediate and advanced levels. This does not support Hypothesis Ia and Hypothesis IIa.

4.2.2 Discussion of Hypotheses Ib and IIb

Evidence supporting Hypothesis Ib and Hypothesis IIb would demonstrate that intermediate and advanced L2 English learners were not able to consciously focus on a non-lexical item or a bound morpheme while attending to the experimental text's content. Significant effects on comprehension for the intermediate and advanced levels are measured by any significant differences that demonstrate an adverse affect to L2 comprehension in I-BoundMorph and I-NonContent as compared to I-NoMarking or I-Content and between A-BoundMorph and A-NonContent as compared to A-NoMarking and A-Content.

-Hypothesis Ib. A L2 reading task requiring conscious focus of attention on a grammatical item will adversely affect L2 reading comprehension as compared to a L2 reading task that does not require conscious focus of attention on a grammatical item.

-Hypothesis IIb. Consciously focusing attention a grammatical item will adversely affect both intermediate and advanced level reading comprehension.

Evidence from this study appears to be mixed in regards for its support for Hypothesis Ib and Hypothesis IIb. Upon initial review of the mean recall scores, I-BoundMorph and I-NonContent received lower mean recall scores than I-NoMarking and I-Content at the intermediate levels. Also, A-BoundMorph and A-NonContent received lower mean recall scores than A-NoMarking and A-Content at the advanced level. This was similar to the pattern demonstrated by the mean recall scores for VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) with their control group and content lexical item groups receiving higher recall scores than their bound morpheme groups and non-content lexical item groups and seemed to offer support for Hypothesis Ib and Hypothesis IIb.

The initial statistical analysis of recall scores, however, did not offer support for Hypothesis Ib and Hypothesis IIb. There were no significant differences between task groups at the intermediate or at the advanced levels. This was not consistent with VanPatten (1990) and with Bouden, Greenslade, & Sanz (1999) at the intermediate levels, where evidence from their studies showed a significant difference at the intermediate L2 levels between groups control/content lexical item and bound morpheme/non-content lexical item. At the advanced level, the results were partially consistent with VanPatten (1990) in which there was no significant adverse affect on comprehension when L2 learners read for content and marked a non-content lexical item. However, at the same level, VanPatten (1990) differed from the current study. VanPatten (1990), found that advanced level L2 learners experienced difficulty reading for content while marking a bound morpheme and found a significant difference between his bound morpheme task group when comparing it with all other task groups. While in the current study A-BoundMorph received the lowest mean recall score of the four task groups at the advanced level, this study differed from VanPatten (1990) in that no significant differences were found between A-BoundMorph and any other advanced level task group.

A statistical analysis of the adjusted mean recall scores offered mixed support for Hypothesis Ib and Hypothesis IIb at the intermediate level, but did not offer support at the advanced level. In the adjusted mean recall scores, a significant difference was found between I-NonContent and I-NoMarking, with I-NoMarking receiving the higher comprehension score. It appears that for I-NonContent, the subjects were not able to read for content and easily identify the non-content lexical item *the* at the same time. This offers limited support for Hypothesis Ib as well as IIb and is similar to what Van Patten (1990) and, Bounden Greenslade, & Sanz (1999) found at the intermediate levels. However, there were no other significant differences found between any other task groups at the intermediate level.

The advanced level adjusted recall scores offered no support for Hypothesis Ib or Hypothesis IIb. While the initial pattern from the mean recall scores was accentuated by adjusting recall scores, no significant difference was found between task groups at the advanced level.

It is difficult to ascertain definitively whether Hypothesis Ib and IIb were supported by the evidence collected in this study. On the one hand, the mean recall scores and the adjusted mean recall scores demonstrate a pattern that appears to be consistent with the results of VanPatten (1990) and Bouden, Greenslade, & Sanz (1999). It appears that I-NonContent had difficulty marking target items while reading for content. Conversely, there is very little evidence offered of significant differences found between the task groups at the intermediate and advanced the advanced levels. The only significant difference that can be found to support Hypothesis Ib and Hypothesis IIb resulted from adjusting the recall scores. Thus, it is difficult to say if there is enough empirical evidence offered from this study to support Hypothesis Ib and IIb. The next section will address whether the cumulative evidence gathered in the study is sufficient to assume that consciously focusing attention on certain types of form in the input will adversely affect comprehension.

4.3 Synthesis of Analysis

4.3.1 Consciously Focusing on Form and Meaning

The ability of a L2 learner to attend to form and meaning is an important aspect of learning a second language (VanPatten, 1996, p. 16). If input that is being processed by

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working memory during ongoing comprehension is not or cannot be attended to, it will be lost because unattended stimuli in working memory must be attended to for it to eventually be stored in long-term memory (Schmidt, 2002, p. 16). L2 input has a tendency to occupy a large amount of attentional resources especially at the early stages of SLA during detection. While in working memory, if new incoming L2 information is not attended to and detected, intake will not be derived from the input and the new L2 information will not be processed and stored in long-term memory (Tomlin and Villa, 1994, p. 192). The source which L2 learners essentially learn a second language is by what Krashen (1985) calls *comprehensible input* and by what VanPatten (1996) calls *intake*. While this study does not examine exactly how comprehensible input or intake is derived from input during the process of detection, it examines the limitations placed on working memory during online comprehension when attentional resources must be used to process for both form and meaning, thus, possibly not allowing intake to be derived from the input.

The results of this study offer evidence and counter evidence as to whether consciously focusing attention on form and consciously focusing attention on meaning exhaust the limited resources of working memory during the process of detection in the intermediate and advanced stages of SLA. VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) found that there was evidence that conscious attention to form in the input competes with conscious attention to meaning in beginning and intermediate stages of SLA. In this study, a pattern was found in the mean recall scores and the adjusted mean recall scores that suggests that this is the case with regard to L2 English learners. The text scores at the intermediate level also seem to support this but differ from VanPatten (1990) by highlighting that when form and meaning compete, at times it may be attention to form that is adversely affected and not attention to meaning (An explanation is offered for this later in this section).

However, a statistical analysis of the mean recall scores and adjusted mean recall scores offered very little evidence that consciously focusing on form while reading for meaning will cause significant adverse effects on comprehension. While a pattern was established in the above mentioned scores, very few significant differences were found to support the notion that at the intermediate and advanced stages of SLA consciously focusing on a lexical content item will have a different affect on comprehension than focusing on a non-content lexical item or a bound morpheme. This could suggest, as posited by VanPatten (1990), that while form and meaning do compete to a degree, early stage L2 learners are not incapable of focusing on form and meaning at the same time in the input.

An explanation offered for the significant difference found in the text scores between NonContent and I-BoundMorph is that consciously focusing on form is not something that is generally done in the real world, so the subjects tended to consciously focus on meaning (VanPatten, 1990, p. 1996). This suggests that when L2 learners are instructed to consciously focus attention on form while consciously focusing attention on meaning, the L2 learners may consciously or unconsciously ignore the instruction to focus on form because focusing on meaning may take precedence over focusing on certain types of form, given the limited attentional resources available to the L2 learner.

An alternative explanation is offered by DeKeyser, Harrington, Robinson, & Salaberry 2002). DeKeyser, Harrington, Robinson, & Salaberry (2002) claim that sometimes concurrently performed tasks lead to decrements in performance, and sometimes they do not. Breakdowns in dual-task performance occur when two tasks simultaneously

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draw on a number of resource pools. In the case of the current study, the subjects also divided their attention between two tasks: Reading for content and reading for the noncontent word *the*, and circling the non-content word *the*. Dual tasks require task switching to be coordinated, which also consumes attentional resources. The decrement in performance between the I-NonContent and I-BoundMorph text scores may have occurred because of a breakdown in dual tasks performance, competition between physically marking the non-content word *the* and reading for content while reading for the non-content word *the* at the same time, not because of the conscious focus of attention on meaning and form at the same time. However, this explanation still demonstrates that there is limited attentional capacity, but this limited attentional capacity is demonstrated by a dual resource, limited-capacity model of attention as opposed to VanPatten's (1990) a single resource limited capacity model of attention (DeKeyser, Harrington, Robinson, & Salaberry, 2002, pp. 808-809).

As mentioned above, in the real world, L2 learners are not required to consciously focus on form. In order to have a fuller understanding of how L2 input is processed in the real world, it is important to examine how this study may be applied to how subconsciously focusing on meaning and form at the same time may compete.

4.3.2 Subconsciously Focusing on Form and Meaning

Lee (1998) suggests that when lower level L2 learners subconsciously detect complicated morphology while reading, their comprehension will be adversely affected. While the current study did not focus on subconscious detection of morphological forms, the evidence found in Lee (1998) should be briefly addressed. The conclusion from Lee (1998) suggests that detected information is not always comprehended and that detected information may cause greater interference with comprehension of both aural and written input.

The results of Lee (1996) demonstrated that it was subjunctive morphology in Spanish that had caused interference with comprehension. Spanish subjunctive morphology, especially in the past tense, is extremely complicated. The bound morpheme -ing may not have caused a significant interference in L2 comprehension because it was more easily recognized and understood by the L2 English learners, mainly because the concept of the morpheme -ing is represented in Spanish by -ando, and -y/iendo. The L2 Spanish Learners in Lee (1998) may not have been as familiar with the concept of the complicated subjunctive morphology in Spanish because it was not similar to a commonly occurring concept in English morphology. This may also explain why the bound morpheme -n task group performed so poorly at the advanced levels of VanPatten (1990). Thus, if form and meaning do compete at the early stages of SLA, it may be the role of transfer of grammatical function frequency of a lexical item or a grammatical item that causes form and meaning to compete or not to compete during the process of detection and not focusing consciously or subconsciously on one or the other.

4.4 Implications

4.4.1 Pedagogical Implications

This study has a variety of implications with regard to input processing in the field of second language acquisition, especially relating to input and intake, working memory as well as attention/detection, and pedagogy. It is important to understand that these three issues are not separate, and that the first two relate to pedagogy in regards to the teaching of a second language.

Krashen (1981) and (1985) suggest that second language acquisition is a result of comprehensible input/intake being derived from the L2 input being processed by working memory. This study suggests that there is a pattern to what input may interfere with the derivation of intake from the input. In the context of this study, even at the intermediate levels of L2 English learning, it appears that drawing the L2 learner's attention to certain types of form will not significantly cause an adverse effect on the derivation of intake. The logic behind this is that although the L2 learners were consciously focusing on form and meaning, all groups were able to recall a significant amount of meaning from the experimental text when compared to the other task groups at the same level. This suggests that the L2 text was comprehended, in turn suggesting that the possibility exists that the derivation of intake will occur.

Once again, the fact that working memory has a limited capacity to process new incoming information especially during attention/detection of L2 information is not being disputed. The recall scores of this study demonstrated that the intermediate and advanced levels of L2 English learners could for the most part process for form and process for meaning with relative ease. At least for this particular context, the current study may have implications as far as establishing a level where form and content may be consciously taught at the same time. While a pattern seems to have been established at both intermediate and advanced levels of SLA, the empirical evidence suggests that it does not appear to be detrimental to the derivation of intake in intermediate and advanced stage for L2 learners to consciously draw their attention to certain lexical and grammatical items in the input.

The most useful application for this study relates to the teaching technique *Focus on Form.* As mentioned in Chapter 1, Doughty (2002) posits that when confronted with deriving meaning from a L2 text, the L2 learner should first read for meaning and then return to the text and derive meaning from form (the text's syntactic structure). This study suggests that this technique would be a useful way to fully derive meaning from content words and form. As demonstrated at the intermediate level of this experiment, at times reading for meaning can interfere with the recognition of form. This particular form may be necessary to derive meaning from a particular text, thus identifying form to derive meaning that the L2 learner's attention to syntactic elements that contain meaning that the L2 learner missed when reading for meaning. The recall scores from the advanced level also suggest this *Focus on Form* would also be useful because once the meaning has already been derived from a particular text, consciously focusing attention on a syntactic form to derive meaning will no longer cause the attentional resources to become strained.

4.4.2 Implications for VanPatten (1996): Principles of Second Language Input Processing

While this study did not appear to support all of the elements relating to VanPatten's (1996) principles of language processing, it does support many of these elements and adds to them. The results of this study suggest that L2 learners do process for meaning before they process for form and for L2 learners to process non-meaningful form, they must be able to process meaningful form first. It appears from the results of this study that L2 learners in some cases will ignore non-meaningful form such as in the case of I-NonContent and process mostly for meaning. Although this is speculation and must be studied further, in many cases, form may be secondary and L2 learners may need to attend to form only after processing for meaning, as Doughty (2002) suggests, because meaning in some cases will take precedence over form. However, the processing of meaning and form in working memory are not independent of one another because syntactic form categorizes words into a comprehensible phrase structure. Thus, meaning cannot be derived from a text if that text is not organized syntactically.

4.5 Limitations

4.5.1 Methodological Constraints and Limitations

The methodological limitations and constraints of this study concern the number of subjects used and the uneven number of target items used in the experimental text. Although an effort was made to acquire more subjects, due to time constraints on many professors at the institution, a larger sample of subjects could not be obtained. However, mean recall scores demonstrated a consistency at both the intermediate and advanced levels; thus, it does not appear that a greater number of subjects would have significantly caused a change in the final mean recall scores.

Although VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) also used an uneven number of target items, this uneven number of target items may have inadvertently caused a higher deficit in comprehension in the subjects that participated in the task groups that had more target items to mark. In both intermediate and advanced level task groups, the highest number of target items marked was the bound morpheme -ing. Moreover, both of these groups contained the lowest mean recall scores. It is difficult to ascertain definitively whether this occurred because there was more form available to interfere with comprehension or if the form itself was what interfered with the L2 learner's comprehension. This did not appear to affect the final results, and the adjusted recalls scores corrected for this.

4.5.2 Constraints on Inter-study Comparisons

A constraint on this study was an inability to conduct a one-to-one comparison of this study with those that were done at the U.S. universities. The principal reason for this was that VanPatten (1990) and Bouden, Greenslade, & Sanz (1999) carried out their studies using the university standards of the United States, especially in regards to the levels used. This study used the standards of the Mexican institution, assuming that the intermediate L2 English levels as well as the advanced levels were actually intermediate and advanced levels. However, familiarity with both the United States' and Mexican systems suggests that a general comparison can be made and it may be assumed that the levels being compared are similar.

The final constraint on this study is that it was a conceptual replication of the previous two. This means that a number of different factors such as target language, native language of subjects, and instruments were not the same as the ones used in the original study. This also prevents a one to one comparison from being made between this study with the previous studies because the results of this study may differ from the others due to these changes and not due to an actual change in the theoretical framework of the previous studies. However, the purpose of the current study was to add to the studies carried out by VanPatten (1990) and Bounden, Greenslade, and Sanz (1999), not to make a direct comparison.

4.6 Future Research

4.6.1 Future Research

Before this study, research of this sort was carried out in a limited manner with only native English speakers learning Spanish. Not only should studies of this nature be carried out with more native English speakers learning a variety of different languages, but also these studies should be carried out with more non-native English speakers learning English. It is recommended that this research be expanded to a number of different L2 environments in order to further test VanPatten's (1996) principles of second language acquisition and to develop better pedagogical techniques for teaching aural and text comprehension.

In addition, further research must be carried out to understand how input is derived from intake. This may lead to discoveries of exactly what syntactic forms may or may not cause L2 learners problems in understanding aural or written language and at what levels. Also, as VanPatten (1996) has proposed, it may lead to the development of pedagogical strategies that will assist second language educators in developing target input to facilitate that derivation of intake from input for L2 learners.

A conceptual replication of this study should be carried out o the current study. Different types of grammatical items should be selected, especially grammatical items that are not conceptually represented in both languages. For example, a study should be carried out with native Spanish speakers learning English. They should read for comprehension while marking the third person -s in English. This may cause greater difficulty than marking the bound morpheme -ing because the conjugated verb morphology differs from Spanish to English. This of course is only one example of the many ways in which variations of this study can be done.

Research also should be carried out to find out when L2 learners' focus on meaning interferes with the recognition of certain forms. As Doughty (2002) posits, focusing on form should be used to derive meaning from a text after a general meaning has been established. Understanding how meaning and form compete and when there is a preference for meaning and when there is a preference for form by the L2 learner, would have pedagogical applications such as assisting L2 learners in knowing when to focus on form to derive meaning, and when not to focus on form in order not to hinder the derivation of meaning.

Lastly, studies should be carried out testing the nature of VanPatten's singleresource, limited capacity model of attention versus a dual resource, limited capacity model. This will resolve the issue of whether lower recall scores occur because of a competition between form and meaning, depleting limited attentional resources, or if there are other factors such as the physical act of marking a particular grammatical item that may deplete attentional resources.

Appendix A

La información de este cuestionario es solamente para uso del investigador y su equipo, y no será compartido con nadie que no esté involucrado en esta investigación.

Cuestionario Datos Personales Los últimos cuatro dígitos de tu número de estudiante: _______ ¿Cuál es la clave de esta clase? ______ Edad: ______ Información de Idiomas ¿Cuál es tu lengua materna?

¿Cuántos años llevas tomando clases de inglés? Favor de incluir los años que has estudiado inglés en la primaria, la secundaria, la preparatoria, y la universidad.

¿Has pasado periodos largos de tiempo en un país de hablantes nativos del idioma inglés?

Si respondiste a la pregunta anterior con un sí, ¿Cuántos años tenías y por cuánto tiempo?

Información Miscelánea

¿Has sido diagnosticado con algún tipo de discapacidad de aprendizaje que afecta tu habilidad para leer?

Si respondiste a la pregunta anterior con un sí, ¿Cuál es tu discapacidad?

Appendix B

The Cost of Education

Trying to secure good quality education is a very expensive business. Worse still, the cost of education in many countries is expected to continue rising faster than the average inflation figures. Some elite private colleges in the USA believe that it costs them over \$60,000 per year to educate a single student. Parents cover a good portion of this cost, whilst gifts, endowments, the taxpayer, etc. cover the rest of the cost. The earnings which students have to sacrifice while getting an education is another problem, and an often neglected cost factor, especially for students attending graduate programs.

Yet, despite high costs of education, demand for places in good colleges remains high and places are always in short supply. Strangely, even poorer students somehow find the money to pay what appear to be exorbitant fees. Naturally, the budgets of parents are strained often to breaking point, and many students are forced to go into massive debt to obtain a good education.

Appendix C

Equity and Commerce

Increased global commerce means faster economic growth, rising standards of living and poverty reduction. Rather than seeking to restrict international commerce, the real task is to reduce the barriers to such commerce in order to expand the benefits to both the developed and the developing world.

Although wealthy nations talk about the importance of trade liberalization, they maintain a system of agricultural subsidies and residual tariffs that cripple the ability of many developing countries to export their agricultural commodities. This does not permit these nations to participate fairly in global commerce.

Making commerce rules fairer so that developing countries could compete equally in the global economy would generate more income in those countries. Economists estimate that with fairer global commerce rules, African countries could earn six times what they receive in assistance from wealthy countries every year. If all these countries' share of world commerce increased by just one percent, their income growth would lift 128 million people out of poverty.

Focusing heavily on exports has proven a successful way for some countries to build modern economies and dramatically improve living standards for millions of people. According to the World Bank, countries that opened their markets to global commerce in the last two decades grew five times faster than those that kept their markets closed.

The US needs to keep pushing to reduce barriers to commerce. Eliminating tariffs and other protective barriers will increase worldwide commerce and reduce poverty while creating long-term economic benefits of \$200 billion per year for poorer countries.

Words:	252
Sentences:	11
Average words per sentence:	22.91
Average syllables per words:	1.77
Average syllables per sentence: 41	

10 bound morpheme -*ing*10 lexical content item *commerce*10 unbound morpheme -*the*

Syllables in each Sentence

,, j	
1:	27
2:	50
3:	72
4:	22
5:	39
6:	41
7:	34
8:	47
9:	38
10:	16
11:	54

Equals: 440

Appendix D

Data Elicitation Procedure

Pass out questionnaires and then instruct the students to be sure to put "los últimos cuatro números de su número de estudiante y que contesten todas las preguntas.
 Collect questionnaires and begin testing instructions:

Ustedes van a recibir dos textos para leer, primero uno y después el otro. Favor de leer cada texto para mayor entendimiento porque después, les voy a pedir que recuerden en forma escrita todo lo posible del texto sin ver el texto de nuevo. Además, lo van a escribir en español y en molde. También, mientras que leen, van a marcar una palabra o un ítem gramatical de una palabra especifica cada vez que la vean. Les voy a decir cual van a marcar antes de que empiecen a leer cada texto. Finalmente, por favor lean cada texto solo una vez.

Text 1 (Warm-up)

El primer texto que van a leer se trata del costo de la educación universitaria en Estados Unidos. Favor de poner los últimos cuatro números de su número de estudiante en la parte superior de la página ahora. (Wait 5 Seconds) Van a tener 2 minutos 30 segundos para leer el texto. Mientras que leen el texto para mayor entendimiento, van a marcar ______ claramente con un círculo. ¿Están listos? Ya pueden empezar a leer.

Time when students began _____ Time when they finished_____

(When time is up): Por favor, dejen de leer, volteen las hojas, y escriban en la parte de atrás, en español y en letra de molde, todo lo que recuerden del texto sin ver el texto de nuevo. Cuando terminen, dejen sus lápices en el escritorio. Collect the papers when they are finished.

Text 2

El segundo texto que van a leer se trata del comercio internacional. Favor de poner los últimos cuatro números de su número de estudiante en la parte superior de la página ahora. (Wait 5 Seconds) Van a tener 3 minutos 30 segundos para leer el texto. Mientras que leen el texto para mayor entendimiento, van a marcar claramente con un círculo. ¿Están listos? Ya pueden empezar a leer.

Time when students began _____ Time when they finished_____

(When time is up): Por favor, dejen de leer, volteen las hojas, y escriban en la parte de atrás, en español y en letra de molde, todo lo que recuerden del texto sin ver el texto de nuevo. Cuando terminen, dejen sus lápices en el escritorio. Collect the papers when they are finished.

Favor de revisar las instrucciones con cuidado antes de empezar a leer los textos

Instrucciones/Task Group 1

1. Favor de poner los últimos cuatro dígitos de tu número de estudiante en la parte superior-derecha de todas las páginas del paquete.

2. Vas a recibir dos textos para leer, pero trabajarás en cada uno por separado.

3. Escribir en español y con letra de molde.

4. A continuación, cada texto contiene instrucciones del trabajo que tienes que realizar. Finalmente, favor de leer cada texto solo una vez.

Instrucciones del Primer Texto, The Cost of Education

1. Favor de no leer el primer texto hasta que el instructor te lo indique.

2. El primer texto que vas a leer se trata del costo de la educación universitaria en Estados Unidos. Vas a tener dos minutos para leer el texto. Favor de leerlo con atención.

3. Cuando termines de leer el texto, vas a escribir en la parte trasera de la misma hoja, todo lo que recuerdes del texto.

4. No voltees la hoja hasta que el instructor te lo indique.

5. Después de leer el texto, puedes empezar a escribir todo lo que recuerdes de la lectura. *Favor de no dar tu opinión, solamente pon lo que recuerdes.*

6. Cuando termines de escribir, favor de adjuntar el texto al cuestionario utilizando el clip.

Instrucciones del Segundo Texto, Equity and Commerce

1. Favor de no leer el segundo texto hasta que el instructor te lo indique.

2. El segundo texto que vas a leer se trata del comercio libre en el mundo actual. Vas a tener dos minutos para leer el texto. Favor de leerlo con atención.

3. Cuando termines de leer el texto, vas a escribir en la parte trasera de la misma hoja, todo lo que recuerdes del texto.

4. No voltees la hoja hasta que el instructor te lo indique.

5. Después de leer el texto, puedes empezar a escribir todo lo que recuerdes de la lectura. *Favor de no dar tu opinión, solamente pon lo que recuerdes.*

Favor de revisar las instrucciones con cuidado antes de empezar a leer los textos

Instrucciones/Task Group2

1. Favor de poner los últimos cuatro dígitos de tu número de estudiante en la parte superior-derecha de todas las páginas del paquete.

2. Vas a recibir dos textos para leer, pero trabajarás en cada uno por separado.

3. Escribir en español y con letra de molde.

4. A continuación, cada texto contiene instrucciones del trabajo que tienes que realizar. Finalmente, favor de leer cada texto solo una vez.

Instrucciones del Primer Texto, The Cost of Education

1. Favor de no leer el primer texto hasta que el instructor te lo indique.

2. El primer texto que vas a leer se trata del costo de la educación universitaria en Estados Unidos. Vas a tener dos minutos para leer el texto. Mientras que lees el texto con atención, vas a marcar la palabra *education* claramente con un círculo cada vez que la veas.

3. Cuando termines de leer el texto, vas a escribir en la parte trasera de la misma hoja, todo lo que recuerdes del texto.

4. No voltees la hoja hasta que el instructor te lo indique.

5. Después de leer el texto, puedes empezar a escribir todo lo que recuerdes de la lectura. *Favor de no dar tu opinión, solamente pon lo que recuerdes.*

6. Cuando termines de escribir, favor de adjuntar el texto al cuestionario utilizando el clip.

Instrucciones del Segundo Texto, Equity and Commerce

1. Favor de no leer el segundo texto hasta que el instructor te lo indique.

2. El segundo texto que vas a leer se trata del comercio libre en el mundo actual. Vas a tener dos minutos para leer el texto. Mientras que lees el texto con atención, vas a marcar la palabra *commerce* claramente con un círculo cada vez que la veas.

3. Cuando termines de leer el texto, vas a escribir en la parte trasera de la misma hoja, todo lo que recuerdes del texto.

4. No voltees la hoja hasta que el instructor te lo indique.

5. Después de leer el texto, puedes empezar a escribir todo lo que recuerdes de la lectura. *Favor de no dar tu opinión, solamente pon lo que recuerdes.*

Favor de revisar las instrucciones con cuidado antes de empezar a leer los textos

Instrucciones/Task Group 3

1. Favor de poner los últimos cuatro dígitos de tu número de estudiante en la parte superior-derecha de todas las páginas del paquete.

2. Vas a recibir dos textos para leer, pero trabajarás en cada uno por separado.

3. Escribir en español y con letra de molde.

4. A continuación, cada texto contiene instrucciones del trabajo que tienes que realizar. Finalmente, favor de leer cada texto solo una vez.

Instrucciones del Primer Texto, The Cost of Education

1. Favor de no leer el primer texto hasta que el instructor te lo indique.

2. El primer texto que vas a leer se trata del costo de la educación universitaria en Estados Unidos. Vas a tener dos minutos para leer el texto. Mientras que lees el texto con atención, vas a marcar el sufijo *-ed* claramente con un círculo cada vez que lo veas. *Ej. He studied in school.*

3. Cuando termines de leer el texto, vas a escribir en la parte trasera de la misma hoja, todo lo que recuerdes del texto.

4. No voltees la hoja hasta que el instructor te lo indique.

5. Después de leer el texto, puedes empezar a escribir todo lo que recuerdes de la lectura.

Favor de no dar tu opinión, solamente pon lo que recuerdes.

6. Cuando termines de escribir, favor de adjuntar el texto al cuestionario utilizando el clip.

Instrucciones del Segundo Texto, Equity and Commerce

1. Favor de no leer el segundo texto hasta que el instructor te lo indique.

2. El segundo texto que vas a leer se trata del comercio libre en el mundo actual. Vas a tener dos minutos para leer el texto. Mientras que lees el texto con atención, vas a marcar el sufijo *-ing* claramente con un círculo cada vez que lo veas. *Ej. John is running*.

3. Cuando termines de leer el texto, vas a escribir en la parte trasera de la misma hoja, todo lo que recuerdes del texto.

4. No voltees la hoja hasta que el instructor te lo indique.

5. Después de leer el texto, puedes empezar a escribir todo lo que recuerdes de la lectura. *Favor de no dar tu opinión, solamente pon lo que recuerdes.*

Favor de revisar las instrucciones con cuidado antes de empezar a leer los textos

Instrucciones/Task Group 4

1. Favor de poner los últimos cuatro dígitos de tu número de estudiante en la parte superior-derecha de todas las páginas del paquete.

2. Vas a recibir dos textos para leer, pero trabajarás en cada uno por separado.

3. Escribir en español y con letra de molde.

4. A continuación, cada texto contiene instrucciones del trabajo que tienes que realizar. Finalmente, favor de leer cada texto solo una vez.

Instrucciones del Primer Texto, The Cost of Education

1. Favor de no leer el primer texto hasta que el instructor te lo indique.

2. El primer texto que vas a leer se trata del costo de la educación universitaria en Estados Unidos. Vas a tener dos minutos para leer el texto. Mientras que lees el texto con atención, vas a marcar la palabra *of* claramente con un círculo cada vez que la veas. *Ej. It is made of lemon.*

3. Cuando termines de leer el texto, vas a escribir en la parte trasera de la misma hoja, todo lo que recuerdes del texto.

4. No voltees la hoja hasta que el instructor te lo indique.

5. Después de leer el texto, puedes empezar a escribir todo lo que recuerdes de la lectura.

Favor de no dar tu opinión, solamente pon lo que recuerdes.

6. Cuando termines de escribir, favor de adjuntar el texto al cuestionario utilizando el clip.

Instrucciones del Segundo Texto, Equity and Commerce

1. Favor de no leer el segundo texto hasta que el instructor te lo indique.

2. El segundo texto que vas a leer se trata del comercio libre en el mundo actual. Vas a tener dos minutos para leer el texto. Mientras que lees el texto con atención, vas a marcar la palabra *the* claramente con un círculo cada vez que la veas. *Ej. The man eats food*.

3. Cuando termines de leer el texto, vas a escribir en la parte trasera de la misma hoja, todo lo que recuerdes del texto.

4. No voltees la hoja hasta que el instructor te lo indique.

5. Después de leer el texto, puedes empezar a escribir todo lo que recuerdes de la lectura. *Favor de no dar tu opinión, solamente pon lo que recuerdes.*

Appendix F

Idea Unit Analysis: Consists of main or subordinate clauses including adverbial or relative clauses, infinitival construction, gerundive, nominalized verb phrase, conjunct, and optional and/or heavy prepositional phrases.

Equity and Commerce

1) Increased global commerce means (2,3,4)	Main clause
2) faster economic growth	Conjunct, main
3) rising standards of living	Conjunct, main
4) and poverty reduction	Conjunct, main
5) Rather than seeking to restrict international commerce	Sub. clause
6) the real task is	Main clause
7) to reduce the barriers to such commerce (it)	Infinitival construction
8) in order to expand the benefits	Infinitival construction
9) to both the developed and the developing world	Heavy Prep. phr.
10) Although wealthy nations talk about the	
importance of trade liberalization	Sub. Clause
11) they maintain a system (13,14)	Main clause
12) of agricultural subsidies and (of) residual tariffs	Heavy Prep. phr.
13) that cripple the ability of many developing countries	Sub. clause
14) to export their agricultural commodities	Infinitival construction
15) This does not permit these nations (16)	Main clause
16) to participate fairly in global commerce	Infinitival construction
17) Making commerce rules fairer	Gerundive
18) so that developing countries could compete equally	Sub. clause
19) in the global economy	Heavy Prep. phr.
20) (17) would generate more income	Main clause

21) in those countries	Heavy Prep. phr.
22) Economists estimate (24)	Main clause
23) that with fairer global commerce rules	Sub. clause
24) African countries could earn six times	Sub. clause
25) what they receive in assistance from wealthy countries every year	Sub. clause
26) If all these countries' share of world commerce increased	Sub. clause
27) by just one percent	Heavy Prep. Phr.
28) their income growth would lift 128 million people out of poverty	Main clause
29) Focusing heavily on exports	Gerundive
30) (29) has proven a successful way	Main clause
31) for some countries to build modern economies	Infin./Heavy Prep. phr.
32) and dramatically improve living standards	Conjunct
33) for millions of people	Heavy Prep. phr.
34) According to the World Bank	Gerundive
35) countries grew five times faster	Main Clause
36) that opened their markets to global commerce	Sub. clause
37) in the last two decades	Heavy Prep. phr.
38) than those that kept their markets closed	Sub. clause
39) The US needs (40, 41)	Main clause
40) to keep pushing	Infinitival construction
41) to reduce barriers to commerce	Infinitival construction
42) Eliminating tariffs and other protective barriers	Gerundive
43) (42) will increase worldwide commerce	Main clause/Conjunct
44) (42) and (will) reduce poverty	Main clause/Conjunct
45) while creating long-term economic benefits	Sub. clause
46) of \$200 billion per year	Heavy Prep. phr.

47) for poorer countries.

Heavy Prep. phr.