DIFFERENTIATING/MODIFYING MAINSTREAM EXPOSITORY TEXTS

FOR THIRD & FOURTH GRADE ENGLISH AS A SECOND LANGUAGE

STUDENTS

by

Lynn Sedivy

**A Thesis submitted in partial fulfillment of the requirements for the degree of
Masters of Arts in English as a Second Language Education**

Hamline University

Saint Paul, Minnesota

June 2002

Committee:

Ann Mabbott

Andreas Schramm

Laura Smith

To my husband Michal, who supported me through this process with encouragement and thoughtfulness, and always made me laugh when I needed it most.

ACKNOWLEDGEMENT

Thanks to the ESL students for participating in my study. I couldn't have done it

without you. You are why I go to work everyday.

TABLE OF CONTENTS

CHAPTER 1: Introduction

For English as a Second Language (ESL) students, reading in school can be particularly challenging at any age or proficiency level. More often than not, required reading in mainstream classes is incomprehensible to ESL students, and they come away from lessons with a lack of understanding of the concept taught. Krashen (1982) demonstrated the need for comprehensible input to acquire a language. If students aren't presented with comprehensible input, they cannot acquire the language or the concepts taught in school. This causes great gaps in students' education, only perpetuating their lack of achievement in American schools. In my teaching experience, I have seen students continually frustrated with the fact that they cannot understand what the class is reading. To derive meaning from the text, they have to read laboriously slowly, utilizing a bilingual dictionary (at the secondary level), or rereading paragraphs over and over again. They fall behind quickly and often end up tuning out during instruction. The language used in mainstream texts is complicated and the amount of reading is more than an ESL student can handle. This is a typical situation for ESL students in mainstream classes in primary through high school. Particularly in the high schools, teachers rarely differentiate reading materials to make content understandable to ESL students. Often, teachers simply reduce the requirements on assignments, which does not ensure that their ESL students are learning a specific concept. At the elementary level, I have seen more differentiated instruction occurring, but not differentiated reading instruction of a single text.

Some types of differentiated instruction I have seen in the elementary school where I work are:

- Having students listen to a text, rather than read it.

- Pairing up a stronger reader with a struggling reader to read together.

- Teaching children a variety of word attack skills.

- Teaching children a variety of reading strategies, so they can find ones that work for them.

These and other differentiated teaching methods are positive and can help meet the needs of diverse learners in the classroom. These strategies can also help ESL students learn, but there are some limitations. For example, listening to a text on tape may benefit a mainstream or ESL learner who is proficient in spoken English and has a strong vocabulary, yet is not a proficient reader. However, for an ESL student who is not proficient in spoken English and has a very limited vocabulary, listening to a text on tape will not improve his/her comprehension of a text (Snow & Brinton, 1997). Indeed, the differentiated instructional methods listed above are beneficial, but there is more that can be done to meet the needs of English language learners. Differentiated or modified reading texts, being texts that are written at the students' proficiency levels, could make the comprehension of a concept possible for ESL students (Short, 1994). These types of text could promote independent learning, which could increase a student's self-esteem and motivation to learn. Additionally, providing differentiated texts for ESL students in mainstream classes would be one step closer to integrating language and content

instruction, which has proven to be beneficial to ESL students' acquisition of content language and comprehension (Crandall, 1998; Snow & Brinton, 1997; Short, 1994).

Having seen students struggle with mainstream texts, particularly expository texts, I would like to see how students perform if they are given a reading text that teaches the same concept as the mainstream text, but is written in simpler clearer language at their reading proficiency level. I hypothesize that comprehension of concepts would improve if the text was written at or closer to the learner's English proficiency level.

I differentiated a text for my third and fourth graders this year in ESL in an effort to meet their reading needs by making the text more comprehensible. My third and fourth graders range in English proficiency levels from beginner to advanced. I used the book *Shadow of the Wolf*, and wrote two modified versions; one of moderate difficulty and one that was very simplified but still contained the basics of the story. I found this to be a very successful method of teaching reading and comprehension for a number of reasons. First, all of the students could read the texts independently, which increased their feelings of achievement in their reading abilities. After reading, the students came back together to discuss what was read. Despite having read different levels of difficulty of the same text, they were able to participate in chapter discussions. They were all able to contribute something, which doesn't happen when they are all reading the same level of text.

I have searched for published mainstream textbooks that teach a single concept that is written at different reading levels, but I have found none. Therefore, in my study,

I created differentiated reading texts for my ESL students that were based on

mainstream expository texts (see Appendix C) by identifying the main idea and concepts

of the texts, eliminating extraneous information, and rewriting the text in a more

understandable manner.   More details on how I differentiated texts are presented in

Chapter Three of this paper. Then I set up a study to examine the comprehension

outcomes ESL students achieve when reading differentiated expository texts and

mainstream one-size-fits-all expository texts. Finding a way for ESL students to

comprehend expository reading in the mainstream is crucial to improving their education

and making instruction understandable and available to all students.

Differentiated reading material could impact second language learning and

teaching in positive ways. If differentiated reading materials aided students in their

comprehension of content concepts, the development of mainstream and ESL curriculum

material could be greatly influenced. As a result, ESL students' comprehension of content

in the mainstream would increase, there would be fewer gaps in their learning, and they

would experience more success. ESL students would be less likely to miss out on

concepts that are prerequisites for learning at the next grade level, and their background

knowledge base would increase, which is a necessary component in the process of

learning and comprehension. Ultimately, their acquisition of English would be more

successful and they would be able to participate in class and be more engaged in

mainstream classroom learning, decreasing the amount of unproductive time in those

classes. Teachers could be taught how to differentiate reading materials to better meet

students' needs and may focus more specifically on the main concept being taught,

clarifying the purpose for all students. These teachers in turn, may feel more effective in their teaching, making concepts understandable to all students.

Currently, differentiated teaching methods are becoming more and more popular and encouraged (Willis & Mann, 2000), but there is still a lack of reading level appropriate mainstream texts for ESL students. In addition to modifying teaching methods, there is a necessity to modify texts to meet the needs of English language learners in the classroom. Chapter Two will explain in more detail what research relates to the areas of differentiation and the integration of language and content instruction. Research in these areas has been very insightful and has provided teachers with the tools to improve instruction. However, there seems to be much more literature written about how to differentiate instruction and the methods recommended to integrate language and content teaching than empirical evidence to support these modes of instruction.

CHAPTER 2: Literature Review

The purpose of this study is to examine the comprehensibility of different texts, mainstream and modified/differentiated, read by ESL students. Previous research that is pertinent to my study has been divided into seven topics. The topics are: Comprehensible Input, Social verses Academic Language, Differentiated Instruction, Content-based Language Instruction, Text Modification, and Reading Comprehension and Assessment.

Comprehensible Input

Krashen (1982) asserts several hypotheses regarding second language acquisition. His input hypothesis very clearly explains the need for understandable input to achieve language acquisition. When the learner of a language does not understand what is being communicated, language acquisition will not occur. Indeed, when a text does not contain language that is understandable to the English language learner, he/she will not acquire the language, vocabulary or an understanding of the concept being taught. Krashen also maintains that it is a teacher's responsibility to make input comprehensible by supporting language with pictures and other forms of extra-linguistic support. Consequently, extra visual supports of a text are utilized when writing the differentiated texts in this study, to make the text language more comprehensible to ESL students.

Regarding the teaching of subject matter, Krashen claims that using subject matter to teach a language will aid in acquisition only if it is comprehensible. Indeed, the goal of subject matter classes should not be for students to simply survive but to understand what they are learning so they will improve in the target language. There is a definite need for subject matter to be comprehensible for ESL students in mainstream classes so that the language can be acquired, and unfortunately all too often, the content in mainstream classes is not understandable to such students.

Social versus Academic Language

Cummins (1979a, 1980) has created two terms to describe the difference between social language skills that are contextually embedded and used among peers, and academic language that is most often contextually reduced and is necessary for academic purposes. Cummins refers to the language used in everyday social contexts as Basic Interpersonal Communication Skills (BICS). Cognitive Academic Language Proficiency (CALP) is the term Cummins has created to define the language used in academic situations.   Researchers contend that while it may take approximately six months to two years to acquire BICS, it can take five to seven years, or even more, to acquire CALP skills (Cummins, 1979; Thomas; & Collier, 1995). Grabe and Stoller (1997) claim that CALP skills, because they require complex language abilities and are academically demanding, are best taught in a curriculum that works with challenging and authentic content. Exposing ESL students to authentic content materials is important when teaching CALP skills; however, it is also important to provide modified texts when

teaching academic English, that can serve as "scaffolding" for the authentic texts (Vygotsky, 1962).

Studies of elementary ESL students show that particularly in fourth or fifth grade, ESL students may be able to speak English in the classroom, but are operating several years below grade level in reading and writing (Cohen 1994), thus establishing the need to provide understandable texts for such students. The focus of my study centers around developing CALP skills by providing academic content to ESL students in a more understandable manner.

Differentiated Instruction

Previous research establishes the fact that "one-size-fits-all" instruction, typical in many mainstream classrooms, does not meet the needs of all learners (Tomlinson, 1999). "One-size-fits-all" instruction refers to using teaching materials and methods that teach to a single level, usually the middle level of a grade (Tomlinson, 1995). Such instruction can be demonstrated by using a single text for all students in a class regardless of reading ability, expecting students to go about the learning process in the same manner, or expecting the same outcome for all students in a given lesson. Therefore, researchers assert that the differentiation/modification of materials, teaching methods and expected outcomes is necessary in meeting the needs of diverse learners in a classroom (Tomlinson, 1999; Crandall, 1998; Short, 1994), and it has been proven that differentiation has a positive influence on learners in a heterogeneous classroom (Tomlinson, 1995). Tomlinson provides a useful definition of differentiation that helps

define my research. According to Tomlinson (1995), a differentiated classroom provides multiple ways for students to understand ideas, express what is learned, and acquire content. In reference to the above definition, my research on the differentiation of mainstream expository texts falls under the realm of acquiring content.

Tomlinson (1995) clarifies her definition by adding that such modifications as grading students easier or harder on class work, letting students skip questions on an assignment, or giving students harder questions are modifications that are not "bad", but are not enough. Indeed, it is beneficial for a teacher to consider students' different needs and make modifications, but more must be done in the classroom to meet English language learners' needs. Simply modifying the amount of work for them to complete does not make a concept more understandable. For this reason, differentiating texts would be a beneficial modification for English language learners in the mainstream because learning can occur at their proficiency level in hopes that their content knowledge base would increase and pave the way for future learning.

Several authors and researchers acknowledge a need for change in the "one-size-fits-all" curriculum and provide wonderful ideas on how to meet the needs of diverse learners through differentiation, but have not necessarily taken into consideration the needs of ESL students specifically. Winebrenner (1996) provides numerous helpful ideas of strategies teachers can teach struggling students to use when reading texts in the content areas, such as schemata mapping and using organizational charts. Yet, she has not addressed ESL students and has not mentioned the differentiation of texts to make content reading more comprehensible to struggling learners. Likewise, Cole (1995) cites

the need to provide diverse learners with a variety of reading strategies to promote comprehension, but has failed to mention the use of modified or differentiated texts to meet the needs of English language learners. Tomlinson (1995) suggests using a variety of supplementary materials and multiple texts, although she hasn't recommend this for ESL students but rather for diverse learners in general. She also encourages providing texts with a range of level of difficulty from less challenging to more advanced. Providing books at different levels on the same subject may not ensure the same concept is being taught to all readers, however. For example, if a teacher is providing instruction about frogs, it is possible that the texts that are provided for more advanced readers contain important concepts about frogs that the less challenging texts fail to provide. Hence, it would be wise for a teacher to write differentiated texts based upon a challenging text, to ensure that the concept being taught remains consistent across the varying texts. This modification of texts may fall under what Tomlinson (1999) refers to as tiered activities. Tiered activities make it possible for all students to focus on essential concepts and skills but at varying levels of abstractness and complexity. The teacher increases the likelihood that each student will be appropriately challenged and will come away from a lesson with the skills and understanding to express their learning of a concept by keeping the focus of the activity the same for all students. Tomlinson (1995) suggests "cloning" the reading to provide an unlimited number of versions at different degrees of difficulty, but has not provided an example of what this would look like, or make any reference to ESL students.

Experts claim that teachers are currently making use of differentiation methods in their classrooms with cooperative and multi-age groups (Willis & Mann, 2000). This shows that teachers are making an effort to meet the needs of the diverse learners in their classrooms, but they need to go beyond grouping organization to meet the specific needs of ESL students in their classes.

Content-based Language Instruction

Advocates of content-based second language instruction present a strong case for providing content to ESL students in an understandable manner. Experts maintain that the integration of language and content instruction promotes the acquisition of English and content concepts (Crandall, 1998; Snow & Brinton, 1997; Short, 1994). Crandall (1994) defines content-based language instruction as an approach in which bilingual, foreign language, or ESL teachers use mathematics, science, social studies, and other content subject materials as the mode for developing content and language skills for English language learners. This language-based content instruction can be provided by a language teacher or by a teaming of the language and content teachers.

Studies show that teachers have observed English language learners doing well academically in their ESL classes, but have a lot of trouble with the demands of the reading material in their content area classes (Samuels & Farstrup, 1992). Second language learners often lack the initial background knowledge necessary to thoroughly understand a text and as a result of having limited English, miss opportunities to build their background knowledge because content readings are so high above their reading

levels. Cohen (1994) clarifies this issue by stating that the teaching of English often takes precedent over challenging instruction in the content areas. Consequently, ESL students fall further behind in content while learning a second language. According to Law and Eckes (1990) recent research demonstrates that students can learn language and content simultaneously. Integrating language and content learning is actually more effective for language acquisition than learning the language and then, trying to learn the content. These are powerful and extremely important statements emphasizing the necessity to make content learning accessible to ESL students so they can build upon their learning to increase their knowledge base and prevent gaps from forming in their education of content concepts and language skills.

There are various models and settings under which content-based instruction can be carried out (Crandall, 1994). The results of my research would be relevant in reference to three settings which are sheltered instruction, ESL pullout, and the mainstream classroom. Sheltered instruction is an approach that involves making instruction more accessible to students of different language proficiency levels by adapting the language of texts and using specific teaching methods common to language teachers such as graphic organizers, cooperative work, or increased number of visuals and demonstrations. This type of instruction is also called sheltered English or language-sensitive content instruction and is carried out by a content teacher or a language teacher who also has expertise in a specific content area (Brinton, Snow, & Wesche, 1989). Most certainly, modified texts could be utilized in this instructional setting to challenge students at all proficiency levels while acquiring content. Additionally, the teaching of

language through content using modified texts could be used for instruction in ESL pullout classes, where ESL students leave their mainstream classes for explicit language instruction. Teaching language through content in the ESL classroom could support the content learning occurring in the mainstream classroom. Last, differentiated texts could be used in the mainstream classroom as well. These differentiated texts could allow the ESL student to read the same information in the content area, but in an understandable manner, which likely will increase the ESL student's productivity and involvement in the mainstream.

Law and Eckes (1990) offer ideas on how to meet the needs of ESL students in the mainstream classroom by using teaching methods that make concepts and content more accessible, but have not provided guidance on how mainstream teachers could differentiate texts for their ESL students. They emphasize the fact that content area readings are very difficult for ESL students because they so often require background knowledge that may have been acquired in a previous grade level or reading. To make the mainstream content more accessible to ESL students, they suggest supplementing reading material with other texts and teaching students strategies like prioritizing information in a reading and previewing a text. They also encourage mainstream teachers to provide books in the content areas at easier levels for their English language learners. This idea should be taken one step further, however. The teacher could provide simplified but not watered-down texts of the mainstream text to ensure ESL students are learning the same concepts as mainstream students, yet are provided with material appropriate to their English proficiency levels.

Content-based instruction advocates who encourage the differentiation or modification of texts suggest native English speakers in the classroom rewrite mainstream texts more simply for English language learners in the mainstream (Richard-Amato & Snow, 1992). This would be a beneficial learning experience for native English speakers in the upper grades, but for my study it would not be appropriate, given the age of the students in my study and in their classrooms.

Crandall (1998) strongly recommends that the integration of language and content instruction be a collaborative effort between English language teachers and mainstream/content teachers. For the purpose of my study, however, I will first interpret the results of the study and then decide if text differentiation should be put into practice in the mainstream with the collaboration of English language teachers and mainstream teachers.

The results of my research provide data on how the use of differentiated texts for English language learners affects comprehension. Crandall (1994) expresses a need for more evaluation of the effectiveness of integrated instruction and the many components involved. In response, I would like to provide data in the area of text differentiation and adaptation and the implications the results could have for content-based instruction for ESL students in mainstream classes, and/or in the ESL classroom.

Text Modification

Short (1989) explains what a differentiated text would really look like for ESL students. In adapting materials, here are the steps to take when modifying a text:

1. Consider the Students' Proficiency Levels

   The first step in adapting materials requires a teacher to consider the

   proficiency level of the students and review possible ways in which

   information should be presented. Should the information be presented in

   chart or graph form, or a simplified prose version?

2. Build on Students' Prior Knowledge

    If possible, relate what is being learned to students' experiences.

3. Highlight Specific Text

    The amount of text will need to be reduced by emphasizing main points

and

    eliminating extraneous information. Using specific kinds of fonts, such as

    boldface, italics, and underlining can also be used to draw attention to the

    main idea and supporting details.

4. Control New Vocabulary

    Vocabulary can be simplified, but content obligatory language defined as

    the language needed for students to understand and communicate about a

    specific content material (Snow, Met, & Genesee, 1989) must be

    maintained in the modified text so that important concepts are not lost.

    New vocabulary encountered should be explained and reinforced.

5. Simplify Grammar

   - Use simple verb tenses in the present, past, and future.

- Simplify word order (eliminate clauses and utilize subject-verb-object format).

- Write in the active voice.

- Limit the use of pronouns and relative clauses.

- Repeat the subject noun to write straightforward prose to increase students' comprehension.

- Use verb + not form of negation instead of less clear forms of negation. Example: Write *She is not there* instead of *She no longer is there.*

6. Structure Paragraphs Carefully

The topic sentence must be first followed by details. Words that denote sequence (first, second, next), cause and effect (because), and contrast (but) should be carried over from the original text.

Short's words have helped define and validate my research in terms of how I've differentiated/modified a mainstream text, how extraneous information has been filtered out, and how the amount of text has been reduced. Indeed, Short offers significant guidance in differentiating/modifying mainstream texts for ESL students and cites data on how these adaptations increased middle school English language learners' comprehension of a social studies texts (Short, 1994), but has not provided data on the effects text differentiation has on third and fourth grade students. Hence, I would like to put Short's claims to the test and measure the comprehension English language learners achieve when reading mainstream content expository texts and differentiated texts.

Reading Comprehension & Assessment

There are several ways to assess reading comprehension. Miscue analysis (Goodman, 1973; Goodman & Burke, 1972) is one way to assess reading comprehension, in which students read a text out loud and the errors are noted, yet this is not a measure of overall comprehension of a text, and is more of a decoding assessment device. Another way to assess reading comprehension is by utilizing multiple choice questions. Yet this form of expressing comprehension can be limiting because it does not involve a student talking about or writing about their understanding of a text. A guess factor on multiple choice tests can affect results (Bernhardt, 1996). On the other hand, protocol assessment has been found to be the most valid form of assessment and has been recommended by second language assessment experts (Bernhardt, 1996). Recall protocol involves a student reading a text and then retelling what was read. It is considered to be the most straightforward assessment of the comprehension students experience when reading a text (Johnston, 1983). Additionally, Bernhardt (1996) asserts that recall protocol provides for a clearer assessment of comprehension and richer information than a list of questions about a text because questions only compound the amount of input the reader must interpret. Therefore recall protocol was the type of assessment chosen for this study.

There are different types of protocol assessments that can be utilized to determine reading comprehension scores, and I chose to use a simple propositional analysis in which protocol units are divided into breath groups or pausal units. Some recall protocol systems weigh each protocol unit differently depending on the importance of the facts

retold, however, I chose to use an unweighted system to keep the assessments more straightforward.

Bernhardt (1996) states that the reader's knowledge base and their attitudes must be taken into account when adequately assessing a student's second language reading ability. Likewise, Peregoy and Boyle (1997) state that it is not only second language proficiency that affects reading comprehension. The reader's prior knowledge of a text is a definite factor that can influence comprehension of a text. Because background knowledge can affect a reader's comprehension of a text, it was an important factor to consider when evaluating the ESL students' retell of the mainstream texts and differentiated texts. The level of interest students have in the content matter being read can also influence the comprehension of a text. Grabe & Stoller (1997) contend that a student's interest in the content of a course may foster intrinsic motivation and lead to more successful learning. Research shows that students with increased motivation and interest can read information better and understand it more holistically (Alexander, Kulikowich, & Jetton, 1994). Therefore, one of the assessment forms used in this study named Background Knowledge/Interest form, adapted from a format in Addison-Wesley's Authentic Assessment for English Language Learners, was used for the purpose of taking into account the possible influences of background knowledge and subject interest level on the comprehension of a text.

Second language learners need comprehensible input to acquire the English language, yet even with comprehensible input, it can take as many as seven to ten years to acquire academic language skills. Therefore, the need has been established to abandon

"one-size-fits-all" instruction and instead, provide instruction that better meets the needs of diverse learners, but ESL students have not always been taken into consideration when teaching strategies and methods have been cited. Content-based language instruction experts are strong advocates for English language learners and voice the necessity for understandable language in content instruction for ESL students and the need for more empirical evidence of the benefits of such instruction. Out of the many methods that can be used to make content more comprehensible, my focus has been on differentiating texts. Short (1989) provides examples of what a differentiated text would look like to benefit ESL student learning and has provided data on how such modifications indeed improve middle school ESL students' comprehension of a text or concept, but has not provided data on the effects of modifying texts on third and fourth graders. The goal of the next chapter is to provide information on how mainstream materials were differentiated/modified and how the assessment methods described in Chapter Two were created and utilized.

CHAPTER 3: Methodology

As stated in the literature review section, researchers have found that differentiation in the mainstream classes, whether it consists of differentiating content, process, or product (outcome), improves student comprehension of curriculum material and better meets the needs of students of differing levels of readiness (Tomlinson, 1995). Experimental data demonstrating comprehension achievement for middle school ESL students reading modified social studies texts has been cited by Short (1994). However, her research did not provide specific comprehension comparisons between reading mainstream expository texts and differentiated or modified versions of the mainstream text. Additionally, advocates for the integration of language and content instruction cite the importance of content-based instruction in making concepts understandable to English language learners (Snow & Brinton, 1997; Short, 1994), but more empirical evidence is needed to support the effectiveness of integrated instruction and the use of various texts (Crandall, 1994). Consequently, I collected data on the impact differentiated texts have on comprehension for third and fourth grade ESL students. Data was collected on the comprehension scores of reading two mainstream expository texts and differentiated versions of each mainstream text. This section has been separated into four parts: *Context and Subjects*, *How the Texts were Differentiated*, *Assessment Material Preparation*, and *Data Collection Procedure.*

Context and Subjects

　　The study took place in an English as a Second Language classroom for eight weeks during the months of February and March of 2002. The subjects consisted of eight third graders and seven fourth graders who are currently in an ESL program and receive varying services based on their proficiency levels, ranging from one and a half hours a day to two hours a week in a pullout program. The six boys and nine girls are from the following countries: Somalia, Russia, Vietnam, and Afghanistan. They were chosen because each of their English proficiency levels was known, which made it possible to create a differentiated text that more closely suited them. English proficiency levels were determined by the Language Assessment Scales test (see Appendix D). Their English proficiency levels range from non-literate to competent literate. It should be noted that the three competent literate students are still receiving ESL services because although they are competent in English according to the Language Assessment Scales test, they have trouble with academic vocabulary knowledge and reading comprehension in their mainstream classes. Furthermore, third and fourth graders were chosen because they are required to read more expository texts in their mainstream classes than in first or second grade. All of the students continued to receive ESL instruction and the data was collected outside of this time. Consent was given by the parents of the ESL students and by the school district in which I am employed to have these students participate in my study.

How the Texts Were Differentiated

Below are the six steps described in the Literature Review that are taken when differentiating mainstream expository texts (Short, 1989). Examples of each step are provided in reference to *The Changing Earth* mainstream text and the differentiation of it and the *Exercise and Sleep* mainstream text and its differentiated version. The same six steps were taken when differentiating both mainstream texts, but the modifications needed for each text were dependent upon the nature of the text.

A. ***The Changing Earth* modifications** All references to the mainstream text *The Changing Earth* come from Mallinson et. al., 1987, p. 167-169. The differentiated text can be found in Appendix C, p.83-86.

- **Consider the students' proficiency levels**

As stated previously, proficiency levels of the ESL students participating in the study were determined by Language Assessment Scales scores. It should be noted that in a natural ESL or mainstream classroom setting, modifications to a text would be done in reference to each ESL student's individual proficiency level; for the purpose of this study, however, one modified version of the mainstream text was created so that comprehension scores of students reading the same mainstream text and modified text were more accurately comparable.

- **Build on students' background knowledge**

For the purpose of this study, background knowledge was considered to be a

variable that could effect the comprehension of a text, so students were questioned about how much they felt they had already learned about the earth and its layers after reading *The Changing Earth.*

- **Highlight specific text (Reduce the amount of text by identifying main ideas, concepts, and pertinent details in the text and eliminating extraneous information)**

Using *The Changing Earth* as an example, the main idea was identified as being about the earth, or more specifically, about the layers of the earth. After reading through the text several times, the main concepts and pertinent details surrounding those concepts were listed and a recall protocol assessment form was created reflecting the main idea, concepts and pertinent details (see Appendix B). Extraneous information that confused English language learners or wasn't necessary in understanding the concepts, was eliminated after assessing student comprehension of the mainstream text. For example, when the students read the mainstream text about the inside of the earth, there was an analogy comparing the earth's layers to a hard-boiled egg. Instead of clarifying the concept for students, it confused some them, resulting in an interpretation that the earth was made up of eggs. As a result, such an analogy was seen as extraneous or misleading information and was eliminated from the differentiated text. Additionally, the authors of the mainstream text, in an effort to compare the earth to humans, asked questions in the text, such as "How old are you?" and "Have you changed since last year?" The purpose of such questions was to make a connection between the earth and people, both changing as they get older. Unfortunately, this was confusing to students,

and consequently was eliminated. In the differentiated text, the idea that the earth is old and has changed was stated simply and clearly.

- **Control new vocabulary: (Consider necessary vocabulary to teach the concept and eliminated extraneous vocabulary.)**

Vocabulary words that were necessary to learn about the concepts and details in *The Changing Earth,* called content-obligatory language (Snow, Met, & Genesee, 1989), were used in the differentiated version.   The following words were identified as being content-obligatory language: *earth, three, layers, inside, outer, crust, thin, live, grow, food, rock, soil, oil, second mantle, dug, hot, third, core, hard,* and *center*. Other vocabulary that posed comprehension problems were reworded. An example of this was replacing the word *beneath* in the mainstream text with *under* in the differentiated text because students had a problem reading the word *beneath*, so it was replaced with a more common preposition. Another example was replacing the word *solid* in the mainstream text with the word *hard* in the differentiated text because students were reading *solid* as *soiled* and therefore, misinterpreting meaning. The word *hard* is a more common adjective. Words that were not deemed necessary to an understanding of the concept were eliminated.

- **Simplify grammar**

The grammar used in the mainstream version of *The Changing Earth* was already quite simple. Yet, there were a few changes that needed to be made.

1. **Passive voice,** such as "The outer layer of the earth *is called* the crust" was changed to active voice: "The outer layer *is* the crust" in the differentiated version.

2. **Word order** was simplified when necessary to depict subject-predicate-object word order. Taking this into consideration, "Under the earth's crust there is a thicker layer of rocklike material" (adverbial phrase-subject-predicate) was changed to "The second layer is under the crust" (subject-predicate).

3. The number of **pronouns** used in the mainstream text was very few and subject nouns were repeated, so the number of pronouns in the modified text did not need to be changed.

4. The use of **relative clauses** in the differentiated version was avoided.

5. **Negation** in the differentiated version was changed from the use of an adverb of frequency to *verb + not* negation. For example, in the mainstream version, the sentence, "Scientists have *never* dug into the mantle." was changed to "Scientists *have not* dug into the mantle."

- **Structure paragraphs carefully: Take into consideration the paragraph organization and order of ideas in the text.**

The order of ideas in *The Changing Earth* mainstream text and paragraph organization were examined and found to be easy to follow. Therefore, the same order of ideas was used in the differentiated text. Signal words such as *first*, *second*, and *third* were added to the differentiated text, but were not present in the mainstream text. The

purpose of utilizing such vocabulary was to signal the reader to the sequential manner of the text. Moreover, information about each layer was provided on a single page to more cohesively focus the reader's attention to the details of each earth layer. For example, information about the crust was on the third page, information about the mantle was on the fourth page, and information about the core was on the fifth page.

- **Adapt visuals to the text**

Short (1994) emphasizes the fact that sometimes the pictures and photos chosen for a text do not necessarily highlight the main ideas being discussed in the text, and therefore can confuse or distract English language learners. This describes exactly what happened when ESL students tried to use the pictures to interpret *The Changing Earth* mainstream text. The visuals were a bit misleading for some of the ESL students who were relying on the pictures to coincide with the text. For example, on the page of the text where the mantle and core are introduced and explained, there are pictures of a farm and a rock outcrop. These pictures were misleading for the readers when they tried to find meaning in the text by using the specified visual supports. Therefore, in the modified version of the text, the visuals were presented to reflect specifically what the text contained. A picture of the earth and a cross section of the earth were the only visuals used in the text, but they were repeated throughout the text. On the cross section of the earth, each layer was clearly labeled with the name of the layer and the number of the layer to coincide with the text.

B. *Exercise and Sleep* **modifications** All references to the mainstream text

Exercise and Sleep come from Mallinson et. al., 1987, p. 257-259. The

differentiated text can be found in Appendix C, p.87-99.

Below are the six steps taken when differentiating the *Exercise and Sleep*

mainstream expository text. Examples of each step are provided below.

- **Consider the students' proficiency levels**

The procedure regarding proficiency levels was already explained under the

modifications of *The Changing Earth* section.

- **Build on students' background knowledge**

For the purpose of this study, background knowledge was considered to be a

variable that could effect the comprehension of a text, so students were questioned about

how much they felt they had already learned about exercise and sleep after reading the

mainstream text.

- **Highlight specific text**

In the reading *Exercise and Sleep*, the main idea was identified as being about

exercise and sleep.   After reading through the text several times, the main concepts and

pertinent details surrounding those concepts were listed, and a recall protocol assessment

form was created reflecting the main idea, concepts, and pertinent details (see Appendix

B). Extraneous information that wasn't necessary in understanding the concepts was

eliminated. If there were groups of sentences that conveyed an idea, they were reduced

to one or two sentences that highlighted the idea.   For example, in the mainstream text,

the sentences, "Exercise keeps the muscles in your body strong. Muscles that are well

exercised can work longer without getting tired" was reduced in the modified text to

highlight the idea that, "Exercise makes your muscles strong." Here is another example

of how the important points in the mainstream text were rewritten to highlight them: In

the mainstream text it was written, "You can get exercise in many different ways. You

can walk or ride a bicycle. You can jump rope or swim. You can play games such as

softball." This was changed in the modified text to, "Jumping rope is exercise. Walking

is exercise. Swimming is exercise. Playing softball is exercise. Riding a bike is

exercise." In the modified/differentiated text, the ideas were written in four clear,

repetitive sentences, in an effort to highlight ways of exercise more blatantly.

- **Control new vocabulary**

The content-obligatory language that was necessary to learn about the concepts

and details in *Exercise and Sleep* were used in the differentiated version.   Most of the

vocabulary present in the mainstream version of *Exercise and Sleep* was utilized in the

differentiated version of the reading. However, the number of visuals presented in the

text to represent those vocabulary words was greatly increased. This will be explained in

more detail in the bulleted section entitled *Adapting visuals to the text.*

- **Simplify grammar**

  1. **Verb tense:** In both versions, the primary verb tense used was present

     tense in the active voice.

  2. **Word order** was simplified when necessary to depict subject-predicate-

     object word order. For example, "Some exercises you can do by yourself

     are walking, running, or jumping rope" was changed to simple subject-

predicate word order, "Running is exercise. Walking is exercise. You can exercise alone."

3. **Pronoun usage:** The number of pronouns used in the differentiated text was reduced, specifically personal and possessive pronouns in the second person. Instead, the subject noun was used to make the reading more straightforward. Here is an example of a change:

Mainstream version: " You can play soccer or volleyball."

Modified version: "Playing soccer is exercise. Playing volleyball is exercise."

The table below reflects the reduction of pronoun usage when writing the modified text:

Table 1

Pronoun Usage Reduction in Modified and Differentiated Texts

Pronoun	you	your	reflexive: your/itself
Mainstream	23	15	3
Modified	12	10	0

4. The use of **relative clauses** in the differentiated version was reduced, although they were not used that frequently in the mainstream text. Two clauses containing relative pronouns in the mainstream text were not utilized in the modified text. The sentences containing relative clauses are: "Muscles that are well exercised can work longer without getting tired" and "You know (that) you have had enough sleep if you wake up feeling

rested." Yet, clauses containing the relative adverbial use of *when* were used in the modified text as well as in the mainstream text to preserve meaning. Some examples of this usage in the modified text are:

a. "Your mind rests *when* you sleep."

b. "Your heart beats slower *when* you sleep."

5. **Prepositions:** The number of prepositions in the modified text was reduced. For example, the preposition *by*, in the sense of a means of doing something, was reduced in an effort to increase clarity and straightforwardness in the text. Here is an example of a change that was made: "You can also exercise by playing games with your friends" was changed to, "You can exercise with your friends." The concept of playing games was provided separately.

6. The use of **negation** in the mainstream text was appropriate for second language learners by using the *verb + not* form of negation. Only one change was made regarding negation. This sentence in the mainstream text, "Without sleep, your body becomes tired and worn-out" was changed to, "You feel tired when you don't sleep."

- **Structure paragraphs carefully**

The order of ideas in *Exercise and Sleep* were examined and I determined that the organization of ideas regarding exercise needed to be clarified by grouping the ideas in a more organized manner. Specifically in the mainstream version of the text, the benefits of exercise and five different ways of exercise are listed, the amount of time one should

exercise a day is stated, and then more types of exercises are listed separated by exercises

that can be done by oneself and with friends. In the modified version the same

information was provided, but the types of exercise were grouped together to provide

more cohesion to the ideas in the text. The order of ideas presented on the topic of sleep

stayed the same. The following table demonstrates the changes that were made to the

order of ideas presented in the mainstream text of *Exercise and Sleep* when writing the

modified text.

Table 2

Changes Made to Order of Ideas in Exercise and Sleep Modified Text

Text	Mainstream Version	Differentiated/Modified Version
IDEA 1	Exercise in different ways: *One* of three lists of exercises a. walk b. ride bike c. jump rope d. swim e. softball	Kinds of exercise: One list *only* of exercises a. jumping rope b. walking c. swimming d. playing soccer e. playing softball f. playing volleyball g. running-race friends h. riding a bike
IDEA 2	Exercise 15 minutes a day	Exercise alone
IDEA 3	Exercise by yourself: *Second* listing a. walking b. running c. jumping rope	Exercise with friends
IDEA 4	Exercise with friends: *Third* listing a. soccer b. volleyball c. race with friends	Exercise 15 minutes a day

- **Adapt visuals to the text**

There were four visuals in the mainstream text representing vocabulary, whereas the number of visuals incorporated into the modified version was twenty-one total, some of which repeated. Short (1994) asserts that portraying information visually serves language learners by emphasizing important ideas and reducing dependence on the written word. Hence, the goal of incorporating these visuals was to increase correspondence between the written word and the visual that demonstrates it. Below is a list of words represented by visuals in the mainstream text and the differentiated text.

List of vocabulary that was represented by visuals in the mainstream text

1. softball   2. exercise   3. jumping rope   4. a child in bed (sleep)

List of vocabulary that was represented by visuals in the modified text

1. muscles	2. heart	3. jumping rope	4. walking
5. swimming	6. soccer	7. softball	8. volleyball
9. running	10. riding bike	11. exercise alone	12. exercise w/friends
13. 15 mins/day	14. sleep	15. heart beats	16. resting
17. tired	18. sick	19. person sleeping	20. baby sleeping

21. racing friends

Assessment Material Preparation

This comparison study regarding comprehension consisted of creating two adaptations to recall protocol assessments (Bernhardt, 1996) that I entitled Main

Idea/Concepts Assessment, a propositional unweighted analysis recall protocol

assessment (Johnson, 1970), written comprehension questions, and a Background

Knowledge/Interest form that I adapted from a Story Retelling Checklist (O'Malley &

Valdez Pierce, 1996). All assessment forms can be found in Appendix B.

1. **Main Idea/Concepts Assessment: an adaptation to traditional recall protocol**

For the purpose of assessing each student reading each type of text, differentiated

and mainstream, this assessment was created by identifying the main ideas and concepts

being

conveyed in the mainstream texts and differentiated versions of each. I was careful,

however, to not create protocol units that did not carry meaningful information. For

example, if a protocol unit consisted of simply the word *additionally* because there was a

pause before and after the word, I combined it with the next meaningful unit in the text.

In a student's retell of a text, I wanted to focus on meaningful content they could recall,

and the word *additionally* should not stand alone because when it is solitary, it does not

carry content meaning. Some recall protocol systems weigh each protocol unit

differently depending on the importance of the facts retold, however, I chose to use an

unweighted system to keep the assessments more straightforward. Once the main

idea/concepts protocol units were identified, a checklist was devised to use during the

students' retells to reflect what concepts they understood. The checklists citing the main

ideas and concepts were the same for the mainstream and differentiated version of each

respective mainstream text for comparability purposes.

Specifically, the students talked about what they read into a tape recorder and these recordings were later examined by checking off items retold on the Main Idea/Concepts Assessment form. A second assessor examined the results as well to increase the validity of the assessment process. One assessment form was created to score comprehension of *The Changing Earth* texts and one was created to score the *Exercise and Sleep* texts.

The purpose of this assessment was to provide a more quantitative comparison of the students' comprehension of the texts by calculating a percentage of the number of ideas in each text that were mentioned in each retell.

2. Propositional unweighted analysis recall protocol assessment

In addition to the two adapted recall protocol assessments, a propositional unweighted analysis recall protocol assessment (Johnson, 1970) was used to assess student comprehension when reading the mainstream text two times, with a wait period of about a week and a half in between each reading. A propositional unweighted analysis is a recall protocol assessment in which the text is divided into units where a person naturally pauses when reading, and these units are checked off when a student mentions them during his/her retell; each unit, however, is weighted the same.

The purpose of having the students read a separate mainstream text two different times was to record possible learning that could occur, despite an absence of teacher instruction, when reading a text a single time. This additional assessment ensured the validity of this study to account for mainstream texts possibly providing background information to aid in the comprehension of the content in the differentiated texts.

3. Comprehension questions

Written retell assessments were created to provide more than one way for students to express their comprehension of the mainstream and differentiated texts. Although most students learning English as a second language acquire spoken English that is used in everyday conversation more quickly than written English (Cummins, 1984), there is a chance that some students may express their understanding of a text more completely in writing. Therefore to ensure that true comprehension was expressed, both oral and written assessments were analyzed. The comprehension questions about the mainstream and differentiated texts were developed to assess student understanding of the main ideas and concepts in the text. Similar to the oral assessment tool, one comprehension question form was created for *The Changing Earth* texts and one for the *Exercise and Sleep* texts. The Main Idea/Concepts Assessment form for each text were used as rubrics to score the written assessments.

4. Background Knowledge/Interest form

After the students talked about what they read and recalled facts, I took notes on the background/concept knowledge and interest levels the students had in the subject being read, and recorded the information on a Background Knowledge/Interest form for each text reading. Other information to complete the form, such as the adding of personal experiences to the retell, was recorded while listening to the taped retells. The purpose of this assessment form was to record other variables that could possibly influence students' comprehension of the texts.

Data Collection Procedure

During the readings and retells of the texts, students received no explicit teacher instruction on the subjects of the texts. The students simply read them and expressed their understanding verbally and in written form. Sufficient wait time was taken between reading the mainstream texts and the differentiated versions of those texts and when reading the single mainstream text twice. As noted previously, the purpose of having the students read a mainstream text twice was to determine if a first reading of a text could provide background knowledge to aid in the comprehension of reading the text a second time.

A. Data collection procedure for the mainstream texts that were differentiated:

1. Each student individually read the mainstream texts *The Changing Earth* and *Exercise and Sleep.* The students read the texts once and read it silently to prevent attention to performance rather than content. They were instructed to take their time, relax, and let me know when they were finished.

2. The student talked about what was read into a tape recorder. If information about major details in the text were not shared, he/she was prompted to share them, yet the prompts were consistent from student to student. If a student could not respond to a prompt, that concept was not demonstrated to be understood. Below are the prompts that were used and the conditions that required them.

   The Changing Earth prompts:

- What was the main idea of this reading? (Condition: if the student didn't share an understanding that the reading was about the earth)

- What did you read about the earth? (Condition: if the student didn't initiate the sharing of information)

- What did you read about the layers of the earth? (Condition: if the student didn't mention the layers of the earth)

- How many layers make up the earth? (Condition: if the student didn't share how many layers make up the earth)

Exercise and Sleep prompts:

- What was the main idea of this reading? (Condition: if the student didn't share an understanding that the reading was about exercise and sleep)

- What did you read about exercise? (Condition: if the student didn't initiate sharing or only talked about sleep)

- What did you read about sleep? (Condition: if the student didn't initiate sharing or only talked about exercise)

While students were telling about what they read, they were allowed to look at the pictures to stimulate their memory of the text. They were not allowed to reread the text, however.

3. The students filled out the written comprehension page. Like the oral retell, the students were allowed to look at the pictures of the text to remind them of what was read, but were not allowed to copy from the book.

4. Each student was questioned about his/her personal interest level in the subject and how familiar he/she felt with the topic, to reflect background knowledge, and to rate him/herself on a scale of none, some, or a lot. Their answers were recorded on the Background Knowledge/Interest form. The scale was explained as:

   None = "The text was boring. You don't like reading about such things."

   Some = "The text was kind of interesting. You might like to know more
   about the subject."

   A lot = "You really like reading about this subject. You want to know more
   about it."

5. Without the student present, the tape was listened to and the retells were written down for analysis. Information was recorded on the Main Idea/Concepts Assessment form.

6. Approximately two weeks later, each student read the differentiated versions of the mainstream texts about *The Changing Earth* and *Exercise and Sleep* and information was recorded in exactly the same manner as it was for the mainstream expository text readings.

B. Data collection procedure for the mainstream text that wasn't differentiated:

Students individually read the mainstream text *Looking at the Moon and the Sun* to determine if reading a text a single time, without teacher instruction, could

influence comprehension of the text when reading it a second time. The procedure used for assessing oral student comprehension was exactly the same as it was for the reading of the mainstream and differentiated text readings. Data was collected on oral retells only, because the mainstream and differentiated text retellings demonstrated that indeed, all of the students were much stronger in their English verbal skills than written, and thus the oral retell assessment would be sufficient for the purpose this repeated reading served.

The context and subjects of this research have been described and the methods of differentiating texts were explained with examples given. The assessment tools were described that measured comprehension of both mainstream and differentiated texts and data collection procedures were explained. The data was successfully collected on the comprehension ESL students achieved when reading mainstream expository science texts and differentiated versions of the mainstream texts. The next chapter will provide the results of the ESL students' comprehension assessments. The information will be presented in written, chart, and graph form to provide a visual compilation of the results.

CHAPTER 4: Results

The results have revealed that indeed, differentiating/modifying mainstream expository texts has a positive impact on the comprehension ESL students experience when reading the text. All students who read *The Changing Earth* experienced improved comprehension of the text based on retells after reading the modified text. All but one student experienced improved comprehension when reading the modified version of *Exercise and Sleep.* Before providing the comprehension results of the mainstream and modified text readings, the results will be shared regarding the amount of pre-learning that *may* occur when reading a text for the first time, which could impact the comprehension of the second reading of the same text. As stated in the previous Methodology section, the purpose of providing these results is to reassure the reader of the validity of the mainstream and modified reading comprehension results, to show that the reading of the mainstream texts, *The Changing Earth* and *Exercise and Sleep,* did not provide a significant amount of pre-learning or background information to influence the students' comprehension of the modified texts. Next, the results of *The Changing Earth* mainstream and modified comprehension assessments will be shared, and the results of the *Exercise and Sleep* readings will follow. Last, background knowledge/interest level and proficiency levels of the students will be shared in reference

to the comprehension students achieved when reading each mainstream and differentiated text.

Assessing ESL students' comprehension of two separate readings of the mainstream expository text *Looking at the Moon and the Sun* (see Appendix C), proved to be very helpful in determining if reading a text once, with no teacher instruction, can provide background information or serve as pre-learning for the second reading. An available sample of the fifteen ESL participants in this study were chosen to read *Looking at the Moon and the Sun* twice and retell what they read both times. A total of eight children read the text two times, with about a week and a half wait time between the readings. Out of the eight students, six of them retold the information more completely on the second reading of the text than on the first, and two students had retells where their comprehension percentage scores decreased on the second reading. The following table shows the results of the first and second readings of *Looking at the Moon and the Sun.*

Table 3

Comprehension Percentages of Reading Looking at the Moon and the Sun Twice

Student Number	First Reading Protocol Assessment	Second Reading Protocol Assessment	Percentage Point Difference +/-
2	$3/66 = 4.5\%$	$4/66 = 6\%$	+1.5
3	$3/66 = 4.5\%$	$6/66 = 9\%$	+4.5
4	$9/66 = 13.6\%$	$8/66 = 12\%$	-1.6
7	$2/66 = 3\%$	$4/66 = 6\%$	+3
8	$3/66 = 4.5\%$	$2/66 = 3\%$	-1.5
10	$5/66 = 7.6\%$	$7/66 = 10.6\%$	+3
12	$5/66 = 7.6\%$	$15/66 = 22.7\%$	+15.1
13	$6/66 = 9\%$	$10/66 = 15.1\%$	+6.1

As shown in Table 3, there is an overall comprehension gain on the second reading, but for most of the students, it's quite small in comparison to the comprehension gains made when students read the modified texts. For example, even when the comprehension percentage gains on *Looking at the Moon and the Sun* are subtracted from the gains students experienced on their oral retells of the modified texts, the comprehension gains made when reading the modified texts for almost all of the students are still substantial. Therefore, it can be concluded that an initial reading of a text can provide some pre-learning for reading the same text the second time or a text on the same subject. Yet, the amount of pre-learning, with no teacher instruction, is overall quite trivial.

In this study comparing ESL students' comprehension of a mainstream text and the differentiation of it, all fifteen students seemed to improved a great deal on the differentiated/modified *The Changing Earth* text orally. Fourteen out of the fifteen students improved their comprehension when responding to the differentiated version of the text in writing and one student's score stayed the same. Average oral gains were greater than average written gains, demonstrating the possibility that the students' oral skills are stronger than their written skills. The results of *The Changing Earth* readings can be found in Table 4 and demonstrated in Figures 1 and 2.

The comprehension results of *Exercise and Sleep* mainstream and modified text versions show that all but one student seemed to experienced better comprehension of the modified text than the mainstream text in oral retells. Ten out of the fifteen students improved their comprehension scores when writing about the differentiated version of

Exercise and Sleep, while three students' comprehension decreased and two stayed the same. It is difficult to identify the specific factors that caused some students to decrease in oral or writing performance after reading the modified version of *Exercise and Sleep*, but speculations will be discussed in Chapter Five. The results of the *Exercise and Sleep* readings can be found in Table 5 and demonstrated in Figures 3 and 4.

Comparably, students' comprehension gains were similar when reading the modified version of *The Changing Earth* and the modified version of *Exercise and Sleep*. This was despite the fact that *The Changing Earth* was a more abstract text, about which students claimed to have less background knowledge than the more concrete reading *Exercise and Sleep*. Oral and written retell averages are explained in more detail below. It should be noted that the following averages reflect all participant ESL students, regardless of proficiency level.

Oral retell averages

Table 4 shows that the comprehension of the mainstream oral retell of *The Changing Earth* averaged 19.7% and the differentiated oral retell averaged 50.3%, bettering the comprehension score of the text by an average of 30.7 percentage points. Likewise, Table 5 shows that the comprehension scores of the mainstream oral retell of *Exercise and Sleep* averaged 29.2% and the differentiated oral retell averaged 59.8 %, bettering the comprehension score of the text by an average of 30.6 percentage points. Although the students experienced, on average, a lower comprehension score on *The Changing Earth* mainstream and differentiated texts than on the *Exercise and Sleep* mainstream and differentiated texts, the percentage point gains on reading the

differentiated texts are practically the same. This alludes to the possibility that the difficulty of a mainstream text may not affect the positive comprehension gains that could be made by differentiating that text. The implications of this will be discussed in Chapter Five.

Written retell averages

Table 4 shows that the comprehension of the mainstream written retell of *The Changing Earth* averaged 15% and the differentiated written retell averaged 39.4%, bettering the comprehension score of the text by an average of 24.4 percentage points. Table 5 shows that the comprehension scores of the mainstream written retell of *Exercise and Sleep* averaged 16.4% and the differentiated written retell averaged 22.4 %, bettering the comprehension score of the text by an average of 4 percentage points. The comprehension gains when the students wrote about the differentiated version of *The Changing Earth* appeared to be higher than when they wrote about the differentiated version of *Exercise and Sleep*. This could, perhaps, be due to the difference in length of the two texts; *The Changing Earth* was quite a bit shorter than *Exercise and Sleep,* and the students may have felt it was easier to write more completely about a shorter text. However, these are simply speculations.

Table 4

The Changing Earth Comprehension for Oral and Written Retells

Student Number	Mainstream Text Oral retell	Differentiated Text Oral retell.	Percent Point Difference	Mainstream Text Written retell	Differentiated Text Written retell	Percent Point Difference
1	0 %	13%	+ 13	0%	9.5%	+ 9.5
2	0%	47.8%	+ 47.8	9.5%	42.9%	+ 33.4
3	0%	34.8%	+ 34.8	0%	9.5%	+ 9.5
4	4.3%	60.9%	+ 56.6	4.8%	33.3%	+ 28.5
5	13%	43%	+ 30	23.8%	42%	+ 18.2
6	30.4%	43%	+ 12.6	19%	38%	+ 19
7	8.7%	43%	+ 34.3	9.5%	42%	+ 32.5
8	8.7%	18%	+ 9.3	4.8%	19%	+ 14.2
9	21.7%	39%	+ 17.3	19%	47.6%	+ 28.6
10	34.8%	73%	+ 38.2	14.3%	65%	+ 50.7
11	26%	65%	+ 39	38%	38%	0
12	69.6%	73.9%	+ 4.3	38%	81%	+ 43
13	21.7%	69.6%	+ 47.9	9.5%	38.1%	+ 28.6
14	26%	75%	+ 49	25%	38%	+ 13
15	30.4%	56.5%	+ 26.1	9.5%	47.6%	+ 38.1
Averages	19.7%	50.4%	**avg. gain 30.7**	15%	39.4%	**avg. gain 24.4**

Figure 1
The Changing Earth Comprehension for Oral Retells

Comp. Percentage Score — Students by Number

mainstream
differentiated
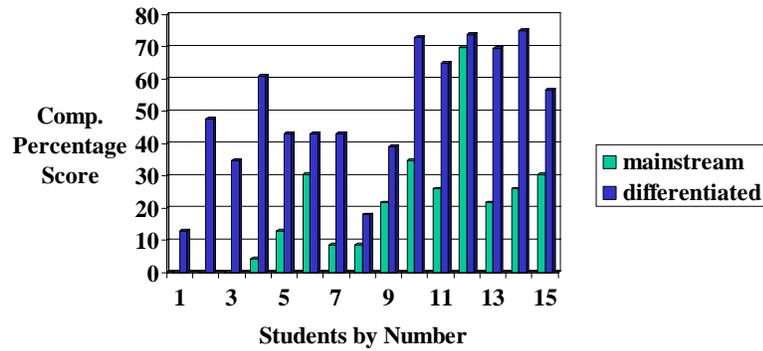
Figure 2
The Changing Earth Comprehension for Written Retells

Comp. Percentage Score — Students by Number

Mainstream
Differentiated
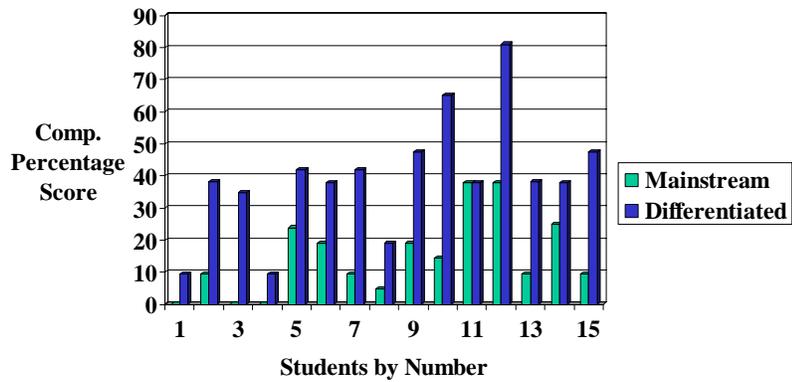
Table 5

Exercise and Sleep Comprehension for Oral and Written Retells

Student Number	Mainstream Text Oral retell	Differentiated Text Oral retell	Percent Point Difference	Mainstream Text Written retell	Differentiated Text Written retell	Percent Point Difference
1	7.1%	35.7%	+ 28.6	7.1%	10.7%	+ 3.6
2	21.4%	64.3%	+ 42.9	7.1%	10.7%	+ 3.6
3	17.9%	46.4%	+ 28.5	3.6%	7.1%	+ 3.5
4	7.1%	46.4%	+ 39.3	3.6%	21.4%	+ 17.8
5	28.6%	57.1%	+ 28.5	7.1%	10.7%	+3.6
6	39.3%	53.6%	+ 14.3	21.4%	17.9%	- 3.5
7	28.6%	64.3%	+ 35.7	21.4%	25%	+ 3.6
8	28.6%	75%	+ 46.4	14.3%	14.3%	0
9	39.3%	89.3%	+ 50	14.3%	10.7%	-3.6
10	42.9%	39.3%	- 3.6	21.4%	36%	- 14.6
11	37.5%	57%	+ 19.5	21.4%	21.4%	0
12	50%	82.1%	+ 32.1	60.7%	82.1%	+ 21.4
13	28.6%	82.1%	+ 53.5	14.3%	25%	+ 10.7
14	28.6%	60.7%	+ 32.1	10.7%	32.1%	+21.4
15	32.1%	42.9%	+ 10.8	17.9%	10.7%	- 7.2
Averages	29.2%	59.8%	**avg. gain 30.6**	16.4%	22.4%	**avg. gain 4**

Figure 3
Exercise and Sleep Comprehension for Oral Retells

Comp. Percentage Score / Students by Number

Mainstream
Differentiated
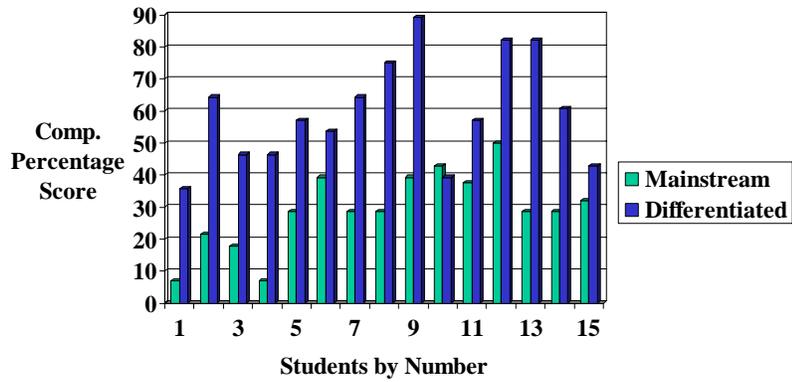
Figure 4
Exercise and Sleep Comprehension for Written Retells

Comp. Percentage Score / Students by Number

Mainstream
Differentiated
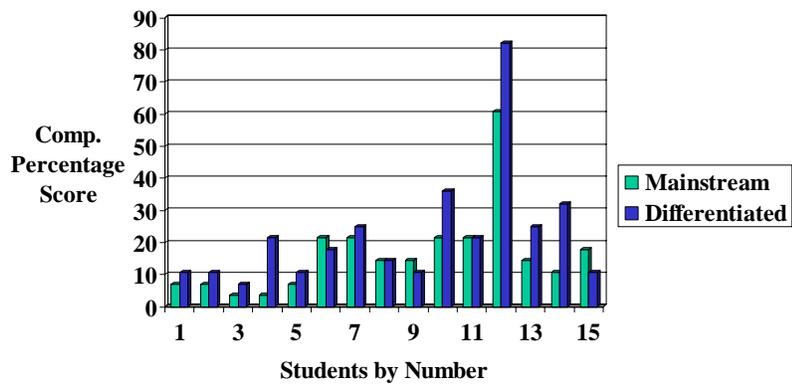
As exemplified previously, gains in comprehension occurred when reading differentiated texts, demonstrated in both oral and written retells. Higher gains were made in the oral retells, which can be explained perhaps by students' oral skills being stronger than their written skills.

It should be noted that these percentages reflect "cold reads" of texts that involved, as previously noted, no instruction whatsoever. Therefore, percentage scores students experienced should not be analyzed the same way as performance test scores for which students have studied the pertinent material. Instead, it is the percentage point gains, or the positive differences the ESL students experienced when reading differentiated versions of the mainstream texts that are important. Indeed, students experienced notable gains in comprehension when reading the modified texts.

Background knowledge/interest level and the effect on comprehension gains

Overall, students had more interest and background knowledge of the concepts in *Exercise and Sleep* than *The Changing Earth*.   However interestingly enough, about the same percentage point gains were made when reading both texts, despite different amounts of background knowledge and interest levels. This shows that whether the text is more abstract about which students know less, or more contextual containing content with which students are more experienced, differentiated texts improve comprehension. On the following pages is the background knowledge and interest level data demonstrated in Figures 5 and 6.

Figure 5
Background Knowledge/Interest of Students Reading The Changing Earth
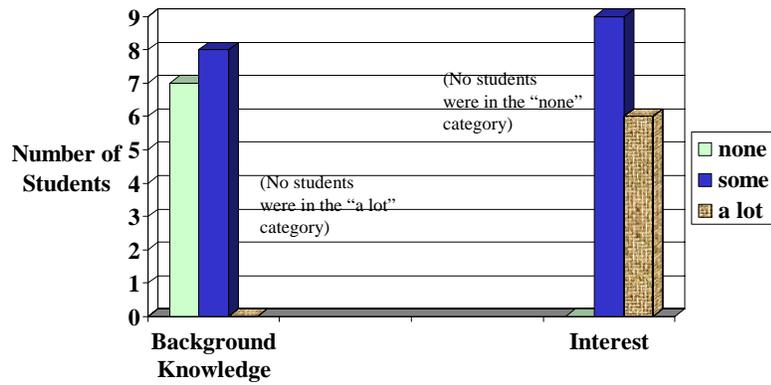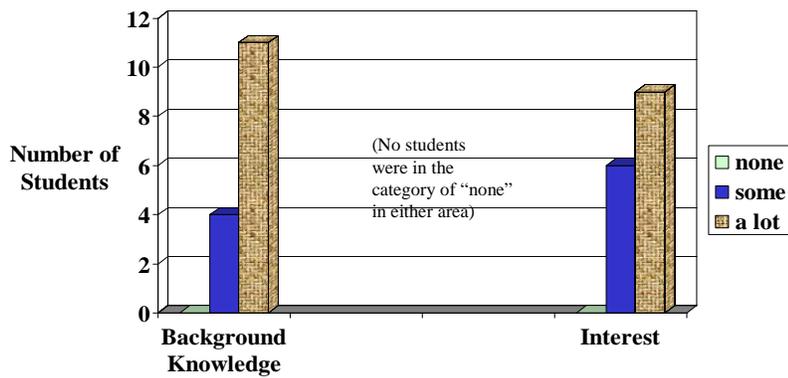

(No students were in the "none" category)

(No students were in the "a lot" category)

Number of Students

Background Knowledge

Interest

none
some
a lot

Figure 6
Background Knowledge/Interest of Students Reading Exercise and Sleep

(No students were in the category of "none" in either area)

Number of Students

Background Knowledge

Interest

none
some
a lot

Proficiency levels and the effect on comprehension gains

Proficiency levels of students have been divided into three levels, non-literate, limited literate, and competent literate. More specifically, students have been further described as being low, middle, or high within each level. See the table below for the number of students at each proficiency level.

Table 6

Number of Students at Non-Literate, Limited Literate and Competent Literate Proficiency Levels

	Non-Literate			Limited Literate			Competent Literate		
	Low	Middle	High	Low	Middle	High	Low	Middle	High
Number of students each proficiency level	0	3	2	3	2	2	2	1	

The non-literate and competent literate students seemed to make the most gains, followed by the limited literate; all proficiency levels, however, benefited from the differentiation/modification of the texts because all levels, on average, made improvements in comprehension in comparison to reading the mainstream text. Speculation on why non-literate and competent literate students made more gains than limited literate students will be discussed in Chapter Five. Data collected on the comprehension gains experienced by the students at different proficiency levels is listed in Figures 7 and 8. The data reflects only oral retell results, for as it was clearly shown in Tables 4 and 5 and Figures 1 through 4, the ESL students' oral retells more accurately portrayed their comprehension of a text than the written retells.

Figure 7
 Proficiency Levels and Comprehension Gains: Oral Retell of The Changing Earth Differentiated Text
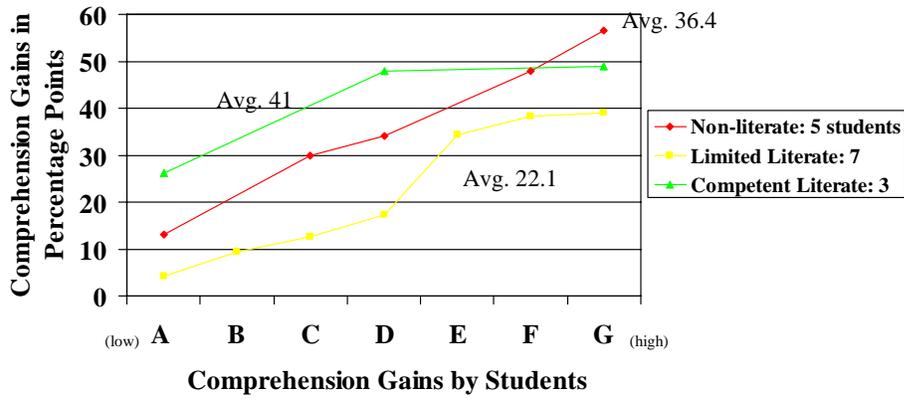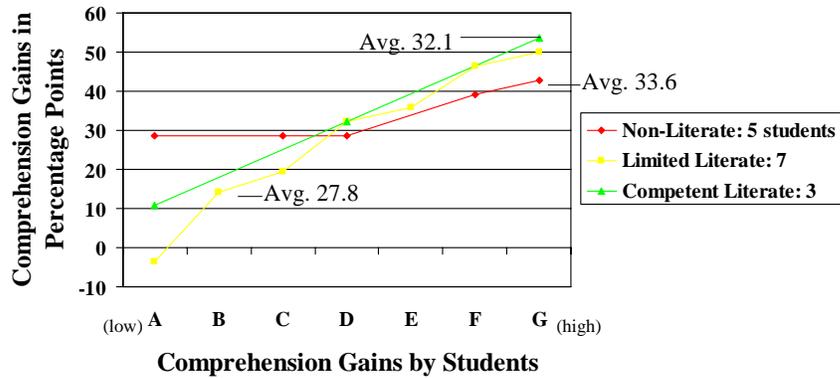

Figure 8
 Proficiency Levels and Comprehension Gains: Oral Retell of Exercise and Sleep Differentiated Text

The comprehension assessment results show that indeed, students experienced, on average, about a 30 percentage point gain when reading the differentiated/modified texts of mainstream texts when examining oral retell results. It has also been demonstrated that a single reading of a mainstream text does not provide a significant amount of pre-learning to aid in the comprehension of the modified text. Surprisingly, background knowledge and interest level did not seem to be an effective factor in the comprehension gains students experienced when reading both modified texts. It should be noted that the effects of background knowledge and interest level on comprehension could be the focus of an entirely different study and were taken into consideration to increase the validity of this study, but by no means were the main focus. Last, it was shown that students at all proficiency levels experienced comprehension gains when reading modified texts. Yet, the students at the non-literate and competent literate proficiency levels appeared to make the most gains in comprehension. Reactions to the outcomes and implications of this study will be shared in Chapter Five.

CHAPTER 5: Conclusion

In this chapter, I will reflect on how modifying mainstream expository texts affects the comprehension ESL students achieve when reading, and communicate my thoughts about the process and outcome of this study. Furthermore, I will discuss the implications this study has on second language education.

As exemplified in Chapter Four, the results strongly suggest that indeed, modifying mainstream texts for English language learners improves the comprehension they experience when reading such texts. The strongest mode of expression of comprehension by students was through oral communication, and this was to be expected since oral skills in a second language usually develop more quickly than written skills. The language modifications, visual supports, and reorganization of ideas in a text seemed to be successful methods of making a text more comprehensible to ESL students. Modifying the text linguistically helped increase the comprehensibility of a text by controlling new vocabulary, simplifying grammar, highlighting specific text, and structuring paragraphs carefully (Short, 1994), while maintaining the main ideas and concepts of a specific text. Many visual supports were added to the modified texts to better support the written word and avoid misleading word-picture associations, which aided in improved comprehension. Moreover, reorganizing the ideas in a text by grouping similar ideas and highlighting important concepts helped clarify information, thus making it more comprehensible.

It should be noted that, although this study emphasizes the importance of modifying mainstream texts for ESL students, this is not the only method of making information understandable to ESL students to enhance their acquisition of English. In fact, if the only method a teacher utilized to teach ESL students was modifying texts, it is probable that instruction would be inadequate. Modifying texts is only one of the many methods that should be used to improve comprehension and instruction for ESL students. Certainly, the methods teachers use to communicate information to ESL students, to teach reading strategies, to develop vocabulary, and overall, to determine how to meet students' speaking, reading, writing, and listening needs at their proficiency levels all influence students' successful acquisition of a second language. Hence, I am advocating that modifying mainstream texts be one method to be used in conjunction with other teaching methods that have been shown to improve comprehension of the English language for ESL students and support English language acquisition.

Thoughts about this Study

As mentioned in Chapter Four, all students who read the modified version of *The Changing Earth* improved their comprehension of the text compared to reading the mainstream text in their oral retells and only one student's comprehension remained the same in her written retell. Yet, for the reading *Exercise and Sleep*, one student's performance out of the fifteen decreased on the modified version of the text. The reason for this is unclear and could be attributed to a variety of factors. As I reflect back on the assessment of the modified version of *Exercise and Sleep*, however, I recall this student's

class going out for recess at the time I met with him, so he may have been in a hurry to complete his work with me and go outside, but this is mere speculation. In addition, five students performed the same or worse on the written retell of the modified version of *Exercise and Sleep*. I speculate once again that the human factor could have affected these students because all five participated in the additional reading of the mainstream text that was read twice called *Looking at the Moon and the Sun,* and therefore had been pulled from their classes to read texts and respond orally and in writing seven times, with the written response to the modified version of *Exercise and Sleep* being the seventh time. These students may have been getting weary of the process. Also, as stated in Chapter Four, the students may have found it harder to write about a longer text like *Exercise and Sleep* than it was to respond to a shorter text like *The Changing Earth*.

Another outcome that has raised questions for me was the fact that, although students at all proficiency levels improved their comprehension when reading the modified texts, the non-literate and competent literate students gained the highest average percentage points and the limited literate gained the fewest on average. This outcome could be due to the fact that the number of students at each proficiency level was not equal: according to the Language Scales Assessment test, five students were non-literate, seven students were limited literate, and only three students were competent literate. The limited literate group had more subjects from which to draw information, and therefore the comparisons between proficiency levels and their respective comprehension gains is open to interpretation and could be the subject of further research.

What I would do differently in retrospect is spread out the time in which I conducted the study providing more time in between readings, so the students wouldn't feel bored by the assessment process. It also would have been beneficial if I had been able to select a group of ESL students at the same grade level, with equal numbers of students at each proficiency level to make the correlation between level of proficiency and comprehension outcomes of reading a modified text more accurately comparable.

The implications this study has on English as a Second Language education are numerous. This study could have a positive impact on ESL learners in a variety of classroom settings, on mainstream and ESL educators, and on curriculum material development for English language learners.

ESL Students and Classroom Settings

ESL students, of any proficiency level, are able to learn the important concepts from expository texts if they are modified to be more comprehensible. ESL learners in ESL pull-out programs and sheltered content classrooms settings could benefit from the outcome of this study in a variety of ways. If differentiated texts were used to teach content material, particularly expository texts, students would be provided with more opportunities to understand material and increase their background knowledge of concepts that are new to them, preparing them for the mainstream. In turn, gaps in learning would decrease by providing content concepts in an understandable manner.

ESL students in mainstream classroom settings could also benefit from the outcome of this study. ESL students who are given modified texts they can read

independently in the mainstream that *shadow* the mainstream texts being read by native speakers of English, may experience positive feelings of independence. In turn, this may ultimately boost their self-esteem, motivation to learn, and enable them to be more successful independent learners.   Because they will understand concepts along with their mainstream peers, ESL students may be more engaged in mainstream instruction and be more likely to comprehend the material being discussed in the classroom.

Mainstream and ESL Educators

Mainstream and ESL teachers could be taught how to differentiate reading materials in their classes to better meet student proficiency needs. As a result, teachers may feel more effective in their teaching of concepts to English language learners by making the curriculum more accessible. In this study, I differentiated/modified only one level of the text for measurable and validity purposes, but in the natural setting, a teacher could modify a mainstream text at several different levels based on the varying proficiency levels of the students in his/her class. Teachers could then, supplement ESL students' learning with authentic materials.

Some advocates of content-based instruction (Snow & Brinton, 1997) very strongly recommend the use of authentic materials when teaching ESL students content concepts and I agree that ESL students must be exposed to authentic mainstream material that is teaching a concept. Short (1994) believes that it is important to expose students to a variety of authentic and adapted materials because language teachers who utilize content in their teaching need to prepare their students to read mainstream textbooks.

However, if the concept in its authentic form is incomprehensible to the ESL student, then it should be modified to meet his/her needs, so that acquisition of the language used in that content area can occur. To my knowledge, there are very few mainstream teachers who provide students with modified content of the mainstream material. It is much more common to see mainstream educators providing ESL students with the same textbooks as the mainstream children, even though the ESL students are not at a proficiency level to comprehend the reading.

Tang (1992) has argued that making modifications commonly involves the watering down of information. Yet, it is possible to make a concept more understandable through text modification without losing the primary points of the concept. At the very least, modifying authentic materials can make a concept understandable to ESL students, so that some learning can occur rather than none. Additionally, one could argue that vocabulary in authentic texts should not be replaced with more familiar synonyms in modified texts, yet I beg to differ. I will use an example from *The Changing Earth* text. If a student doesn't understand the meaning of the word *beneath*, but can independently read and understand a synonym of this word, *under*, it is beneficial to provide a word that is understandable and necessary to understanding a concept. Unknown words in the authentic text could be taught while reading the modified text as an introduction to new vocabulary, but do not need to be present in the modified text if they hinder comprehension.

A second implication this study has for ESL and mainstream teachers of ESL students has to do with the discrepancy between the comprehension results students

experienced between oral and written retells. Written retell comprehension gains when reading the differentiated text were not as great as oral retell comprehension gains. Essentially, students showed more completely what they understood from a reading when talking about it as opposed to writing about it. This is something teachers should take into consideration when assessing ESL students in written form. Written assessments may not accurately reflect what has been learned, and therefore, alternative forms of assessment should be considered an option.

A third implication this study has for mainstream teachers and ESL teachers lies in the area of team teaching and collaboration. Mainstream and ESL teachers could work together on providing understandable content to ESL students. This could take several forms. For example, the collaboration could simply be better communication between ESL and mainstream educators about the demands of the content in the mainstream and the modifications needed to ensure comprehensibility for ESL students. With a better knowledge of the mainstream curriculum, ESL teachers could create lessons that support the mainstream curriculum. This support is referred to as scaffolding (Vygotsky, 1962) and allows students to participate in the challenging content learning process with assistance and guidance. Another example of how mainstream and ESL educators could work together is incorporating a team teaching model, in which mainstream and ESL teachers work together by teaching content to ESL students with their mainstream peers. Both examples involve planning time and ample communication between ESL and mainstream teachers, but taking the extra time would presumably have a positive effect on English language learner outcomes.

ELL Curriculum Material Development

This study has implications for curriculum material development. Whether the reading is abstract like *The Changing Earth,* in which students had less background knowledge and interest, or is a more concrete reading like *Exercise and Sleep*, in which students had more background knowledge and interest, comprehension gains were experienced when reading differentiated texts of the mainstream texts. This indicates that despite the nature of the text, English language learners can acquire the language and concepts in a modified text. Differentiated/modified texts could be developed to *shadow* mainstream texts, to make the concepts comprehensible to ESL students, while ensuring that they are being taught the same concepts as the students reading the mainstream version.

APPENDIX A: Definitions

1. **Mainstream content expository text:** Also referred to as traditional one-size-fits-all texts, this term refers to texts that are factual in nature and are used to teach content in the mainstream. Such texts are written at specific grade levels. The mainstream content expository texts used in this study are written at the third grade reading level.

2. **Differentiated expository text:** this term refers to texts that are factual in nature and are based upon the mainstream text, but have been rewritten to meet the needs of English as a Second Language students. There may be a very basic differentiated text, a moderate differentiated text, and a more advanced differentiated text that are all variations of the original text. The goal of these texts is to make concepts in mainstream learning understandable and available to ESL learners. The aim is to simplify the vocabulary and wording of the text, without losing the meaning of the core concept being taught. The word *modified* can also be used to describe such a text.

3. **Content-based language instruction:** "In this approach—also called integrated language instruction—ESL, bilingual, or foreign language teachers use instructional materials, learning tasks, and classroom techniques from academic content areas as the vehicle for developing language, content, cognitive, and study skills. The second language is used as the medium of instruction for mathematics, science, social studies, and other academic subjects. Instruction is usually given by a language teacher or by a combination of the language and content teachers" (Crandall, 1998).

4. **Differentiated instruction:** "At its most basic level, differentiating instruction means "shaking up" what goes on in the classroom so that students have multiple

options for taking in information, making sense of ideas, and expressing what they

learn. In other words, a differentiated classroom provides different avenues to

acquiring content, to processing or making sense of ideas, and to developing

products" (Tomlinson, 1995).

5. **Protocol Assessment:** A method of assessment in which a text is divided into pausal

units that are checked off in response to a student's retell of a text. This measures

how much of a text a student recalled.

APPENDIX B: Assessment Tools

1. Main Idea/Concepts Assessment: Written and Oral for *The Changing Earth*

2. Comprehension Questions for *The Changing Earth*

3. Background Knowledge/ Interest Form

4. Main Idea/Concepts Assessment: Written and Oral for *Exercise and Sleep*

5. Comprehension Questions for *Exercise and Sleep* reading

6. Propositional Unweighted Analysis Protocol Assessment for *Looking at the Moon and the Sun* reading

Main Idea/Concepts Assessment: Written or Oral

Name of Student _____

Assessor _____

Date _____

                          Mainstream version   Modified version

The Changing Earth

Main Idea

___ The Earth

___ Layers of the Earth

Concepts

___ The Earth has three layers

    ___ The crust

        ___ thin

        ___ rock

        ___ soil

        ___ we live on the crust

        ___ we grow food on the crust

        ___ oil is found in the crust

   ___ The mantle

        ___ under the crust

        ___ made of rock

___ no one has dug there

       ___ hot

       ___ the core

       ___ third layer/center

       ___ hottest

       ___ outer is liquid

       ___ center is hard/solid

Notes:

Name _____

Date _____

<u>Comprehension Questions for *The Changing Earth*</u>

mainstream version   modified version

1. What is the reading about?

2. How many layers make up the Earth? _____

3. Write something about each layer.

Background Knowledge/Interest Form

Name _____ Date _____

Title _____ Author_____

Type of retelling: oral   written

Background Knowledge: none   some   a lot

Interest Level: none   some   a lot

Performance Task	Initiates	Responds to Prompt	Comments
Adds personal experience/ thoughts to retell			

Notes:

Adapted from a format in Addison-Wesley, *Authentic Assessment for English Language Learners.* O'Malley/Valdez Pierce.

Main Idea/Concepts Assessment Written or Oral

Name of Student _____

Assessor _____

Date _____

Mainstream version   Modified version

Exercise and Sleep

Main idea

_____ exercise

_____ sleep

Concepts

Exercise

_____ is important to your health

_____ your body works hard

_____ makes muscles strong

_____ makes your heart strong

_____ jumping rope

_____ walking

_____ running

_____ riding a bike

_____ swimming

_____ playing softball

_____ playing soccer

_____ volleyball

_____ race with friends

_____ alone

_____ with friends

_____ 15 minutes a day

<u>Sleep</u>

_____ body doesn't work hard

_____ every night

_____ heart beats slower

_____ mind rests

_____ with no sleep, tired worn-
out

_____ with no sleep, sick

_____ you may sleep 8 to10
hours/night

_____ babies can sleep 20
hours/day

_____ adults can get 6 hours of
sleep/night

_____ enough sleep, feel rested

Comprehension Questions for *Exercise and Sleep*

Mainstream version   Modified version

Name _____

Date _____

1. What is this reading about?

2. What did you read about exercise?

3. What did you read about sleep?

<u>Propositional Unweighted Analysis Protocol Assessment</u>

Name of Student _____

Assessor _____

Date _____

Mainstream version: first reading   second reading

Looking at the Moon and the Sun

_____Look at the two balls in the first
picture.

_____You can see that they are not the
same size.

_____(Look at the other picture) Each
ball is in a different place.

_____ The two balls appear to be the
same size.

_____ The bodies in space appear
smaller than they really are.

_____ Sometimes smaller bodies in space
look bigger than larger ones.

_____ At night, the moon appears larger

_____ than any of the stars.

_____ But the moon is really much
smaller

_____ than any of the stars.

_____ The closer to the earth a body in
space is,

_____ the larger it appears to be.

_____ The moon is the earth's closest
neighbor in space.

_____ The sun is much larger

_____ than the moon.

_____ But it is much farther from the earth

_____ than the moon is.

_____ Large bodies like the sun look smaller

_____ when they are far away.

_____ The moon does not give off its own light.

_____ Instead, it reflects light from

_____ from the sun.

_____ The sun is the source of light for the earth

_____ and the moon.

_____ In some ways the earth and the moon are alike.

_____ Both are covered by rocks

_____ and soil.

_____ Both have uneven surfaces.

_____ Mountains,

_____ valleys,
_____ and large flat areas are found on both the earth

_____and the moon.

_____ But the earth's surface is always being changed

_____ by moving water

_____ and wind.

_____ The moon's surface does not change.

_____ When you look at the moon the mountains

_____ are the light-colored areas.

_____ There are also dark areas on the moon.

_____ These areas are very smooth.

_____ Long ago people thought these areas were bodies of water.

_____ So they called them seas.

_____ Today scientists know there is no water on the moon.

_____ The dark areas are large flat plains.

_____ The surface of the moon is also marked with craters.

_____ A crater is a hollow area

_____ that looks like the inside of a bowl.

_____ Most scientists think that many of the craters were formed when rocks from space

_____ crashed on the surface of the moon.

_____ The sun is like the earth

_____ and the moon in shape.

_____ But the sun is a much larger ball.

_____ The surface of the sun is very
different

_____ from the surfaces of the earth

_____ and the moon.

_____ The sun is made of hot, glowing
gases.

_____ These hot gases are very active.

_____ Sometimes they seem to explode

_____ from the surface of the sun.

_____ In doing this they form streams of
gas

_____ that glow.

_____ These streams of gas are called
sun flares.

_____ They shoot far out

_____ into space.

_____ You can also see light and dark
surfaces of the sun.

_____ The light areas are hotter

_____ than the darker areas.

APPENDIX C: Differentiated/Modified Texts

The Earth
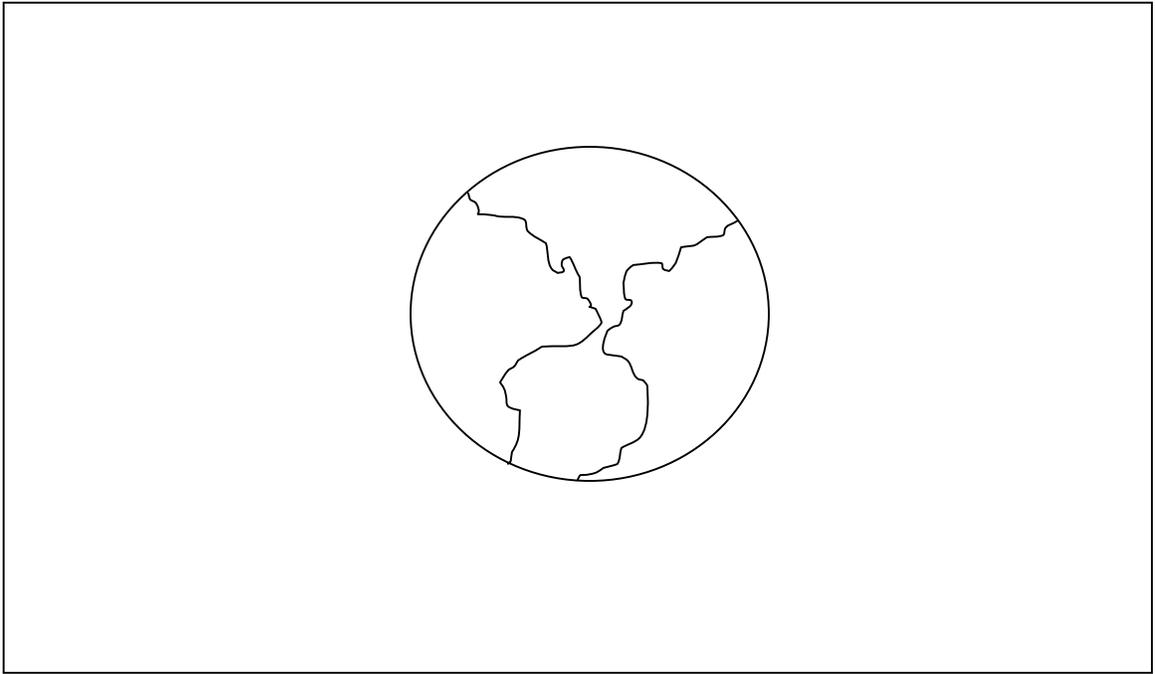
earth
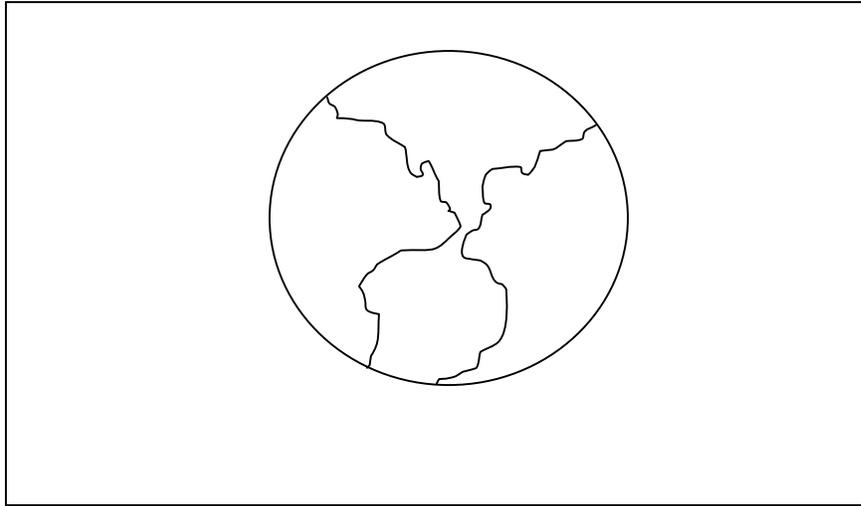
The earth is very old. The earth looks different now than it did many years ago.
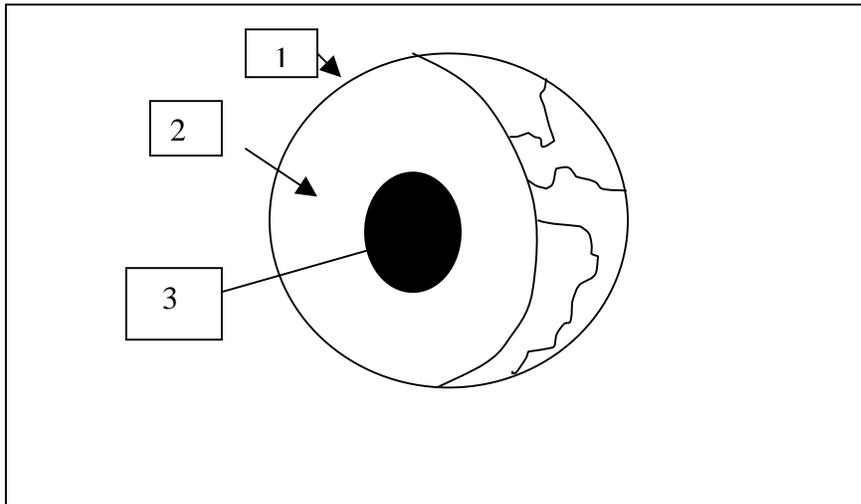
What is inside the earth? The earth has three layers.
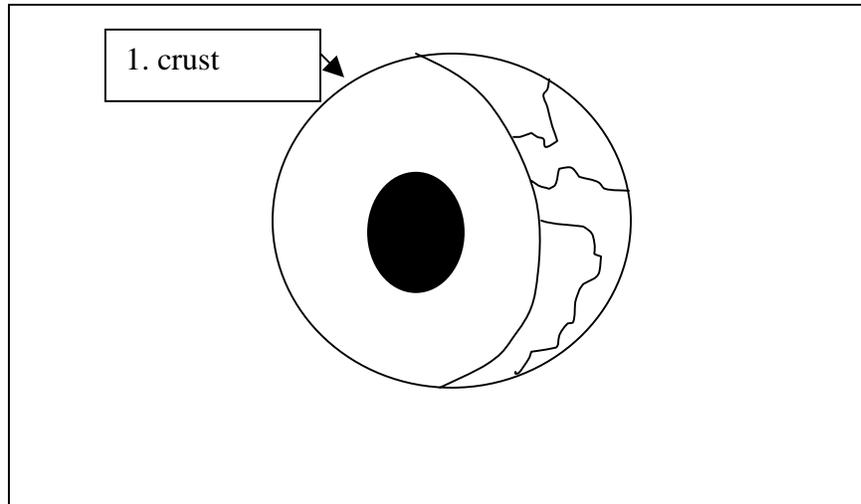
The first layer is the crust. The crust is thin and is made of rock and soil. We live on the crust. We grow food on the crust and we find oil in the crust.
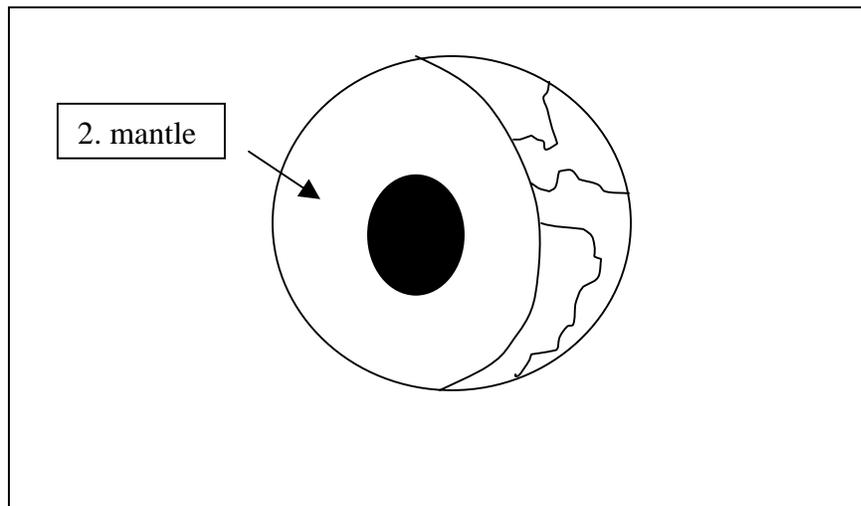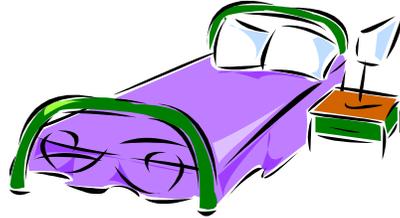

The second layer is under the crust. It is the mantle. The mantle is made of rock. People have not dug down into the mantle. The mantle is hot.
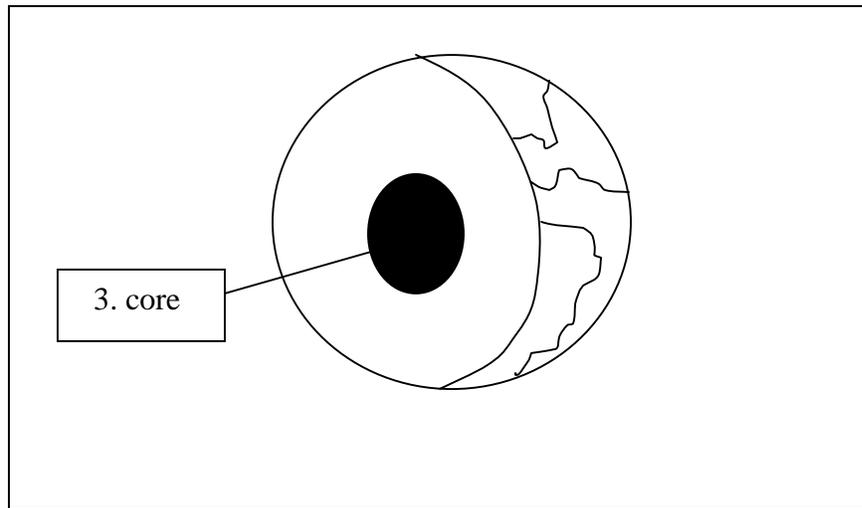
The third layer is under the mantle. It is the core. The core is the hottest part of the earth. People think the outer part of the core is liquid with a hard center.

Exercise and Sleep

Exercise is important to your health. Exercise makes your body work hard.

Exercise makes your muscles strong.

Exercise makes your heart strong.

Jumping rope is exercise.

Walking is exercise.

Swimming is exercise.

Playing soccer is exercise.
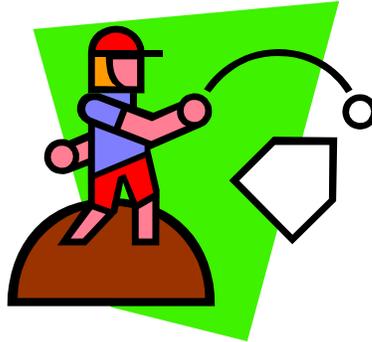
Playing softball is exercise.

Playing volleyball is exercise.
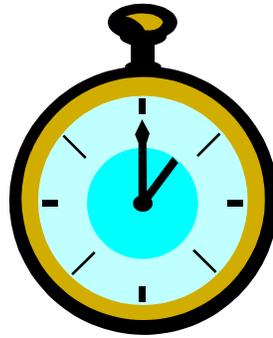
Running is exercise. You can race your friends!

Riding a bike is exercise.

You can exercise alone.
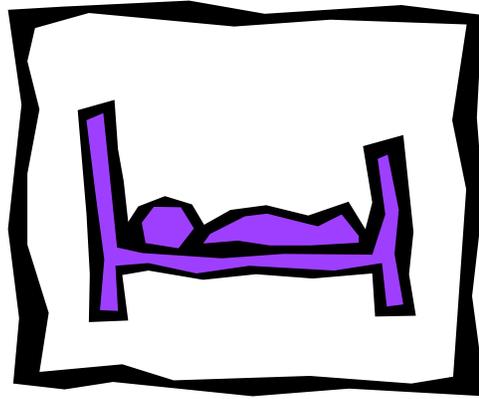
You can exercise with friends.

You should exercise 15 minutes a day or more.

Exercise is important to your health and sleep is important to your health.
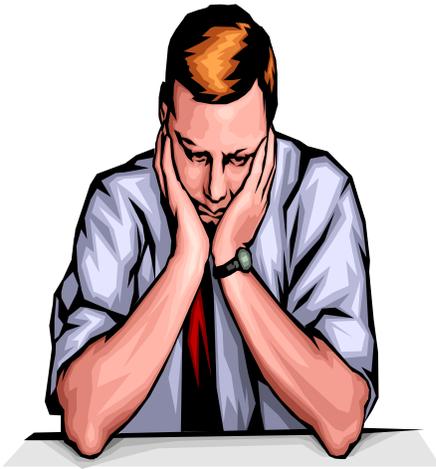
Your body doesn't work hard when you sleep.

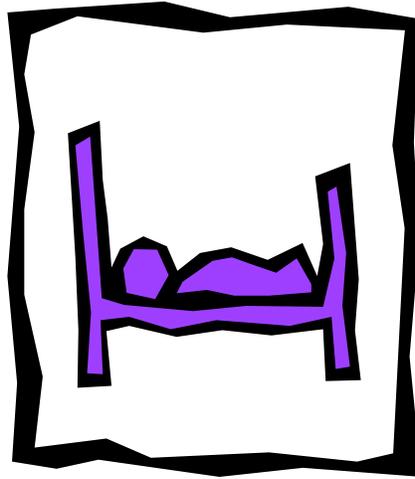You need sleep every night. Your heart beats slower when you sleep.

Your mind rests when you sleep.
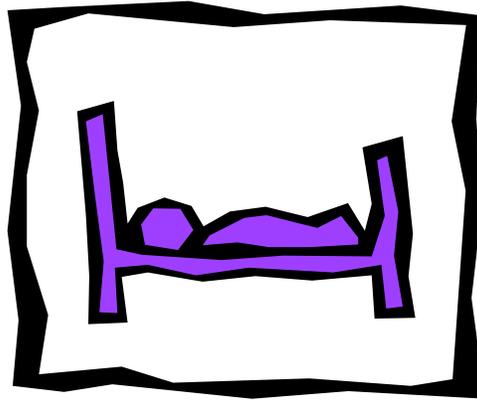
You feel tired when you don't sleep.

You can get sick when you don't sleep.

You need 8 to 10 hours of sleep a night. Then you will feel rested.

Babies sleep about 20 hours everyday.

Adults need 6 hours of sleep a night or more.

APPENDIX D: Student English Language Proficiency Levels

Table 7

Proficiency Levels of ESL Students based on Language Assessment Scales Scores

Student Number	Reading Proficiency	Writing Proficiency	Reading/Writing Overall Proficiency
1	Non-reader	Non-writer	Non-literate (middle)
2	Non-reader	Non-writer	Non-literate (middle)
3	Non-reader	Non-writer	Non-literate (middle)
4	Non-reader	Limited writer	Non-literate (high)
5	Limited reader	Non-writer	Non-literate (high)
6	Limited reader	Non-writer	Limited literate (low)
7	Limited reader	Limited writer	Limited literate (low)
8	Limited reader	Limited writer	Limited literate (low)
9	Limited reader	Limited writer	Limited literate (middle)
10	Competent reader	Limited writer	Limited literate (low)
11	Competent reader	Limited writer	Limited literate (high)
12	Competent reader	Limited writer	Limited literate (high)
13	Competent reader	Limited writer	Competent literate (low)
14	Competent reader	Competent writer	Competent literate (low)
15	Competent reader	Competent writer	Competent literate (middle)

REFERENCES

Bernhardt, E. (1991*). Reading development in a second language.* Norwood, HJ: Ablex Publishing Company.

Chamot, A.U. & O'Malley, M. (1987). The cognitive academic language learning approach: A bridge to the mainstream. In P. Richard-Amato & M.A. Snow (Eds.), *The multicultural classroom* (pp.27-38). Reading, MA: Addison-Wesley Publishing Company.

Chamot, A.U. & O'Malley, M. (1994). The CALLA handbook: Implementing the cognitive academic language learning approach. Reading, MA: Addison-Wesley.

Cohen, E. (1994). *Designing groupwork: Strategies for the heterogenous classroom* (2nd ed.). New York: Teachers College Press.

Cole, R. (1995). *Educating everybody's children: Diverse teaching strategies for diverse learners.* Alexandria, VA: Association for Supervision and Curriculum Development.

Crandall, J. (1998, January-March). Collaborate and cooperate: Teacher education for integrating language and content instruction. *English Teaching Forum*, 2-9.

Crandall, J.(1994). Content-centered language learning. (Report No. EDO-FL-94-06). Washington DC: Office of Educational Research and Improvement.(ERIC Document Reproduction Service No. ED 367 142).

Cummins, J. (1979a, 1980). Language Proficiency, Bilingualism, and Academic Achievement. In P.A. Richard-Amato & M.A. Snow (Eds.), *The multicultural classroom* (pp.16-26). Reading, MA: Addison-Wesley Publishing Company.

Feuerstein, T. & Schcolnik, M. (1995). *Enhancing reading comprehension in the language classroom*. San Francisco: Alta Book Center.

Goodman, Y.M. & Burke, C.L. (1972). *Reading miscue inventory manual: Procedure for diagnosis and evaluation.* New York: Macmillan.

Grabe, W. & Stoller, F. (1997). Content-Based Instruction: Research Foundatations. In M.A. Snow, & D. Brinton (Eds.), *The content-based classroom* (pp.5-21). White

Plains, NY: Addison Wesley Longman Publishing Company.

Johnson, R.E. (1970). Recall of prose as a function of the structural importance of the linguistic units. *Journal of Verbal Learning and Verbal Behavior, 9,* 12-20.

Johnston, P.H. (1983). *Reading comprehension assessment: A cognitive basis.* Newark, DE: International Reading Association.

Krashen, S.D. (1982*). Principles and practice in second language acquisition.* Oxford: Pergamon Press.

Law, B. & Eckes, M.(1990*). The more than just surviving handbook.* Winnipeg, Canada: Peguis Publishers.

Mallinson, G., Mallinson, J. Smallwood, W. & Valentino, C. (1987). *Science*. Lexington, MA: Silver Burdett & Ginn.

O'Malley, J. M. & Valdez-Pierce, L.(1996).*Authentic assessment for English language learners: practical approaches for teachers.* Reading, MA: Addison-Wesley Publishing.

Peregoy, S. & Boyle, O.(1997). *Reading, writing, and learning in ESL.* New York: Longman.

Richard-Amato, P. & Snow, M.A. (1992). Strategies for content-area teachers. In P. Richard-Amato & M.A. Snow (Eds.), *The multicultural classroom* (pp.145-163). Reading, MA: Addison-Wesley Publishing Company.

Samuels, J. & Farstrup, A. (Ed.). (1992) *What research has to say about reading instruction* (2nd ed.). Newark, DE: International Reading Association.

Short, D. (1994). Expanding middle school horizons: Integrating language, culture, and social studies. *TESOL Quarterly, 28*(3), 581-608.

Short, D. (1989). Adapting materials and developing lesson plans. In P. Richard-Amato & M.A. Snow (Eds.), *The multicultural classroom* (pp.164-174). Reading, MA: Addison-Wesley Publishing Company.

Snow, M & Brinton, D. (1997). *The content-based classroom.* White Plains, NY: Addison Wesley Longman Publishing Company.

Snow, A., Met, M., & Genesee, F. (1989). A Conceptual framework for the integration of language and content instruction. In P. Richard-Amato & M.A. Snow (Eds.), The multicultural classroom (pp.27-38). Reading, MA: Addison-Wesley Publishing Company.

Tang, G. M. (1992). Teaching content knowledge and ESOL in multicultural classrooms. *TESOL Journal*, 2, 8-12.

Tomlinson, C. (1995). *How to differentiate instruction in mixed ability classrooms.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. (1999). *The differentiated classroom.* Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. (1999). Mapping a route toward differentiated instruction. *Educational Leadership, 57*(1), 12-16.

Vygotsky, L.S. (1962). *Thought and language.* Cambridge, MA: MIT Press.

Willis, S. & Mann, L. (2000, winter). Differentiating instruction: Finding manageable ways to meet individual needs. *Curriculum Update,* 1-7.

Winebrenner, S. (1996). *Teaching kids with learning difficulties in the regular classroom: Strategies and techniques every teacher can use to challenge and motivate struggling students.* Minneapolis, MN: Free Spirit Publishing.