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FORMAL AND FUNCTIONAL LINGUISTIC PROPERTIES OF ESL TEXTBOOKS

A thesis submitted to
the Graduate College of
Marshall University
In partial fulfillment of
the requirements for the degree of
Masters of Arts

In
English with Area of Emphasis in TESOL


by
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May 2017

APPROVAL OF THESIS

We, the faculty supervising the work of Jessica S. Lewis, affirm that the thesis, *Formal and Functional Linguistic Properties of ESL Textbooks*, meets the high academic standards for original scholarship and creative work established by the English MATESOL and the College of Liberal Arts. This work also conforms to the editorial standards of our discipline and the Graduate College of Marshall University. With our signature, we approve the manuscript for publication.


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ACKNOWLEDGEMENTS

During my time in Marshall University's Graduate program, I have been provided with several wonderful learning opportunities, career experiences, and have had an astounding group of professors, peers, and coworkers to undergo it all with. I know when I am older and reflecting on my time spent in graduate school, I will have nothing but unsurpassed memories that have helped me grow in more ways than one.

I would first like to thank my family, especially my mother, Marsha, my step mother, Melissa, and my grandmother, Mary, for always advocating for me to go beyond what I think I am capable of achieving, and for always emphasizing the importance of an education. I know my drive for continuous knowledge is partly a result of their persistence over the years.

I would like to thank all of my friends, especially the ones I have made since I have been in graduate school. You all are the best support system I have ever had, and I will never be able to thank each of you enough for not only listening to me worry over my thesis for the last year and a half, but for also teaching me new things about myself and others. I have found a sense of belonging with you all, and I couldn't be more grateful for that.

I would also like to thank each of my committee members for not only agreeing to be my committee members, but for instructing me the past two years to help me better prepare for a career in teaching English as a second language.

Dr. Angus, I would like to thank you for providing me with a numerous amount of useful reading material on theoretical and pedagogical strategies related to TESOL and applied linguistics while taking your classes. I would also like to thank you for being such an understanding and flexible professor when it comes to the personal lives of your students.

Dr. Schray, I would like to not only thank you for being one of the most encouraging and nicest people I have ever met, but for informing me of the graduate TESOL program while I was finishing my last semester as an undergraduate. If it wasn't for you, I would never have known about the program, and would have pursued a different career path that would have ultimately left me incredibly dissatisfied.

Last, I would like to thank my chair, Dr. Hong. I want to thank you first for being so patient with me while working on my thesis, and for always being thorough with explanations to help me better understand whatever topic is being discussed at the time. I also want to tell you how much I appreciate everything you have taught me. Going into this program, I had certain assumptions and expectations of what I would be learning, but what I have actually learned from you is far beyond anything I ever anticipated, and I can't thank you enough for that. Your passion for SFL has made me enthusiastic about it, and I can't wait to continue my learning process with this.

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ABSTRACT

Based on the formal and functional perspectives espoused in Systemic Functional Linguistics (SFL), the main purpose of this thesis was to investigate the extent to which such lexico-grammatical features as lexical density, choice of nominal groups, and grammatical metaphor are used in ESL texts to scaffold target language proficiency levels. Of the number of lexico-grammatical metafunctions and their functional constituents, interpersonal metafunctional categories were analyzed from these three functional features in this thesis in order to reveal the ways in which interpersonal categories and the lexico-grammatical features are correlated as the level of difficulty of each text increases.

The analysis shows that sequential deployment of functional meanings and categories is a crucial feature in the way that ESL texts develop levels of complexity of the target language. This analysis then provides suggestive evidence that because of the significance of these functional grammatical features in science-based genre texts, incorporating more functional grammar approaches to teaching ESL, especially in teaching reading comprehension, might prove to be a more effective teaching strategy than traditional formal grammar approaches allow.

CHAPTER 1

INTRODUCTION

From the perspective of underlying sets of assumptions about the nature of language and the study of it, linguistics can largely be divided into formal and functional branches. No matter how different its sub-branches may be in their object of research, formal linguistics is characterized by the assumption that language is composed of a set of syntagms that define surface linguistic manifestations. In contrast to this syntagmatic perspective on language, functional linguistics examines language phenomena from a number of perspectives, including patterns of syntagms/paradigms, system/instance, and stratification/instantiation. Of a number of different functional branches of linguistics, Systemic Functional Linguistics (henceforth, SFL¹) describes language as a semiotic system, or a system of meaning and choice. From such a paradigmatic perspective on language as SFL, meaning, grammar, and lexemes are not independent concepts that are used in predetermined ways, but rather are a choice made by the user of any given language. With regard to paradigmatic meaning choices and system networks that underlie generalized functional meanings of language, language is structured to make three kinds of meanings simultaneously. This semantic complexity, which allows **ideational**, **interpersonal**, and **textual** meanings to be fused together in linguistic units, is possible because language is a semiotic system, a conventionalized coding system, organized as a set of choices (Eggins, 2004). These three categories of meaning are referred to as *metafunctions*. These metafunctions connect syntagmatic aspects of language and connotative semiotic lexico-grammar in patterns of realization, together which realize, or manifest even more abstract

¹ In this thesis, the functional linguistic convention of distinguishing formal and functional linguistic terms was followed to indicate that some terms are formal and others are functional. Functional linguistic terms in this thesis are used with capitalized initial letters.

meaning levels of contexts of situation and culture. At the lower lexico-grammatical level of metafunctions, the *interpersonal metafunction* is a set of system networks where each entry level and its patterns of realization semiotically represent the interpersonal and social relationships of individuals engaged in verbal communication. The *ideational metafunction* refers to a set of experiential features of clausal transitivity options as well as logico-semantic meaning choices in the way that lexico-grammatical meanings are created through clause complexing. The *textual metafunction* refers to the enactment of both interpersonal and ideational meanings within the stratum of lexico-grammar through such non-structural patterns as cohesion and textual flow.

Each metafunction has three strata in which language can be explored: lexicogrammar, semantics, and context. To put it simply, *lexico-grammar* provides “the means to combine sounds into words, which can then be arranged in **different grammatical structures to make different meanings**” (Eggins, 2004). The second stratum, *semantics*, encodes generalized interpersonal and communicative meanings between individuals engaged in communication through the forms of clauses elected. The third stratum, *context*, weighs the outcomes of language relative to social and cultural facets.

In this thesis project, SFL was used as the basic theoretical framework from which a text analysis was conducted of three ESL textbooks of various difficulty levels used in the INTO program at Marshall University in Huntington, West Virginia. The analysis of these texts was conducted on the basis of the interpersonal metafunction theory at the level of lexicogrammar.

Literature Review

Various studies have been conducted applying the interpersonal metafunction within SFL. There are three studies in particular that have been reviewed for this thesis and will act as

comparisons for this text analysis. The three reports that use the interpersonal metafunction theory for their data analyses are as follows: *Attitude in undergraduate persuasive essays* (Lee, 2008), *Analysis of interpersonal Meaning in Public Speeches—A Case Study of Obama’s Speech* (Hao Feng and Yuhui Liu, 2010), and *An interpersonal metafunction Analysis of Some Selected Political Advertisements in Some Nigerian Newspapers* (Ayoola, 2013).

In *Attitude in undergraduate persuasive essays*, Lee (2008) performs an interpersonal metafunction analysis, with a focus on *attitude* within the Appraisal System, in relation to the evaluation of differences between undergraduate students who composed essays that were either *high-graded* or *low-graded*, in terms of language choice (p. 43). Lee defines attitude as “one of three main appraisal systems,” and is concerned with the linguistic inflection of adopting subjective positions. Attitude divides into three sub-systems of increasing delicacy: Affect – expressions of feelings and emotions, Judgment – evaluations of human behaviors, and Appreciation – evaluations of things and entities (p. 44).

In terms of Affect, Lee observed that there seems to be a correlation between high-graded essays and the use of expressions of emotions with judgment. Lee further observed that low-graded essays tend to have a connection between expressions of feelings and emotions simultaneously with judgment, but low-graded essays do not connect to the thesis of the essay (p. 48).

Another meaningful pattern Lee observed, in relation to Judgment, was that high-graded essays, if judgment does occur, are conducted more positively than low-graded essays (p. 49-51). In terms of Appreciation, Lee observed that high-graded essays display *appreciation-invoked judgment*, whereas low-graded essays display a more dominating invoked appreciation (p. 52-53).

Lee concluded, based on consequential patterns found in terms of distinctions between high-graded and low-graded essays, that what constitutes the valuation of high-graded versus low-graded essays among instructors is that “successful writers encode a significantly higher number of attitude items in their arguments. Their writing is characterized by exploiting a variety of types of attitude items and sub-items. This means that HGE’s are characterized as being argumentative rather than descriptive. Most importantly, high-graded writers show their preference for evoked judgment in contrast to the overt judgment of LGE’s” (p. 54).

In *Analysis of interpersonal Meaning in Public Speeches—A Case Study of Obama’s Speech*, Feng and Liu (2010) conducted an interpersonal metafunction analysis on the speech of former President, Barack Obama, presented when he was first elected president in 2008 on his 100th day in office. Important patterns that Feng and Liu uncovered concentrated on the mood of the text, personal pronouns selected, an alteration in tense, and modal auxiliary. Feng and Liu focused on these elements while analyzing Barack Obama’s speech because they sought to further scrutinize conversational strategies Obama used in terms of the choice of interpersonal meanings of language when delivering this speech, and other meaningful patterns in connection with affairs and instituting authority when analyzed from the interpersonal metafunction viewpoint (p. 825).

The mood of a text, as Feng and Liu describe, is related to to how the information being conveyed by the speaker is presented to the listener, or the writer to the reader. There are three ways by which information can be presented through lexicogrammar: declaratives (S^F), interrogatives (F^S), and imperatives *(S^F). Feng and Liu analyzed Obama’s speech and concluded that declarative sentences make up the majority of this text. Modal auxiliary as used in

his speech allows the speaker to take up a position and signal the status and validity of his own judgments (p. 826).

Feng and Liu established that by choosing to use a declarative mood when presenting his ideas and opinions to his audience, and by choosing personal pronouns such as *we* during his speech, Obama not only establishes his relationship to the audience as an informative authority figure, but also creates an “intimate relationship with the people, which enables him to gain support from them” (p. 828).

In *An Interpersonal Metafunction Analysis of Some Selected Political Advertisements in Some Nigerian Newspapers*, Ayoola (2013) enacts a clausal level interpersonal metafunction analysis (mood and modality both pivotal themes in this analysis), on eight political advertisements: chosen from assorted Nigerian newspapers, four for the Peoples Democratic Party (PDP), and four for Action Congress of Nigeria (ACN). These advertisements are studied to examine the politicians’ choice of language to convey their positions on vital issues to appeal to their audience.

While conducting this evaluation, Ayoola detected that in some cases of the ACN advertisements, the meaning does not correspond with the lexico-grammar. Ayoola argues that “the mood system of some of the clauses analyzed are marked as a few of the declaratives are not really giving information as one would think while many of the imperatives are not command” (p. 172). Ayoola observed the same phenomenon in the PDP advertisements: certain occasions of declarative clauses had the meaning of an indirect command, and certain imperative clauses had the meaning of suggestion rather than command (p. 176). Because of this observation, Ayoola concluded that “there is no one to one correspondence between the lexico-grammar and interpersonal meaning of a clause” (p. 177).

CHAPTER 2

INTERPERSONAL METAFUNCTION THEORY

From the SFL perspective, lexico-grammatical interpersonal metafunction is in a redounding relationship between interlocutors, and how each individual's social and interpersonal relationships with others affect his/her communication. In reference to social and interpersonal relationships, Schleppegrell (2004) declares “Language use is always socially and culturally situated. What we learn and how we learn it depends on the contexts in which we learn” (p. 4) In emphasizing this particular aspect of lexico-grammar, Christie and Derewianka (2008) state that “we need to understand ‘interpersonal’ as including not only the ‘inter’ (between persons) but the ‘personal’ (attitudinal or emotional) aspects of the term” (p. 138). Interpersonal metafunction is the phenomenon of evaluating relationships between individuals in correlation with language and interpersonal grammar choice. This function is achieved through the lexico-grammatical units of SFPCA. SFPCA stands for Subject, Finite, Predicate, Complement, Adjunct. SFPCA from this functional perspective refers to each unit of analysis having to do with how the speaker perceives various participating roles of word groups in a clause, and the amount of interpersonal importance that the speaker places in each word group.

The Subject² of a clause is the noun group that is treated as modally responsible for the meaning expressed in the Residue³. According to Eggins (2004), Subject is the referenced element that can be confirmed or denied (p. 151). A tag *question* at the end of the sentence or clause is one way to help determine what the Subject is of a clause. For example:

² In this thesis, I follow the traditional SFL convention and use initial capital letters for functional labels in order to distinguish them from formal labels.

³ Residue is one of the two parts of interpersonal metafunction that deals with experiential meanings of clauses.

Table 1. Subject and Tag Question

| Original Sentence | Sentence with Tag Question | Subject |
|--------------------------|--|----------------|
| Aura ordered a pizza. | Aura ordered a pizza, <i>didn't she?</i> | Aura |

In Table 1. Subject and Tag Question, “Aura ordered a pizza” is the original sentence. There are two noun groups in this sentence, *Aura*, and *a pizza*. Even though the Subject is obvious in this sentence, adding the tag question, “didn’t she?” confirms that *Aura* is the Subject of this sentence, not *a pizza*. Although this way of identifying the category of Subject may not seem different from that of traditional grammar, using a tag question for the purpose of identifying Subject provides us with a significant different way of understanding the meaning of clause complexes as projecting clauses involving the first-person pronoun Subject in mental clauses are treated as cases of modality rather than as main clauses.

Complement in a clause is the noun group that was *not* chosen to be the Subject, but has the potential *to be* the Subject. According to Eggins (2004), “A second component of the RESIDUE is the Complement. A Complement is defined as a non-essential participant in the clause, a participant somehow affected by the main argument of the proposition. It is identifiable as an element within the residue that has the potential of being Subject but is not” (p. 157). A Complement is chosen by the author as something that is important to the meaning of the clause, but not as important as the Subject. However, had the author decided to change the interpersonal meaning of the clause, the Complement could have been the Subject. For example:

Table 2. Subject vs. Complement

| Sentence | Subject | Complement |
|------------------------------|----------------|-------------------|
| Aura ordered a pizza. | Aura | A pizza |
| A pizza was ordered by Aura. | A pizza | -- |

In Table 2. Subject vs. Complement, the previous example, “Aura ordered a pizza” was used, as well as, “A pizza was ordered by Aura.” The first example demonstrates, similar to the reasoning for the Subject example, that *Aura* was more important than *a pizza*. Although knowing what was being ordered is important to understand the meaning of this clause, the author decided that *Aura* ordering *a pizza* was more important than *a pizza* being ordered by *Aura*. Therefore, *a pizza* is the Complement in this example. In the second example, the noun groups are reversed to read, “A pizza was ordered by Aura.” In this example, the author decided that *a pizza* being ordered was more important than who was ordering it.

The next element of SFPCA is Adjunct. Adjuncts can be noun groups as well (along with adverbial groups, conjunctions, and prepositional phrases). Adjuncts, however, even though they can be noun groups, do not have the potential to be the Subject of a clause like Complements do. According to Eggins (2004), “Adjuncts can be defined as clause elements which contribute some additional (but non-essential) information to the clause. They can be identified as elements that do not have the potential to become the Subject – i.e. they are not nominal elements” (p. 158). The reason an Adjunct does not have the potential to be the Subject of a clause like a Complement does is that clauses do not need an Adjunct to be grammatically complete. For example:

Table 3. Circumstantial Adjunct

| Sentence | Subject | Complement | Circ. Adjunct |
|------------------------------------|----------------|-------------------|----------------------|
| Aura ordered a pizza at 11:00 p.m. | Aura | A pizza | At 11:00 p.m. |
| Last night, Aura ordered a pizza. | Aura | A pizza | Last night. |

In the first sentence, “Aura ordered a pizza at 11:00 p.m.” *Aura* is the Subject, *a pizza* is the Complement, and *at 11:00 p.m.* is the Adjunct. *At 11:00 p.m.* is the Adjunct and not the Complement or Subject of this clause because if *at 11:00 p.m.* were to substitute *Aura* or *a pizza*, it leads to ungrammaticality. For example, “At 11:00 p.m. ordered a pizza.” *At 11:00 p.m.* does not make sense as the Subject in this clause. The same can be seen if *at 11:00 p.m.* were to substitute the Complement.

Another reason *at 11:00 p.m.* is the clausal Adjunct in this clause is that although it adds more detail to the clause (the concept of time), if it were removed, it would not take away from the essential meaning of this clause.

There are three different types of Adjuncts: Circumstantial Adjuncts, Comment Adjuncts, and Modal Adjuncts. Circumstantial Adjuncts are Adjuncts that represent time, place, manner, as well as meanings derived from these three basic meanings such as that of cause and effect. Circumstantial Adjuncts are the Adjuncts that are similar to nouns and noun groups, like *at 11:00 p.m.*, or *last night*. Because circumstantial Adjuncts are similar to nouns, they can be found at either the beginning or end of a clause. Circumstantial Adjuncts are also similar to nouns in that they are much more categorical than other Adjuncts.

The second type of Adjunct is a comment Adjunct. A comment Adjunct is an adjunct that is typically located at the beginning of a clause and causes a change in perspective. A comment Adjunct is comparable to an opinion. Comment Adjuncts can express positive, negative, or indifferent opinions. For example:

Table 4. Comment Adjunct

| Sentence | Subject | Complement | Circ. Adj. | Comment Adj. |
|---|----------------|-------------------|-------------------|---------------------|
| Unfortunately, Aura ordered a pizza at 11:00 p.m. | Aura | A pizza | At 11:00 p.m. | Unfortunately, |

In, “Unfortunately, Aura ordered a pizza at 11:00 p.m.” *unfortunately* is the comment Adjunct. This is determined because not only is *unfortunately* located at the beginning of the sentence, but *unfortunately* implies that the author has a negative opinion about Aura ordering a pizza at 11:00 p.m.

The last type of Adjunct is a modal Adjunct. Modal Adjuncts express meaning in areas similar to modal verbs in that both modal verbs and modal Adjuncts refer to a lexicogrammatical semantic area between yes and no. This common meaning area between modal verbs and modal Adjuncts is one reason they are always the Adjunct closest to the Finite in a clause. For example:

Table 5. Modal Adjunct

| Sentence | Subject | Complement | Circ. Adj. | Comment Adj. | Modal Adj. |
|---|----------------|-------------------|-------------------|---------------------|-------------------|
| Unfortunately, Aura always orders a pizza at 11:00 p.m. | Aura | A pizza | At 11:00 p.m. | Unfortunately, | Always |

In, “Unfortunately, Aura always orders a pizza at 11:00 p.m.” *always* is a modal Adjunct because it expresses a level of certainty in relation to time as opposed to the actual time frame, which is realized as a circumstantial Adjunct.

The next element of SFPCA to be discussed is Finite. A Finite is the first of two interpersonal types of verbs that can be found in a clause. Not only is the Finite the first type of verb in a clause but is also the verb that expresses the mood of the action in the clause. Finite in terms of its function in the clause to make the proposition definite, to anchor the proposition in a way that we can argue about it (Eggins, 2004). The Finite and Subject of a clause are almost always found together because both set the Mood of a clause. There are three types of Finites: Tense, Polarity, and Modality. Tense Finites express a certain period of time in which the action in the clause takes place. Polarity Finites express either a positive or a negative action; similar to the phrase *polar opposites*. Modality Finites express a level of uncertainty; somewhere between yes and no. Speakers can choose what type of Finite to use based on the meaning they want to convey. For example:

Table 6. Polarity and Modality Finites

| Sentence | Tense Finite | Polarity Finite | Modality Finite |
|----------------------------|---------------------|------------------------|------------------------|
| Aura was ordering a pizza. | Was | | |
| Aura didn't order a pizza. | | Didn't | |
| Aura might order a pizza. | | | Might |

In the first example, “Aura was ordering a pizza” the type of Finite that is used is a tense Finite. The tense Finite used is the word *was*. *Was* is a tense Finite because it expresses a time period that occurred with the action in the clause. Because of its closeness of meaning to time⁴,

⁴ It is important to note that tense and time are two different concepts with some overlapping meaning areas. This difference explains why, for example, past time events can be expressed in present tense forms.

tense Finite is the functional unit that conveys the meaning of time-related events in verbal groups.

The next element of SFPCA is the Predicate, or part of a verbal group expressing the lexical verbal meaning. According to Eggins (2004), “The Predicator is the lexical or content part of the verbal group” (p. 155). Because of its function as expressing lexical or experiential meaning of the clause, clauses can sometimes contain only a Finite without a Predicator, leading to ambiguities in the way that clauses are interpreted. For example:

Table 7. Finite without a Predicator

| Sentence | Finite | Predicate |
|-------------------|---------------|------------------|
| Aura has a pizza. | Has | |

In this example, “Aura has a pizza” one might think that *has* is a Predicate because *has* performs the action of *having something*; however, *has* is Finite, although it can be interpreted as a fused Finite and Predicator if the verb contains more experiential meaning. The grammatical indeterminacy embedded in cases like this explains why the verbal form in the tag question varies from tense Finite to the modal Finite.

Interpersonal Metafunction on the Level of Semantics

At the level of semantics, the interpersonal lexico-grammatical features mentioned in the previous section realize various interpersonal clausal meanings: statements, questions, and commands.

A statement is a semantic unit typically realized as a declarative clause where the Mood elements are used in the syntagmatic order of Subject⁵Finite⁵, with the implication⁶ that the clause functions to give information. A question is also a semantic unit typically realized as an interrogative at the surface level in the form of Finite⁵Subject. An imperative sentence is a sentence that does not make a statement or ask a question; it commands. An imperative sentence is a type of sentence used when the author is trying to establish a certain level of authority with the reader by removing elements of the Mood.

Interpersonal Metafunction on the Level of Context

The interpersonal metafunction on the stratum of *context* focuses less on the grammar and surface sentence structure of language, but more on the social relationships individuals have with one another in relation to the way they communicate. According to Paltridge (2012) when trying to process meaning behind what an individual is saying or writing, knowing situational and cultural contexts in relation to their language is essential in order to understand the text. (p. 3). This phenomenon in SFL is referred to as *tenor*. According to Christie and Derewianka (2008), “tenor...is perhaps the most important component in understanding the relevance of social positioning in semiotic mediation” (p. 176).

Social distance refers to the personal relationship that individuals have with one another. The measurement for social distance starts as low as two people being complete strangers, and goes as high as two people that are friends, family members, spouses, etc. The idea of measuring

⁵ A⁵B means that A is followed by B.

⁶ It is important to note that it is only an implication that declaratives are connected to statements. Paradigmatic reordering of meaning has the potential to manipulate syntagmatic structure in such a way that surface manifestations of statements can sometimes be realized as an interrogative. Rhetorical questions may be a case in point here.

social distance between two individuals is determining how specific or vague communication is based on the closeness of the two individuals. For example:

Table 8. Distant vs. Close Statement

| Original Statement | Distant Statement | Close Statement |
|---------------------------|--------------------------|------------------------|
| Aura ordered a pizza. | Aura ordered a pizza. | She did (it). |

The use of pronouns as opposed to their corresponding noun groups implies that the speaker and hearer share a common understanding of who or what the pronouns refer to, implying that there must have been a previous context in which the referents were established. In the case of “Aura ordered a pizza,” hardly anything is known about the who and what, necessitating the use of the proper noun and the use of indefinite article. It is in this way of examining social relations implied in different language forms that tenor relations and interpersonal lexico-grammar are viewed as mutually realizing each other.

Relationships between individuals and the way in which they communicate with one another is not measured just by how vague or how specific their language is with one another, but also how they put interpersonal grammar into different uses with each other. Because of the separation of semantics from lexico-grammar as conceptualized in SFL, statements do not have to be realized as declaratives, and commands do not have to be realized as imperatives. This kind of incongruent meaning and realization is responsible for the patterns of language use as follows:

Table 9. Language in Relation to Social Status

| Higher to Lower Status | Lower to Higher Status |
|-------------------------------|---|
| Order us a pizza for dinner. | (Will you) order us a pizza for dinner? |

In the examples above, the common semantic meaning of command is realized as an imperative in the first instance and as an interrogative in the second. And because interpersonal grammar is a reflection of tenor relations, it is interesting to imagine what kind of people would have access to which form of language to make a request using one of the two forms.

CHAPTER 3

ESL TEXT ANALYSIS

General Issues

When ESL learners are taught their target language, most pedagogical strategies concentrate heavily on familiarizing learners to numerous amounts of vocabulary words. This way of ESL instruction may be a strategy for lower level texts with short reading materials, but as texts increase in reading difficulty, introducing new vocabulary is not enough for ESL learners to comprehend the text (Halliday 1979, Halliday 1993b, Hong 2016). ESL learners need to recognize what causes the text to become more difficult to read. From an SFL perspective, a large number of issues that cause reading comprehension difficulty are related to an increasing level of difficulty of lexico-grammar where lexical items represent not just congruent semantic meanings but embed grammatical changes. For example, distance in tenor relations cause lexical density to be higher and grammatical intricacy to be lower, leading to long nominal groups where each constituent element is not simply related to other elements in a modifying relation but shows clausal meaning relations. We cannot simply say that noun groups such as *their destruction of the city* and *the movement of the stars* have the same modifying prepositional phrase and demonstratives. The former is a reduced transitive clause, and the latter is a reduced intransitive clause.

With its meaning-based approach to language, learning the target language from an SFL standpoint is something that would be valuable for ESL learners to apprehend the reading material being provided for them on a more critical level. In relation to ESL learners understanding provided reading material on a critical level, Schleppegrell states that “teachers need knowledge about language and tools to analyze language to understand the demands their

subject matter poses to students, to support their students' literacy development and to critically approach the texts they use" (2009). In relation to ESL students learning their target language from an SFL perspective, Gibbons (2015), argues that although understanding language and texts from an interpersonal perspective is beneficial, it is a concept that is often not explicitly taught by instructors (p. 63). Both anecdotally and by simply examining a number of ESL textbooks, ESL learners are educated in traditional school grammar's *parts of speech* (i.e. subject, verb, object) without any clarification of the significance that each of these roles exemplifies in meaning-making. The issue here then is that the interpersonal meanings at the strata of semantics and tenor are left either implicit or to translations into ESL students' first language. Of course, it is well-known that interpersonal meanings are different from one culture to another, and from one language to another. Therefore, in order for ESL education to benefit students in teaching how target language speakers interact with others, it is crucial to teach how interpersonal grammar is used in the target language to show various non-linguistic interpersonal and social positions of interlocutors.

Statement of Purpose

Each ESL text chosen for this analysis was gauged on the basis of the interpersonal metafunction on the level of lexicogrammar. Each text was also examined on the basis of progression of difficulty level, meaningful patterns that follow in correlation with the genre, and characteristics of the genre of the chosen texts. Each ESL text selected for this analysis belongs to the scientific genre. Vital characteristics, in terms of grammar, that are applied to scientific genre texts that were analyzed in this analysis are lexical density, grammatical metaphor, and types of nouns used in noun groups.

The data texts for this analysis, and their level of difficulty are as follows: Level One, Text One, *The Elephant Orphanage*, by Daniel Schorn; Level One, Text Two, *Elephant Behavior*, by Charles Siebert, September 2011 (Bottcher, 2014); Level Three, Text Three, *When Does A Fear Become A Phobia?*, by Rod Plotnik; Level Three, Text Four, *The Forensic Use of DNA*, by James Watson with Andrew Berry (Miller & Cohen, 2014); and Level Six, Text Five, *Controversy Surrounding Saving the Manatees* (Flemming, 2012).

Each ESL text is also a field study. A field study, according to Frances Christie and Beverly Derewianka (2008) is “related to research articles, though their purposes and method are different. They are associated with several kinds of scientific studies – ecological, biological, and earth science – to name a few” (p. 153). Because the themes of each text are interrelated to ecological, biological, or earth science topics, and because they are written with the intent to teach the site and its phenomena (p. 153), they are classified as scientific field studies.

In relation to each text being a field study, there are certain grammatical characteristic features associated with science genre texts that will be examined in this analysis, such as types of nouns selection, lexical density, and grammatical metaphor. Lexical density, according to Halliday (1993a) “is a measure of the density of information in any given passage of text, according to how tightly the lexical items (content words) have been packed into the grammatical structure. It can be measured, in English, as the number of lexical words per clause” (p. 84). Lexical density, according to Halliday, is a phenomenon that ensues within scientific writing, and occurs inside nominal groups (or noun groups). As lexical density increases within a text, the passage becomes more difficult to read (p. 84).

Another grammatical phenomenon that occurs within science genre texts is grammatical metaphor. Grammatical metaphor, according to Halliday (1993a), “is like metaphor in the usual

sense except that, instead of being a substitution for one *word* for another, as in when you're saying *you're talking tripe* instead of *you're talking nonsense*, it is the substitute of one grammatical class, or one grammatical structure, by another; for example, **his departure** instead of **he departed**" (p. 86). Halliday (2001), also argues that "When we look into the grammar of scientific writings we find that this motif recurs all the time. The clause begins with a nominal group, typically embodying a number of instances of grammatical metaphor" (p. 186). The grammatical structures that are often associated with grammatical metaphor in scientific writing is the exchange, or alteration, of verbs to nouns. Halliday also, according to Christie and Derewianka (2008), "has identified a phenomenon which he believes to be the key indicator of language development as students move from childhood into adolescence and beyond. He calls this *grammatical metaphor*" (p. 24). Grammatical metaphor is something that occurs in scientific texts of any type, not just ESL texts, on higher, advanced levels.

Because each of these features is in relation to nominals, these characteristics were analyzed for significant patterns of lexical density, grammatical metaphor, and types of nouns chosen, in comparison to one another.

Research Questions

1. As the level of difficulty increases for each ESL text, how is lexical density affected? Is there a correlation between the level of difficulty of each text and the progression of lexical density?
2. As the level of difficulty increases for each ESL text, how is grammatical metaphor affected? Is there a correlation between the level of difficulty of each text and the progression of grammatical metaphor?
3. As the level of difficulty increases for each ESL text, how is the choice of types of nouns affected? Is there a correlation between the level of difficulty of each text and the types of nouns selected?

4. How does lexical density differ in Subject and Complement noun groups? Are there distinct patterns between the two types of noun groups?
5. How does grammatical metaphor differ in Subject and Complement noun groups? Are there distinct patterns between the two types of noun groups?
6. How do the types of nouns chosen differ in Subject and Complement noun groups? Are there distinct patterns between the two types of noun groups?
7. Which noun group will be affected more by progression of each ESL text, Subject or Complement?

Data and Analysis

The analysis was conducted by applying SFPCA (Subject, Finite, Predicate, Complement, and Adjunct) to establish the word choice and syntax used in each clause within the texts. The five data texts had 139 clauses total. For the interpersonal metafunction analysis, each element of SFPCA was underlined and identified by the following codes: Subject = (S), Finite = (F), Predicate = (P), Complement = (C), and Adjunct = (A). After each analysis was conducted on the basis of SFPCA, tables and charts that categorize noun groups versus pronouns, the number of words per noun group, the number of Postmodifiers per noun group, and types of nouns used were incorporated and compared among the data texts.

The actual analyses conducted will be found in the appendix.

Table 10. Noun Groups vs. Pronouns

| | Noun Groups vs. Pronouns | | | | | | | |
|---------------|---------------------------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|
| | Sub NG | Sub | Com NG | Com | Sub PN | Sub | Com PN | Com |
| | # | NG % | # | NG % | # | PN % | # | PN % |
| Text 1 | 18 | 38% | 29 | 62% | 23 | 72% | 9 | 28% |
| Text 2 | 4 | 40% | 6 | 60% | 2 | 50% | 2 | 50% |
| Text 3 | 9 | 56% | 7 | 44% | 5 | 63% | 3 | 37% |
| Text 4 | 21 | 52% | 20 | 49% | 10 | 71% | 4 | 29% |
| Text 5 | 26 | 53% | 23 | 47% | 9 | 82% | 2 | 18% |

In Table 10. Noun Groups vs. Pronouns, Text 1 has 47 noun groups and 32 pronouns total. Of the total number of noun groups, 18 (38%) of them are Subject noun groups, and 29 (62%) are Complement noun groups. Of the total number of pronouns, 23 (72%) are Subject pronouns, and 9 (28%) are Complement pronouns.

Text 2 has 10 noun groups and 4 pronouns total. Of the number of noun groups, 4 (40%) are Subject noun groups, and 6 (60%) are complement noun groups. Of the total number of pronouns, 2 (50%) are Subject pronouns, and 2 (50%) are Complement pronouns.

Text 3 has 16 noun groups and 8 pronouns total. Of the total number of noun groups, 9 (56%) are Subject noun groups, and 7 (44%) are Complement noun groups. Of the total number of pronouns, 5 (63%) are Subject pronouns, and 3 (37%) are Complement pronouns.

Text 4 has 41 noun groups and 14 pronouns total. Of the total number of noun groups, 21 (52%) are Subject noun groups, and 20 (49%) are Complement noun groups. Of the total number of pronouns, 10 (71%) are Subject pronouns, and 4 (29%) are Complement pronouns.

Text 5 has 49 noun groups and 11 pronouns total. Of the total number of noun groups, 26 (53%) are Subject noun groups, and 23 (47%) are Complement noun groups. Of the total number of pronouns, 9 (82%) are Subject pronouns, and 2 (18%) are Complement pronouns.

Table 11. Number of Words per Noun Group

| | Number of Words per Noun Group | | | | | |
|---------------|--------------------------------|---------|----------|-------------------|----------|----------|
| | Sub Max | Com Max | Sub Mode | Com Mode | Sub Mean | Com Mean |
| Text 1 | 8 | 14 | 2 | 2 | 2 | 5 |
| Text 2 | 2 | 11 | 2 | 1; 2; 3; 6; 8; 11 | 2 | 5 |
| Text 3 | 7 | 22 | 2 | 9 | 3 | 11 |
| Text 4 | 9 | 22 | 2 | 2 | 3 | 6 |
| Text 5 | 12 | 20 | 2 | 1; 2 | 4 | 4 |

In Table 11. Number of Words per Noun Group, Text 1 has 18 Subject and 29 Complement noun groups. Of the Subject noun group, the highest number of words per noun group is 8, the most frequent number of words is 2, and the average number of words is 2. Of the Complement noun group, the highest number of words per noun is 14, the most frequent number of words is 2, and the average number of words is 5.

Text 2 has 4 Subject and 6 Complement noun groups. Of the Subject noun groups, the highest number of words per noun group is 2, the most frequent number is 2, and the average number of words is 2. Of the Complement noun group, the highest number of words per noun group is 11, the most frequent number of words is a variation of 1-word, 2-word, 3-word, 6-word, 8-word, and 11-word all occurring once, and the average number is 5.

Text 3 has 9 Subject and 7 Complement noun groups. Of the Subject noun groups, the highest number of words per noun group is 7, the most frequent number of words is 2, and the average number of words is 3. Of the Complement noun group, the highest number of words per noun group is 22, the most frequent number of words is 9, and the average number of words is 11.

Text 4 has 21 Subject and 20 Complement noun groups. Of the Subject noun group, the highest number of words per noun group is 9, the most frequent number of words is 2, and the average number of words is 3. Of the Complement noun group, the highest number of words per noun group is 22, the most frequent number of words is 2, and the average number of words is 6.

Text 5 has 26 Subject and 23 Complement noun groups. Of the Subject noun group, the highest number of words per noun group is 12, the most frequent number of words is 2, and the average number of words is 4. Of the Complement noun group, the highest number of words per

noun group is 20, the most frequent number of words is a variation between 1-word and 2-word both occurring 4 times each, and average number of words is 4.

Table 12. Number of Postmodifiers per Text

| | Number of Postmodifiers per Text | | | |
|---------------|---|--------------------|---------------------|--------------------|
| | Sub PM Total | Sub PM Mean | Com PM Total | Com PM Mean |
| Text 1 | 26 | 2 | 94 | 4 |
| Text 2 | 4 | 1 | 25 | 5 |
| Text 3 | 17 | 2 | 67 | 10 |
| Text 4 | 39 | 3 | 105 | 6 |
| Text 5 | 80 | 4 | 88 | 5 |

In Table 12. Number of Postmodifiers per Text, Text 1 has 120 Postmodifiers total. Of the total number of Postmodifiers, 26 (22%) are Subject noun group Postmodifiers, and 94 (78%) are Complement noun group Postmodifiers. The average number of Postmodifiers per Subject noun group is 2, and the average number for Complement noun groups is 4.

Text 2 has 29 Postmodifiers total. Of the total number of Postmodifiers, 4 (14%) are Subject noun group Postmodifiers, and 25 (86%) are Complement noun group Postmodifiers. The average number of Postmodifiers per Subject noun group is 1, and the average number for Complement noun groups is 5.

Text 3 has 84 Postmodifiers total. Of the total number of Postmodifiers, 17 (20%) are Subject noun group Postmodifiers, and 67 (80%) are Complement noun group Postmodifiers. The average number of Postmodifiers per Subject noun group is 2, and the average number for Complement noun groups is 10.

Text 4 has 144 Postmodifiers total. Of the total number of Postmodifiers, 39 (27%) are Subject noun group Postmodifiers, and 105 (73%) are Complement noun group Postmodifiers. The average number of Postmodifiers per Subject noun group is 3, and the average number for Complement noun groups is 6.

Text 5 has 168 Postmodifiers total. Of the total number of Postmodifiers, 80 (48%) are Subject noun group Postmodifiers, and 88 (52%) are Complement noun group Postmodifiers. The average number of Postmodifiers per Subject noun group is 4, and the average number for Complement noun groups is 5.

Table 13. Types of Noun Groups

| | Types of Noun Groups | | | | | | | |
|---------------|----------------------|--------------|---------------|---------------|--------------|--------------|-------------|-------------|
| | Thing Sub | Thing Com | People Sub | People Com | Inst. Sub | Inst. Com | Nom. Sub | Nom. Com |
| Text 1 | 2 | 18 | 11 | 3 | 2 | 2 | | |
| Text 2 | 3 | 4 | 1 | 2 | | | | |
| Text 3 | 7 | 9 | 3 | | | | | |
| Text 4 | 6 | 11 | 16 | 7 | | 1 | | |
| Text 5 | 16 | 20 | 8 | 3 | 3 | 1 | 1 | 2 |

In Table 13. Types of Noun Groups, Text 1 has three types of nouns for both Subject and Complement noun groups. Of the Subject noun groups, there are 2 thing⁷ noun groups, 11 people noun groups, and 2 institution noun groups. Of the Complement noun groups, there are 18 thing noun groups, 3 people noun groups, and 2 institution noun groups.

Text 2 has two types of nouns for both Subject and Complement noun groups. Of the Subject noun groups, there are 3 thing noun groups, and 1 people noun group. Of the Complement noun groups, there are 4 thing noun groups, and 2 people noun groups.

Text 3 has two types of nouns for both Subject and Complement noun groups. Of the Subject noun groups, there are 7 thing noun groups, and 3 people noun groups. Of the Complement noun groups, there are 9 thing noun groups.

⁷ It is important to note that the item ‘thing’ as used here is a functional notion which indicates an experiential head of a noun group.

Text 4 has three types of nouns for both Subject and Complement noun groups. Of the Subject noun groups, there are 6 thing noun groups, and 16 people noun groups. Of the Complement noun groups, there are 11 thing noun groups, 7 people noun groups, and 1 institution noun group.

Text 5 has four types of nouns for both Subject and Complement noun groups. Of the Subject noun groups, there are 16 thing noun groups, 8 people noun groups, 3 institution noun groups, and 1 nominalized noun group. Of the Complement noun groups, there are 20 thing noun groups, 3 people noun groups, 1 institution noun group, and 2 nominalized noun groups.

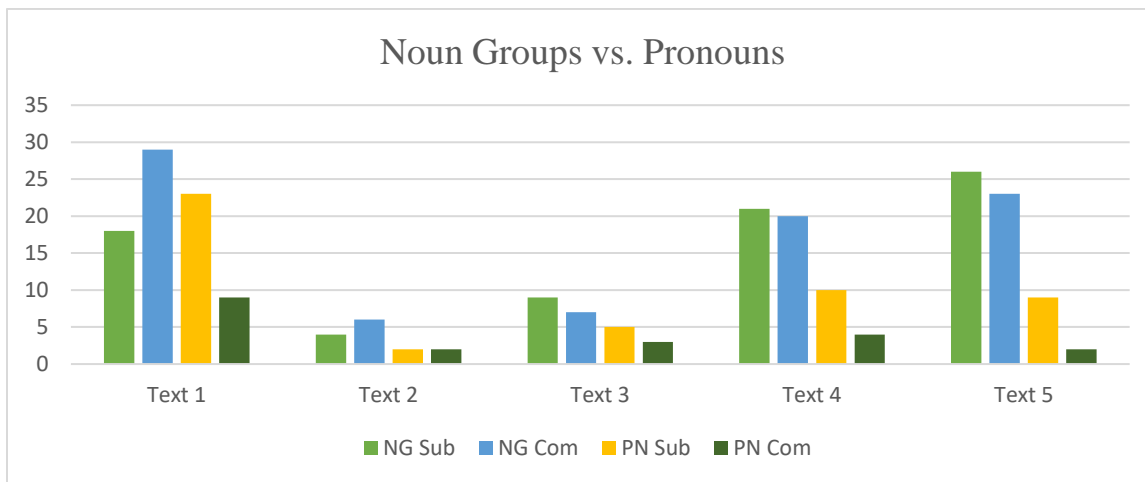


Figure 1. Noun Groups vs. Pronouns

In Figure 1. Noun Groups vs. Pronouns, Text 1 has more noun groups than pronouns; however, there are more Subject pronouns than Subject noun groups. Text 1 also has the highest number of Complement noun groups, Subject pronouns, and Complement pronouns of all the five texts. Text two has more noun groups, both Subject and Complement, than pronouns. Text 2 also has the same number of Subject pronouns as Complement pronouns. Text 3 has more noun groups, both Subject and Complement, than pronouns. Text 4 also has more noun groups, both

Subject and Complement, than pronouns. Text 5 has more noun groups, both Subject and Complement, than pronouns. Text 5 also has the highest number of Subject noun groups of all five texts.

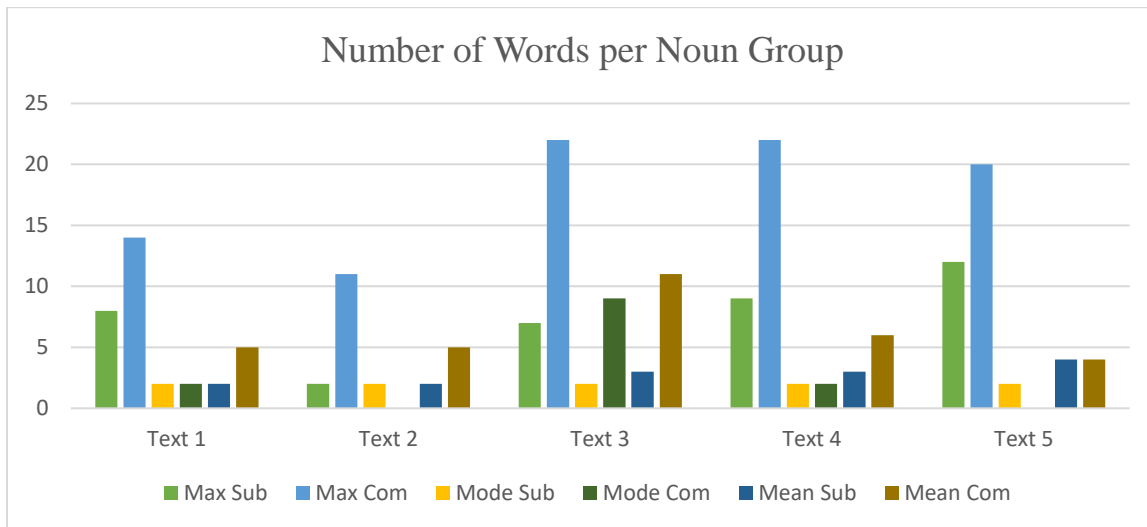


Figure 2. Number of Words per Noun Group

In Figure 2. Number of Words per Noun Group, Text 1 has more words per Complement noun group than Subject noun group. The most frequent number of words for both Subject and Complement noun groups in text one is two. Text 2 has more words per Complement noun groups than Subject noun group. There is not a most frequent number of words per Complement noun group because of the variation of 1, 2, 3, 6, 8, and 11 word groups all occurring only once; however, the most frequent number of words per Subject noun groups is two. Text 3 not only has more words per Complement noun group than Subject noun group, but ties with Text 4 in having the highest number of words per Complement noun group of all the five texts. Although the most frequent number of words per Complement noun group increased to nine, the most frequent number of words per Subject noun group is two. Text 4 not only has more words per

Complement noun group than Subject noun group, but, as previously stated, ties with Text 3 in having the highest number of words per Complement noun group of all the five texts. The most frequent number of words for both Subject and Complement noun groups in Text 4 is two. Text 5 has more words per Complement noun group than Subject noun group; however, Text 5 has the highest number of words per Subject noun group of all the five texts. Although there is not a most frequent number of words per Complement noun group, similar to Text 2, the most frequent number of words per Subject noun groups is two.

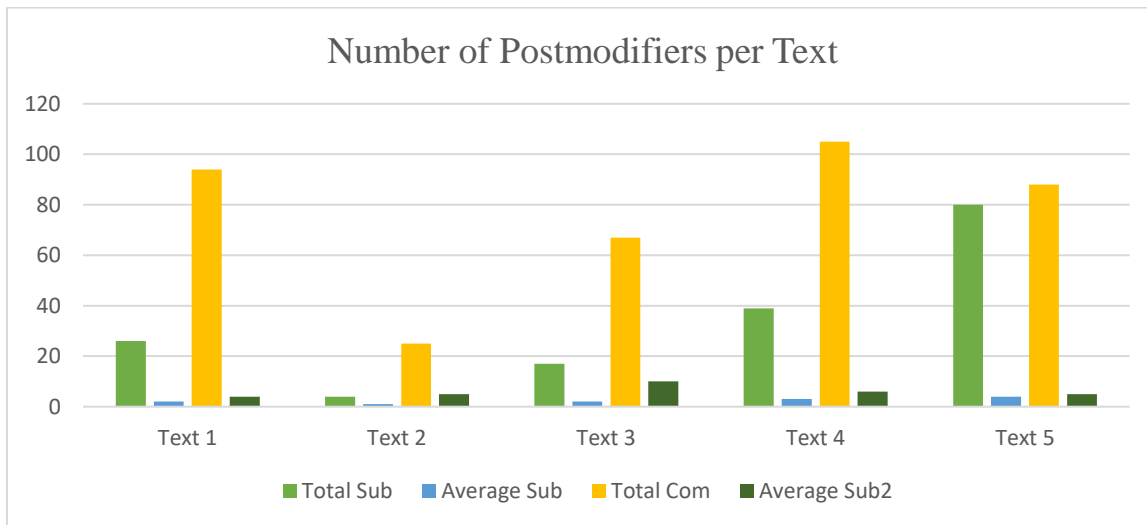


Figure 3. Number of Postmodifiers per Text

In Figure 3. Number of Postmodifiers per Text, Text 1 has more Postmodifiers in the Complement noun group than in the Subject noun group. The average number of Postmodifiers per Complement noun group doubles the average number of Postmodifiers per Subject noun group. In Text 2, the number of Postmodifiers per Complement noun group is greater than the Subject noun group. The average number of Postmodifiers in Complement noun groups increases to five whereas Subject noun group Postmodifiers decreases to one. Text 3 has more

Postmodifiers in the Complement noun group than the Subject noun group. The average number of Postmodifiers per Complement noun group increased drastically to ten, whereas the average number of Postmodifiers per Subject noun group increased to two. Text 4 has more Postmodifiers per Complement noun group than Subject noun group, as well as the highest number of Postmodifiers per Complement noun group of all five texts. Text 5 has more Postmodifiers per Complement noun group than Subject noun group; however, the number of Postmodifiers per Subject noun group in Text 5 is the highest of all five texts. The average number of Postmodifiers for Complement and Subject noun groups in Text 5 are almost equivalent with the average for Subject noun group being four and Complement noun group five.

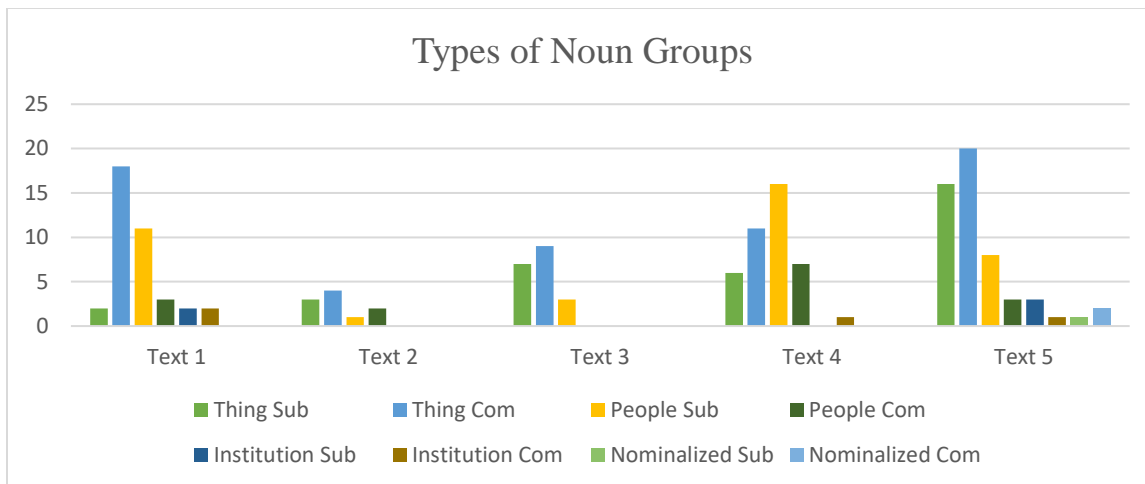


Figure 4. Types of Noun Groups

In Figure 4. Types of Nouns Groups, for both Subject and Complement noun groups of all five texts, institution nouns are the type of nouns used the least. For Complement noun groups, among all five texts, thing nouns are the most used of all the types of nouns. People and thing nouns for Subject noun groups however, vary from text to text. First, the most frequently used type of noun in text one for Subject noun groups are people nouns. Texts 2 and 3 alter by

using thing nouns more than people nouns for the Subject noun groups. Text 4 follows a similar pattern to Text 1, and uses people nouns for Subject noun groups more than thing nouns. Text 5 follows the same pattern as texts two and three in terms of using people nouns more than thing nouns for Subject noun groups; however, nominalized nouns occur in Text 5, whereas they do not in any of the other texts. Nominalized nouns in text five occur more in Complement noun groups than in Subject noun groups.

CHAPTER 4

DISCUSSION

Summary

Overall, the results for this analysis demonstrate a continuous progression in the number of noun groups used in comparison to pronouns for the Subject or Complement of each clause, the number of words used per Subject and Complement noun groups, and the types of nouns chosen (i.e. thing, people, institution, nominalized) as the level of complexity of each text intensified.

Meaningful Patterns and Explanations

During this analysis, significant patterns were observed in terms of difficulty level progression. One of those patterns was the increase of noun groups and decrease of pronouns as each text increased in its difficulty. In Level One, Texts 1 and 2, noun groups were more frequent than pronouns for Subjects and Complements. In comparison to Level Three, Texts 3 and 4, and Level Six, Text 5, however, the use of pronouns in Level One texts was greater than in Level Three and Level Six texts combined. The combined number of pronouns used as Subjects and Complements in Level One texts is 36, whereas in Level Three texts, the total number of pronouns used is 22, and 11 in the Level Six text.

Another pattern was the choice of types of nouns (thing, people, institution, nominalized) for Subjects and Complements in each text, and how those choices altered as the level of intricacy increased. For Level One Text 1, the most predominately used type of noun for Subject noun groups are people nouns. For Complement noun groups in Level One Text 1, the most dominate type of noun used are thing nouns. As the levels increase, however, with the exception

of Level Three Text 2, “The Forensic Use of DNA,” there is an increase in thing nouns for Subjects, a decrease in people nouns for Subjects, and thing noun Complements remain stagnant. Institution nouns are minimal for all texts; however, the only instances of nominalized nouns (grammatical metaphor) occur in Level Six Text 5. There are three occasions total in Level Six Text 5 of nominalized noun groups. An example is the Subject noun group in clause three, “predictions that the manatee would soon become extinct.”

Another recurrence noted in this analysis is the increase in the number of words per Subject and Complement noun group (lexical density) as the level of difficulty of each text amplified. The most frequently used number of words per Subject noun group among all five texts is two, although the highest number of words per Subject noun group appears in Level Six Text 5 with two instances of twelve words per Subject noun group. Whereas Subject noun groups among these five texts have a wide range (1-12 words per Subject noun group), Complement noun groups double that array with the highest number of words being 22. Even with this larger scale of number of words per Complement noun group, the most frequently used number of words per Complement noun group is two, similar to Subject noun groups.

Significance of Results

The significance of these results relates back to the genre of the chosen texts. Each text is an example of a scientific research field study, and scientific writing in general has certain grammatical features practiced in order to teach the language patterns of the genre. One of the most substantial patterns in scientific writing is the use of nouns and noun groups.

According to Zhihui Fang (2004), “One of the distinguishing features of scientific writing is that it has a high density of information. The informational density of a text can be measured

by an index called “lexical density” (p. 338). In scientific writing, the majority of those lexical words are nouns. Examining the language of schooling, Fang (2004) also argues that “this density of information is achieved partly through the use of longer and more complex noun phrases such as *a disorder in which the respiratory passages narrow significantly and the substances and activities that trigger attacks*. These extended noun phrases condense information that would normally be expressed, as in everyday spontaneous speech, with more than one clause.” This phenomenon was demonstrated throughout all five texts: increasing in length concurrently with the level of convolution.

In each text, as the level of difficulty increases, lexical density also increases. This increase is made evident by the “Number of Words per Noun Group” and “Number of Postmodifiers per Text” data collected. These data demonstrate how the number of words per noun group, and number of Postmodifiers in each noun group increases as each text progresses in lexical intricacy. In Level One Text 1, *Elephant Orphanage*, the highest number of words per Subject noun group is 8, and the number of words per Complement noun group is 14. In comparison, Level Six Text 5, *Controversy Surrounding Saving the Manatees*, the highest number of words per Subject noun group is 12, and the number of words per Complement noun group is 20. In addition, the total number of Postmodifiers in Level One Text 1, *Elephant Orphanage*, for Subject noun groups combined is 26, and for Complement noun groups, the total number of Postmodifiers combined is 94. In Level Six Text 5, *Controversy Surrounding Saving the Manatees*, the total number of Postmodifiers for Subject noun groups combined is 80, and the total number of Postmodifiers for Complement noun groups combined is 88.

Based on these results, the increase of number of words per Subject and Complement noun groups from Text 1 to Text 5 is substantial. Even though the number of Postmodifiers in

Complement noun groups from Text 1 to Text 5 decreased by two words, the increase in Subject noun groups (26 to 80) is an enormous increase. Based on these results, it can be assumed that although lexical density does not appear to affect Complement noun groups as much as the level of difficulty of a text increases, it does affect the Subject noun groups significantly.

As the level of difficulty of each text increases, the use of people nouns declines, thing nouns amplify, and grammatical metaphor appears. This tendency is significant because, in relation to the genre of the texts, thing nouns are more abstract than people nouns, and nominalized nouns are not capable of being understood by language learners in early stages; rather, it is a concept that is understood as learning advances.

In Level One Text 1, the number of people nouns for Subject noun groups is 11, and for Complement noun groups is 3. The use of people nouns in both Subject and Complement noun groups, with the exception of Text 4, decreases as the reading comprehension complexity increases in each text. In Text 5, the number of people nouns in Subject noun groups reduces to 8, and in Complement noun groups, it remains at 3. In terms of thing nouns, in Text 1, there are only 2 thing nouns for Subject noun groups, and 18 thing nouns for Complement noun groups. This pattern continuously progresses, and by Text 5, the number of thing nouns for Subject noun groups is 16, and 20 for Complement noun groups.

Based on these results, the increase of thing nouns and reduction of people nouns in both Subject and Complement noun groups as the level of difficulty rises with each text is noteworthy. The only outlier that lessens the weight of this observation is Text 4 because the theme of that text comprises people. Although both Subject and Complement noun groups appear to be affected by the fluctuation of thing nouns and people nouns, the outcome for Subject noun groups is more apparent than Complement noun groups.

In relation to change of types of nouns used, the use of grammatical metaphor appears in the advanced texts rather than the beginner ones. In fact, it isn't until Text 5, the highest-level text analyzed, that grammatical metaphor occurs. In Text 5, there is one instance of grammatical metaphor in Subject noun groups, and two instances in Complement noun groups. This pattern is significant, because, as previously stated, grammatical metaphor is a concept that requires a high degree of language processing. Text 5 is the first text where grammatical metaphor begins to be used. Overall, nominalized Complement groups occur twice as much as Subject noun groups. In order to assume that grammatical metaphor occurs more often in Complement noun groups than it does in Subject noun groups as a meaningful pattern, more research would have to be conducted on texts more advanced than the highest level used for this analysis, such as graduate level texts.

Limitations

Analyzing a small number of ESL textbooks by itself constitutes a limitation to any kind of meaningful research. But at the same time, this limitation is also a result of labor-intensive word-by-word, group-by-group, and meaning-by-meaning lexico-grammatical analyses in general. In conducting a meaning-based study, this limitation in terms of time and labor may be an unavoidable drawback. As research in the lexico-grammatical patterns of meaning progression is not yet a common research topic, and computer-generated concordances are not sophisticated enough to handle patterns of meaning, I hope that this limitation will be at least partially resolved by like research, especially in the ESL textbook analysis area.

Another issue, though only remotely related to the current study, is the topic selection in each text. This is a limitation because the texts selected for ESL learning materials represent more or less a random set of texts with other various genres embedded inside the texts, making it

hard to see lexico-grammatically coherent patterns of meaning. Texts with multiple genres embedded in each do not necessarily represent typical patterns of language used in academic areas. These limitations should be taken into consideration when analyzing texts for research purposes and reviewing texts for teaching purposes.

Future Research

On the basis of the limitations of this study mentioned above, future research may benefit more by including the continuation of analyzing ESL texts from a variety of other lexico-grammatical meaning progression perspectives to delve into other potential meaningful patterns. Future research might take similar approaches to the analyses cited earlier in this thesis, but examine the language of ESL textbooks.

Conclusion

In conclusion, after conducting an analysis of five ESL texts on various difficulty levels on the basis of the interpersonal metafunction within Systemic Functional Linguistics on the level of lexicogrammar, involving changes in lexical density, change in types of nouns, and grammatical metaphor in relation to science genre texts, what demonstrated the initial set of hypotheses that not only lexical density, grammatical metaphor, and change in types of nouns are significant patterns that occur during advancing science based genre texts, but are also concepts that need to be instructed to students in order to understand why the text becomes more difficult to read. Functional approaches to grammar and language learning provide an element of critical understanding where traditional approaches to grammar do not (Bernhardt, 1986). Based on this analysis, it then may be argued that introducing ESL students to new, advanced vocabulary terms

without at the same time teaching the many ways in which dictionary meanings of lexical items also contain grammatical meanings may not benefit those students as this way of separating lexical items from lexico-grammar may present to students only part of the entire picture that ESL teachers are doing their best to teach: English as a target language. It is believed that incorporation of various levels of lexico-grammatical meanings into the teaching of more advanced texts will produce ESL learners with a much better understanding of the target language, and could possibly help improve reading comprehension.

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APPENDIX A: OFFICE OF RESEARCH INTEGRITY APPROVAL LETTER



Office of Research Integrity
April 11, 2017

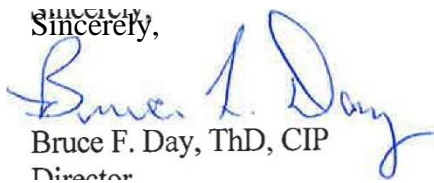
Jessica Lewis
English Department
Corbly Hall
Marshall University

Dear Ms. Lewis:

This letter is in response to the submitted thesis abstract entitled "*Formal and Functional Linguistic Properties of ESL Textbooks.*" After assessing the abstract it has been deemed not to be human subject research and therefore exempt from oversight of the Marshall University Institutional Review Board (IRB). The Code of Federal Regulations (45CFR46) has set forth the criteria utilized in making this determination. Since the information in this study does not involve human subjects as defined in the above referenced instruction it is not considered human subject research. If there are any changes to the abstract you provided then you would need to resubmit that information to the Office of Research Integrity for review and a determination.

I appreciate your willingness to submit the abstract for determination. Please feel free to contact the Office of Research Integrity if you have any questions regarding future protocols that may require IRB review.

Sincerely,



Bruce F. Day, ThD, CIP
Director

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APPENDIX B: TEXT ANALYSES

Level One

Text One: The Elephant Orphanage by Daniel Schorn

April 6, 2009

1. Stories about an orphanage are bound to pull at your heartstrings; all these orphans are from East Africa. They were all **abandoned** when they were very young, less than two years old – and they're all elephants. This orphanage is in Kenya, near Nairobi, and has been around almost 30 years.
2. Each orphan has a private room. There is a communal bath, a playground, and a dining area. There are as many as 14 orphans here at any one time, and they stay a number of years before going back to the bush.
3. Just about the best people you've ever met are the **gentle** men who work here. They are called keepers, and they have **extraordinary** jobs. There is one keeper per elephant; he spends 24 hours a day with his charge, seven days a week. A keeper feeds his elephant every three hours, day and night, just like a mom would. He keeps his elephant warm, not like a mom would, but with a blanket. He even sleeps right next to his elephant. The keepers are **rotated** now and then so that no elephant gets too **attached** to any of them.
4. The keepers also teach the elephants how to be elephants. There are **wild** elephant things these kids don't know how to do – mother wasn't around to teach them. Things like covering themselves in dust to prevent sunburn. The keepers do it with shovels, until the elephants **pick it up** themselves. It's actually a pretty lush life for the young elephants at the orphanage. But it's not the life of a wild elephant.
5. So like any good school, this place prepares its young charges to leave. But not right away. You don't go straight from a nursery to the jungle. You need more schooling first. Therefore, the orphanage **runs** a sort of junior high school in Tsavo National Park, the biggest park in Kenya. In the park, there is a lot less **supervision** and a lot less milk. The elephants find most of their food themselves. There is no longer any concern about their survival. They are healthy and strong now. Not only that, they hang out with elephants in the wild. They're in the process of becoming wild. One day, each elephant just wanders off into the wild and stays there. It is not at the **prompting** of anyone in the orphanage. It is whenever an elephant feels that he is ready to go back where he belongs.

Clause Breakdown:

1. Stories about an orphanage are bound to pull at your heartstrings,
2. all these orphans are from East Africa.

3. They were all **abandoned**
4. when they were very young, less than two years old
5. – and they're all elephants.

6. This orphanage is in Kenya, near Nairobi,
7. and has been around almost 30 years.

8. Each orphan has a private room.

9. There is a communal bath, a playground, and a dining area.

10. There are as many as 14 orphans here at any one time,
11. and they stay a number of years
12. before going back to the bush.

13. Just about the best people you've ever met are the **gentle** men who work here.

14. They are called keepers,
15. and they have **extraordinary** jobs.

16. There is one keeper per elephant;
17. he spends 24 hours a day with his charge, seven days a week.

18. A keeper feeds his elephant every three hours, day and night,
19. just like a mom would.

20. He keeps his elephant warm,
21. not like a mom would, but with a blanket.

22. He even sleeps right next to his elephant.

23. The keepers are **rotated** now and then
24. so that no elephant gets too **attached** to any of them.

25. The keepers also teach the elephants how to be elephants.
26. There are **wild** elephant things these kids don't know how to do
27. – mother wasn't around
to teach them.

28. Things like covering themselves in dust to prevent sunburn.

29. The keepers do it with shovels,
30. until the elephants **pick it up** themselves.
31. It's actually a pretty lush life for the young elephants at the orphanage.
32. But it's not the life of a wild elephant.
33. So like any good school, this place prepares its young charges to leave.
34. But not right away.
35. You don't go straight from a nursery to the jungle.
36. You need more schooling first.
37. Therefore, the orphanage **runs** a sort of junior high school in Tsavo National Park, the biggest park in Kenya.
38. In the park, there is a lot less **supervision** and a lot less milk.
39. The elephants find most of their food themselves.
40. There is no longer any concern about their survival.
41. They are healthy and strong now.
42. Not only that, they hang out with elephants in the wild.
43. They're in the process of becoming wild.
44. One day, each elephant just wanders off into the wild
45. and stays there.
46. It is not at the **prompting** of anyone in the orphanage.
47. It is whenever an elephant feels that he is ready to go back where he belongs.

Clause breakdown (AND INTERPERSONAL M/F ANALYSIS):

1. Stories about an orphanage (S) are (F) bound to pull (P) at your heartstrings. (A)
 2. all these orphans (S) are (F) from East Africa. (C)

 3. They (S) were (F) all abandoned (P)
 4. when (A) they (S) were (F) very young. (C) less than two years old (C)
 5. – and (A) they (S) 're (F) all elephants. (C)

 6. This orphanage (S) is (F) in Kenya. (C) near Nairobi. (C)
 7. and (A) has (F) been (P) around almost 30 years. (C)

 8. Each orphan (S) has (F/P) a private room. (C)

 9. There (S) is (F) a communal bath, a playground, and a dining area. (C)

 10. There (S) are (F) as many as 14 orphans here (C) at any one time. (A)
 11. and (A) they (S) stay (F/P) a number of years (A)
 12. before (A) going (P) back (A) to the bush. (A)

 13. Just about the best people you've ever met (S) are (F) the gentle men who work here. (C)

 14. They (S) are (F) called (P) keepers. (C)
 15. and (A) they (S) have (F/P) extraordinary jobs. (C)

 16. There (S) is (F) one keeper per elephant; (C)
 17. he (S) spends (F/P) 24 hours a day (A) with his charge. (A) seven days a week. (A)

 18. A keeper (S) feeds (F/P) his elephant (C) every three hours, day and night. (A)
 19. just like (A) a mom (S) would. (F-modal)

 20. He (S) keeps (F/P) his elephant (C) warm. (C)
 21. not like (A) a mom (S) would (F-modal), but with a blanket. (C)

 22. He (S) even (A) sleeps (F/P) right next to his elephant. (A)

 23. The keepers (S) are (F) rotated (P) now and then (C)
 24. so that (A) no elephant (S) gets (F/P) too attached to any of them. (C)

 25. The keepers (S) also (A) teach (F/P) the elephants (C) how to be elephants. (C)
 26. There (S) are (F) wild elephant things these kids don't know how to do (C)
 27. – mother (S) wasn't (F-negative) around (C)
 28. to teach (P) them. (C)
- Things like covering themselves in dust (C) to prevent sunburn. (A)

29. The keepers (S) do (F/P) it (C) with shovels. (A)
30. until (A) the elephants (S) pick (F/P) it (C) up (A) themselves. (S)
31. It (S) 's (F) actually (A) a pretty lush life for the young elephants at the orphanage. (A)
32. But (A) it (S)'s (F) not (A-negative) the life of a wild elephant. (C)
33. So like any good school, (A) this place (S) prepares (F/P) its young charges (C) to leave. (P)
But not right away. (A)
34. You (S) do(F) n't (A-negative) go (P) straight from a nursery to the jungle. (A)
35. You (S) need (F/P) more schooling (C) first. (A)
36. Therefore, (A) the orphanage (S) runs (F/P) a sort of junior high school (C) in Tsavo National Park,the biggest park in Kenya. (A)
37. In the park (A), there is (F) a lot less supervision and a lot less milk. (C)
38. The elephants (S) find (F/P) most of their food (C) themselves. (A)
39. There (S) is (F) no longer (A-negative) any concern about their survival. (C)
40. They (S) are (F) healthy and strong (C) now. (A)
41. Not only that, (A) they (S) hang (F/P) out (A) with elephants in the wild. (A)
42. They (S)'re (F) in the process of (C)
43. becoming (P) wild. (A)
44. One day, (A) each elephant (S) just (A) wanders (F/P) off (A) into the wild (A)
45. and stays (F/P) there. (A)
46. It (S) is (F) not (NEGATIVE) at the prompting of anyone in the orphanage. (C)
47. It (S) is (F) whenever an elephant feels that he is ready to go back where he belongs. (C)

Level One

Text Two: Elephant Behavior by Charles Siebert *National Geographic*, September 2011

Young elephants are **raised** within a matriarchal family, beginning with their mother and then including sisters, cousins, aunts, grandmothers, and friends. These **bonds** endure over a lifetime that can be as long as 70 years. Young elephants stay close to their mothers and **extended family** members – males until they are about 14, females for life. According to Daphne Sheldrick, founder and director of an elephant orphanage in Kenya for over 30 years, “Whenever we get a new baby here, the other will come around and lovingly put their trunks on its back to comfort it. They have such big hearts.”

Clause breakdown:

1. Young elephants are **raised** within a matriarchal family,
2. beginning with their mother and then including sisters, cousins, aunts, grandmothers, and friends.
3. These **bonds** endure over a lifetime that can be as long as 70 years.
4. Young elephants stay close to their mothers and **extended family** members – males until they are about 14, females for life.
5. According to Daphne Sheldrick, founder and director of an elephant orphanage in Kenya for over 30 years, “Whenever we get a new baby here,
6. the others will come around
7. and lovingly put their trunks on its back to comfort it.
8. They have such big hearts.”

Clause breakdown: (AND INTERPERSONAL M/F ANALYSIS)

1. Young elephants (S) are (F) **raised** (P) within a matriarchal family. (A)
2. beginning (C) with their mother (A) and (A) then (A) including (P) sisters, cousins, aunts, grandmothers, and friends. (C)
3. These bonds (S) endure (F/P) over a lifetime that can be as long as 70 years. (C)
4. Young elephants (S) stay (F/P) close to their mothers and extended family members (C) – males until they are about 14, females for life. (A)
5. According to Daphne Sheldrick, founder and director of an elephant orphanage in Kenya for over 30 years (A), “Whenever (A) we (S) get (F/P) a new baby (C) here, (A)
6. the others (S) will (F) come (P) around (A)
7. and (A) lovingly (A) put (P) their trunks (C) on its back (C)
8. to comfort it. (A)
9. They (S) have (F) such (A) big hearts.” (C)

Level Three

Text Three: When Does A Fear Become A Phobia? By Rod Plotnik, from “Anxiety Disorders,” in *Introduction to Psychology*

1. People are afraid of many things: snakes, bugs, getting injections, taking exams, flying in airplanes, meeting new people, speaking in public, and seeing blood. Sometimes our worries become so strong and **intense** that we cannot **function** normally in daily life. That’s when these **fears** become **phobias**. A phobia is an **anxiety disorder** characterized by extreme irrational fear and heightened physiological arousal that is out of proportion to the situation. The feared object or situation is met with great anxiety if it cannot be avoided.
2. Anxiety is a feeling of constant worry and **dread**. Anxiety conditions are characterized by constant worry or by self-defeating behavior aimed at preventing anxious situations from happening. People with a strong fear of elevators, for example, may be unable to work or live in buildings where elevators would be part of their everyday lives. They may refuse good jobs because they cannot ride in elevators. People with social phobias may also be so afraid of speaking in public that they cannot function in school or at work.
3. Anxiety disorders represent the most common **psychological** disorders in the United States, with approximately 30 to 40% [percent] of the population developing them at some point in their lives. Anxiety disorders can have a negative effect on work, social, and family functioning and they can lead to other **severe** disorders, such as **depression** and alcoholism.

Clause breakdown:

1. People are afraid of many things: snakes, bugs, getting injections, taking exams, flying in airplanes, meeting new people, speaking in public, and seeing blood.
2. Sometimes our worries become so strong and **intense** that we cannot **function** normally in daily life.
3. That's when these **fears** become **phobias**.
4. A phobia is an **anxiety disorder** characterized by extreme irrational fear and heightened physiological arousal that is out of proportion to the situation.
5. The feared object or situation is met with great anxiety
6. if it cannot be avoided.
7. Anxiety is a feeling of constant worry and **dread**.
8. Anxiety conditions are characterized by constant worry or by self-defeating behavior aimed at preventing anxious situations from happening.
9. People with a strong fear of elevators, for example, may be unable to work or live in buildings where elevators would be part of their everyday lives.
10. They may refuse good jobs
11. because they cannot ride in elevators.
12. People with social phobias may also be so afraid of speaking in public that they cannot function in school or at work.
13. Anxiety disorders represent the most common **psychological** disorders in the United States, with approximately 30 to 40% [percent] of the population developing them at some point in their lives.
14. Anxiety disorders can have a negative effect on work, social, and family functioning
15. and they can lead to other **severe** disorders, such as **depression** and alcoholism.

Clause breakdown: (AND INTERPERSONAL M/F ANALYSIS)

1. People (S) are (F) afraid of many things: snakes, bugs, getting injections, taking exams, flying in airplanes, meeting new people, speaking in public, and seeing blood. (C)
2. Sometimes (A) our worries (S) become (F/P) so strong and **intense** that we cannot **function** normally in daily life. (C)
3. That (S)'s (F) when these **fears** become **phobias**. (C)
4. A phobia (S) is (F) an **anxiety disorder** characterized by extreme irrational fear and heightened physiological arousal that is out of proportion to the situation. (C)
5. The feared object or situation (S) is (F) met (P) with great anxiety (A)
6. If (A) it (S) cannot (F) -NEGATIVE) be avoided (P).
7. Anxiety (S) is (F) a feeling of constant worry and **dread**. (C)
8. Anxiety conditions (S) are (F) characterized (P) by constant worry or by self-defeating behavior aimed at preventing anxious situations from happening. (A)
9. People with a strong fear of elevators, (S) for example, (A) may (F) be unable to work or live (P) in buildings where elevators would be part of their everyday lives. (A)
10. They (S) may (F) refuse (P) good jobs (C)
11. because (A) they (S) cannot (F-negative) ride (P) in elevators. (A)
12. People with social phobias (S) may (F) also (A) be (P) so afraid of speaking in public that they cannot function in school or at work. (C)
13. Anxiety disorders (S) represent (F/P) the most common **psychological** disorders in the United States, (C) with approximately 30 to 40% [percent] of the population developing them at some point in their lives. (A)
14. Anxiety disorders (S) can (F) have (P) a negative effect on work, social, and family functioning (C)
15. and (A) they (S) can (F) lead (P) to other **severe** disorders, such as **depression** and **alcoholism**. (A)

Level Three

Text Four: The Forensic Use of DNA by James Watson with Andrew Berry

James Watson and Francis Crick discovered the double-helix structure of DNA in 1953. Crick described their discovery as finding “the secret of life.”

1. The forensic use of DNA was first discovered in 1984 by a British geneticist named Alec Jeffreys, who was doing research at Leicester University. According to Jeffreys, DNA technology had the power to identify an individual with what he called a “DNA fingerprint.”
2. In 1998, Marvin Lamont Anderson had been in a Virginia Prison for fifteen years. He had been **convicted** of a brutal assault in 1983. The victim identified him from a photograph and she picked him out in a police line-up. However, a closer look at the case for **the prosecution** might have revealed some problems. Anderson didn’t have a very effective **defense** lawyer. His **attorney** didn’t point out that when the victim was shown photographs, Anderson’s was the only one in color. Of all the men whose pictures she was shown, he alone was placed in the line-up. The police knew that another man, John Otis Lincoln, had stolen the bicycle used in the crime just 30 minutes before the crime was committed. But Anderson’s attorney did not even call Lincoln to testify in court.
3. Five years after Anderson’s **trial**, John Lincoln **confessed** to the crime, but the trial **judge** called him a liar and refused to act. Anderson meanwhile continued to protest his innocence. He asked the authorities to do a DNA analysis on the physical **evidence** from the crime scene. He was told that all the evidence had been destroyed after the trial. That was normal procedure at that time. It was then that Anderson contacted the lawyers of the Innocence Project, a group that had gained national attention using DNA analysis to find evidence of guilt or innocence in criminal cases.
4. In the end, Anderson was saved because of the sloppiness of the police technician who had performed the first analysis on the crime scene material in 1982. The technician hadn’t returned the samples for destruction, and so they still existed when Anderson asked for a reexamination. The Director of the Virginia Department of Criminal Justice, however, refused the request. He argued that it might establish an “unwelcome **precedent**.” But under a new law, the Innocence Project attorneys won a court order calling for tests to be performed, and in December 2001, the results proved that Anderson could not have committed the crime. The DNA “fingerprint” matched John Otis Lincoln’s. Anderson was **pardoned** and freed by Governor Mark Warner of Virginia in 2002.

Clause breakdown:

1. The forensic use of DNA was first discovered in 1984 by a British geneticist named Alec Jeffreys,
2. who was doing research at Leicester University.
3. According to Jeffreys, DNA technology had the power to identify an individual with what he called a “DNA fingerprint.”
4. In 1998, Marvin Lamont Anderson had been in a Virginia Prison for fifteen years.
5. He had been **convicted** of a brutal assault in 1983.
6. The victim identified him from a photograph
7. and she picked him out in a police line-up.
8. However, a closer look at the case for **the prosecution** might have revealed some problems.
9. Anderson didn’t have a very effective **defense** lawyer.
10. His **attorney** didn’t point out that when the victim was shown photographs, Anderson’s was the only one in color.
11. Of all the men whose pictures she was shown, he alone was placed in the line-up.
12. The police knew that another man, John Otis Lincoln, had stolen the bicycle used in the crime just 30 minutes before the crime was committed.
13. But Anderson’s attorney did not even call Lincoln to testify in court.
14. Five years after Anderson’s **trial**, John Lincoln **confessed** to the crime, but the trial **judge** called him a liar
15. and refused to act.
16. Anderson meanwhile continued to protest his innocence.
17. He asked the authorities
18. to do a DNA analysis on the physical **evidence** from the crime scene.
19. He was told
20. that all the evidence had been destroyed after the trial.
21. That was normal procedure at that time.
22. It was then that Anderson contacted the lawyers of the Innocence Project, a group that had gained national attention using DNA analysis

23. to find evidence of guilt or innocence in criminal cases.
24. In the end, Anderson was saved because of the sloppiness of the police technician who had performed the first analysis on the crime scene material in 1982.
25. The technician hadn't returned the samples for destruction,
26. and so they still existed
27. when Anderson asked for a reexamination.
28. The Director of the Virginia Department of Criminal Justice, however, refused the request.
29. He argued
30. that it might establish an "unwelcome **precedent.**"
31. But under a new law, the Innocence Project attorneys won a court order calling for tests to be performed,
32. and in December 2001, the results proved that Anderson could not have committed the crime.
33. The DNA "fingerprint" matched John Otis Lincoln's.
34. Anderson was **pardoned** and freed by Governor Mark Warner of Virginia in 2002.

Clause breakdown: (AND INTERPERSONAL M/F ANALYSIS)

1. The forensic use of DNA (S) was (F) first (A) discovered (P) in 1984 (A) by a British geneticist named Alec Jeffreys, (A)
2. who (S) was (F) doing (P) research (C) at Leicester University. (A)
3. According to Jeffreys, (A) DNA technology (S) had (F/P) the power to identify (C) an individual with what he called a “DNA fingerprint.” (C)
4. In 1998, (A) Marvin Lamont Anderson (S) had (F) been (P) in a Virginia Prison (C) for fifteen years. (A)
5. He (S) had (F) been convicted (P) of a brutal assault (A) in 1983. (A)
6. The victim (S) identified (F/P) him (C) from a photograph (A)
7. and (A) she (S) picked (F/P) him (C) out (A) in a police line-up. (A)
8. However, (A) a closer look at the case for **the prosecution** (S) might (F) have revealed (P) some problems. (C)
9. Anderson (S) didn’t (F-negative) have (P) a very effective **defense** lawyer. (C)
10. His **attorney** (S) didn’t (F-negative) point (P) out (A) that when the victim was shown photographs, Anderson’s was the only one in color. (C)
11. Of all the men whose pictures she was shown (A), (P) he (S) alone (A) was (F) placed (P) in the line-up. (A)
12. The police (S) knew (F/P) that another man, John Otis Lincoln, had stolen the bicycle used in the crime just 30 minutes before the crime was committed. (C)
13. But (A) Anderson’s attorney (S) did not (F-negative) even (A) call (P) Lincoln (C)
14. to testify in court. (A)
15. Five years after Anderson’s **trial**, (A) John Lincoln (S) confessed (F/P) to the crime, (A) but (A) the trial **judge** (S) called (F/P) him (C) a liar (C)
16. and (A) refused (F/P..) to act. (..P)
17. Anderson (S) meanwhile (A) continued (F/P..) to protest (...P) his innocence. (C)
18. He (S) asked (F/P) the authorities (C)
19. to do (P) a DNA analysis on the physical **evidence** from the crime scene (C).
20. He (S) was (F) told (P)
21. that all the evidence (S) had (F) been destroyed (P) after the trial. (A)

22. That (S) was (F) normal procedure (C) at that time. (A)
23. It was then (A) that Anderson (S) contacted (F/P) the lawyers of the Innocence Project, a group that had gained national attention using DNA analysis (C)
24. to find (P) evidence of guilt or innocence in criminal cases (C).
25. In the end, (A) Anderson (S) was (F) saved (P) because of the sloppiness of the police technician who had performed the first analysis on the crime scene material in 1982. (A)
26. The technician (S) hadn't (F-negative) returned (P) the samples for destruction, (C)
27. and so (A) they (S) still (modal A) existed (F/P)
28. when (A) Anderson (S) asked (F/P) for a reexamination. (A)
29. The Director of the Virginia Department of Criminal Justice, (S) however, (A) refused (F/P) the request. (C)
30. He (S) argued (F/P)
31. that it (S) might (F/MODAL) establish (P) an "unwelcome precedent." (C)
32. But (A) under a new law, (A) the Innocence Project attorneys (S) won (F/P) a court order calling for tests to be performed, (C)
33. and (A) in December 2001, (A) the results (S) proved (F/P)
34. that Anderson (A) could (F) not (F-negative) have committed (P) the crime. (C)
35. The DNA "fingerprint" (S) matched (F/P) John Otis Lincoln's. (C)
36. Anderson (S) was (F) **pardoned** and freed (P) by Governor Mark Warner of Virginia (A) in 2002. (A)

Level Six

Text Five: Controversy Surrounding Saving the Manatees

1. Since 1967, the manatee, a gentle marine mammal that lives mainly in Florida waters, has been on the federal government's endangered species list. Yet, between 1974 and 2002, biologists still counted as many as 4,673 manatee deaths. During that time, predictions that the manatee would soon become extinct prompted animal advocates, like members of the Save the manatee Club and the Sierra Club, to insist on greater protections. Beginning in 1978, the Florida legislature responded by passing laws establishing areas where boating is banned or restricted, lowering boat speed limits in areas populated by manatees, and limiting permits for waterfront development. While these laws seem to have helped the manatees, they have also created conflict between environmentalists and some Florida residents who feel that their lifestyles and livelihoods have been adversely affected.
2. Initially, laws designed to protect manatees seem to have reduced the number of deaths. Manatees swim from the ocean into warmer rivers during the winter months. Therefore, many of them are injured or killed in collisions with boats. Limiting boaters' speeds and prohibiting them from entering ahead where manatees tend to congregate appear to have lowered the mortality rate. In 1972, the first aerial population survey indicated that there might be only 600 to 800 manatees; several censuses in the 1990s, though, indicated that their numbers were somewhere between 1,500 and 2,500. In January 2001, a survey conducted by the Florida Fish and Wildlife Conservation Commission (FWCC) counted 3,300 manatees, far more than expected. In 2004, the FWCC counted 2,505 manatees and in 2006, 3,111. By 2010, the count had climbed to 5,000.
3. But statistics like these, as it turns out, have only served as ammunition for those who advocated removing the manatee from the endangered species list and re-evaluating manatee protections. In 2006, for instance, despite vocal and widespread public opposition, the Florida Fish and Wildlife Conservation Commission voted to downgrade manatees from *Endangered* to *Threatened*. For groups like those represented on Savethemanatee.org, the decision amounted to a death warrant for the gentle creatures because "Threatened" status does not provide the same number of protection as "Endangered" does. The feeling was that the board was siding with those hoping to exploit the manatees' habitat for shoreline development and high-speed recreation.
4. That feeling was apparently shared by many Floridians, and a lot of them wrote letters to Florida's governor Charlie Crist, in response to the public outcry, Governor Crist stepped in and asked the FWCC board to postpone implementing the decision until new board members had had a chance to study the issue. When the board met again in December of 2007, it voted down the manatees' change in status.
5. But no one involved in the controversy over the manatees' status expects the issue to go away anytime soon. There are still those who see protection of the manatees as a hindrance to their personal freedom and financial well-being. In numbers at least, they are more than matched by those determined to make sure the manatees thrive and multiply, thanks to protections provided by their *Endangered* status.

Clause breakdown:

1. Since 1967, the manatee, a gentle marine mammal that lives mainly in Florida waters, has been on the federal government's endangered species list.
2. Yet, between 1974 and 2002, biologists still counted as many as 4,673 manatee deaths.
3. During that time, predictions that the manatee would soon become extinct prompted animal advocates, like members of the Save the manatee Club and the Sierra Club, to insist on greater protections.
4. Beginning in 1978, the Florida legislature responded by passing laws
5. establishing areas where boating is banned or restricted,
6. lowering boat speed limits in areas populated by manatees,
7. and limiting permits for waterfront development.
8. While these laws seem to have helped the manatees,
9. they have also created conflict between environmentalists and some Florida residents who feel that their lifestyles and livelihoods have been adversely affected.
10. Initially, laws designed to protect manatees seem to have reduced the number of deaths.
11. Manatees swim from the ocean into warmer rivers during the winter months.
12. Therefore, many of them are injured or killed in collisions with boats.
13. Limiting boaters' speeds and prohibiting them from entering ahead where manatees tend to congregate appear to have lowered the mortality rate.
14. In 1972, the first aerial population survey indicated that there might be only 600 to 800 manatees;
15. several censuses in the 1990s, though, indicated that their numbers were somewhere between 1,500 and 2,500.
16. In January 2001, a survey conducted by the Florida Fish and Wildlife Conservation Commission (FWCC) counted 3,300 manatees, far more than expected.
17. In 2004, the FWCC counted 2,505 manatees and in 2006, 3,111.
18. By 2010, the count had climbed to 5,000.
19. But statistics like these, as it turns out, have only served as ammunition for those who advocated removing the manatee from the endangered species list and re-evaluating manatee protections.
20. In 2006, for instance, despite vocal and widespread public opposition, the Florida Fish and Wildlife Conservation Commission voted to downgrade manatees from *Endangered* to *Threatened*.

21. For groups like those represented on Savethemanatee.org, the decision amounted to a death warrant for the gentle creatures
22. because “Threatened” status does not provide the same number of protection as “Endangered” does.
23. The feeling was that the board was siding with those hoping to exploit the manatees’ habitat for shoreline development and high-speed recreation.
24. That feeling was apparently shared by many Floridians,
25. and a lot of them wrote letters to Florida’s governor Charlie Crist, in response to the public outcry, Governor Crist stepped in
26. and asked the FWCC board to postpone implementing the decision
27. until new board members had had a chance to study the issue.
28. When the board met again in December of 2007,
29. it voted down the manatees’ change in status.
30. But no one involved in the controversy over the manatees’ status expects the issue to go away anytime soon.
31. There are still those who see protection of the manatees as a hindrance to their personal freedom and financial well-being.
32. In numbers at least, they are more than matched by those determined to make sure the manatees thrive and multiply, thanks to protections provided by their *Endangered* status.

Clause breakdown: (AND INTERPERSONAL M/F ANALYSIS)

1. Since 1967, (A) the manatee, a gentle marine mammal that lives mainly in Florida waters, (S) has (F) been (P) on the federal government's endangered species list. (C)
2. Yet, (A) between 1974 and 2002, (A) biologists (S) still (A) counted (F/P) as many as 4,673 manatee deaths. (C)
3. During that time, (A) predictions that the manatee would soon become extinct (S) prompted (F/P) animal advocates, like members of the Save the manatee Club and the Sierra Club, (C)
4. to insist (P) on greater protections (A).
5. Beginning in 1978, (A) the Florida legislature (S) responded (F/P)
6. by passing (P) laws (C)
7. establishing (P) areas (S) where boating is banned or restricted,
8. lowering (F/P) boat speed limits (S) in areas populated by manatees, (C)
9. and (A) limiting (F/P) permits (S) for waterfront development. (C)
10. While (A) these laws (S) seem (F) to have helped (P) the manatees, (C)
11. they (S) have (F) also (A) created (P) conflict between environmentalists and some Florida residents who feel that their lifestyles and livelihoods have been adversely affected. (C)
12. Initially, (A) laws designed to protect manatees (S) seem (F) to have reduced (P) the number of deaths. (C)
13. Manatees (S) swim (F/P) from the ocean into warmer rivers (A) during the winter months. (A)
14. Therefore (A), many of them (S) are (F) injured or killed (P) in collisions with boats. (A)
15. Limiting boaters' speeds and prohibiting them from entering ahead where manatees tend to congregate (S) appear (F/P...) to have lowered (...P) the mortality rate. (C)
16. In 1972, (A) the first aerial population survey (S) indicated (F/P)
17. that there (S) might (F-modality) be (p) only (A) 600 to 800 manatees; (C)
18. several censuses in the 1990s, though, (S) indicated (F/P)
19. that their numbers (S) were (F) somewhere between 1,500 and 2,500. (C)
20. In January 2001, (A) a survey conducted by the Florida Fish and Wildlife Conservation Commission (FWCC) (S) counted (F/P) 3,300 manatees, far more than expected. (C)
21. In 2004, (A) the FWCC (S) counted (F/P) 2,505 manatees (C)
22. and (A) in 2006 (A), 3,111. (C)

23. By 2010, (A) the count (S) had (F) climbed (P) to 5,000. (A)
24. But (A) statistics like these, (S) as it turns out, have (F) only (A) served (P) as ammunition for those who advocated removing the manatee from the endangered species list and re-evaluating manatee protections. (A)
25. In 2006 (A), for instance (A), despite vocal and widespread public opposition, (A) the Florida Fish and Wildlife Conservation Commission (S) voted (F/P..) to downgrade (..P) manatees (C) from *Endangered to Threatened*. (A)
26. For groups like those represented on Savethemanatee.org, (A) the decision (S) amounted (F/P) to a death warrant for the gentle creatures (A)
27. because (A) “Threatened” status (S) does not (F-negative) provide (P) the same number of protection as “Endangered” does (C).
28. The feeling (S) was (F) that the board was siding with those hoping to exploit the manatees’ habitat for shoreline development and high-speed recreation. (C)
29. That feeling (S) was (F) apparently (A) shared (P) by many Floridians, (A)
30. and (A) a lot of them (S) wrote (F/P) letters (C) to Florida’s governor Charlie Crist, (A)
31. in response to the public outcry, (S) Governor Crist (C) stepped (F/P) in (A)
32. and (A) asked (F/P) the FWCC board (S)
33. to postpone (P) implementing the decision (C)
34. until (A) new board members (S) had had (F/P) a chance to study the issue. (C)
35. When (A) the board (S) met (F/P) again (A) in December of 2007, (A)
36. It (S) voted (F/P) down (A) the manatees’ change in status. (C)
37. But (A) no one involved in the controversy over the manatees’ status (S) expects (F/P)
38. the issue (C) to go (P) away (A) anytime soon. (A)
39. There (S) are (F) still (A) those who see protection of the manatees as a hindrance to their personal freedom and financial well-being. (C)
40. In numbers at least, (A) they (S) are (F) more than matched (P) by those determined to make sure the manatees thrive and multiply, (A) thanks to protections provided by their *Endangered* status. (A)