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# THE CRAFT OF LANGUAGE: AN ANALYSIS OF ASSOCIATIONS BETWEEN A METALINGUISTIC WRITING COURSE AND READING COMPREHENSION

Anna Incognito

THE CRAFT OF LANGUAGE: AN ANALYSIS OF ASSOCIATIONS BETWEEN A
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Anna Giambattista Incognito


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Anna Giambattista Incognito                    Dr. Clare Waterman

**ABSTRACT**

THE CRAFT OF LANGUAGE: AN ANALYSIS OF ASSOCIATIONS BETWEEN A

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This study examines associations between writing instruction with a focus on explicit sentence syntax and reading comprehension in a sample of students receiving special education services. While the outcome data does not show direct causation between student enrollment in a treatment writing course using Systemic Functional Linguistics and reading scores on state testing, the significant associations between variables imply possibilities for improvements in reading pedagogy. Reading comprehension depends on how accurately readers capture an author's intended meaning while reading. Current research shows this has less to do with decoding words in a sentence, and more to do with recognizing communicative cues hiding in the syntax of sentences (Kush et al., 2015; Roberts, 2017; Hellbernd & Sammler, 2016). An awareness of how sentence parts correspond to the length and patterns of stressed syllables in words and phrases helps readers control their voice inflection, allowing them to pause when necessary and regulate the pace of their reading, so that it emulates spoken speech (Buxó-Lugo & Watson, 2016). This is paramount since, as action theories of language suggest, tone of voice conveys intention, and meaning is found in underlying intentions (Hellbernd & Sammler, 2016). When writers learn the grammar behind speech functions, they make more informed choices to affect meaning while at the same time increasing their

metalinguistic awareness while reading. Therefore, this study examines the reading

performance of 75, 6th-grade participants after receiving 16 weeks of writing lessons

focusing on the deliberate language choices of writers (Halliday & Matthiessen, 2014).

**DEDICATION**

I dedicate this dissertation to all simultaneous bilinguals, English language learners, and those who have ever struggled to properly interpret meaning in language. The research conducted for this study both confirmed any pre-conceived suspicions I may have had about the way we use language while enlightening me to the science behind reading.

## ACKNOWLEDGEMENTS

# TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# CHAPTER 1: INTRODUCTION

Even in a Balanced Literacy curriculum, reading and writing are traditionally taught separately. This is because reading involves the receipt of information while writing involves the production of text (Fitzgerald & Shanahan, 2000). However, it is worth noting that reading and writing share cognitive processes contingent on each other for meaning (Turcotte & Caron 2020). Specifically, when writers make deliberate linguistic choices to express their ideas, they inherently consider the communicative needs of their readers. This type of rhetorical awareness also fosters a better understanding of text for writers when they themselves are reading. The reciprocity of reading and writing fosters comprehension and credence to recent studies suggesting reading and writing be taught in tandem (Sato & Matsushima, 2006). This study examines how deliberate attention to the way we express ourselves in writing can influence how we read.

Systemic Functional Linguistics (SFL), the main influence in this study's treatment of writing, is an approach to literacy instruction that focuses on the linguistic functions of language in context (Halliday & Matthiessen, 2014). It calls for attention to how we form ideas in writing, and how these ideas function in language. Though an under-researched area in education, it is a vital one that can likely support reading pedagogy (Myhill, n.d.). This is supported by the recent calls made to improve preservice teacher programs to support literacy instruction through SFL (Oliveira & Smith, 2019).

**Purpose of the study**

The current study is an analysis of statistical associations between a treatment writing course and students' reading performance on state standardized tests which provides insight into new pedagogical approaches to teaching reading, particularly for students receiving services.

**Background**

Tenets of language acquisition theories purport that we acquire language naturally through our exposure to and immersion in discourse and literate environments (Chomsky, 1976). This mindset resulted over the years in Reading Wars against explicit teaching of phonics, and anti-grammar policies that eradicated grammar from school curricula, claiming it ineffective and elitist (Pearson, 2004; Kolln & Hancock, 2005; Hudson & Walmsley 2005). Consequently, this left literacy research at a stalemate, crippling teacher preparation programs and ultimately affecting students' literacy performance globally (NAEP, 2020; Fitzgerald & Shanahan, 2000).

While it is true that students gain an awareness of language conventions through their daily language use, it is also true that they cannot possibly acquire enough linguistic schema in a way that ensures their success with academic text in schools. The way in which most of us use language colloquially in speech is far different from the way language is used in discipline-specific texts, even for students immersed in richly literate environments. Therefore, expecting readers to succeed in school relying solely on their own experiences with language is unfair (Schleppegrell, 2001).

Research shows that by the time students get to middle school and are reading-to-learn, they struggle with academic text (Ecalle et al., 2011). Since academic texts increase in difficulty with each grade level, readers who already struggled with simple text are now not comprehending or producing sentences at grade level, resulting in reading disability classifications (Scott, 2009). Sentence parsing which has never been considered a reading comprehension strategy before, is gaining popularity in reading research since knowledge of syntax in a sentence is strongly associated with reading comprehension (Turcotte & Caron, 2020).

**Significance of the Study**

Student readers who cannot recognize the types and functions of phrases and clauses in a sentence are not fully understanding the sentence. A typical error in sentence-level comprehension indicative of this was captured by Scott (2009) while working with a language disabled 10-year-old reader. Scott read a grade-level text about Rachel Carson aloud which featured the following sentence using a relative clause: *Rachel Carson, who was a scientist, writer, and ecologist, grew up in the rural river town of Springdale, Pennsylvania*. After reading this sentence the reader was asked: *What do you know about Carson now?* The reader responded with the following: *They grew up together in the same place.* Rather than interpret the relative clause naming the different identities of the subject, the reader interpreted the noun closest to the verb to be the subject. In such cases, it becomes especially crucial for students to learn about the semantics of words based on their syntax in sentences (Scott, 2009).

Sentence comprehension is recently being considered a construct for assessing overall reading; however, it is still difficult to ascertain whether a reader's

comprehension problems are due to syntactic difficulties (Scott, 2009). For this reason, this study tests the associations between reading comprehension and the process of writing with a metalinguistic awareness that inherently demands students' attention to word syntax in sentences.

**Definition of Terms**

**Prosody**. Speech melody and rhythm that aids in parsing phonetic continuous streams of phonetic information into words and syntactic constituents (Hawthorne et al., 2016).

**Microstructure.** A writer's conveyance of meaning at the word, sentence, and discourse level (Hall-Mills & Apel, 2015).

**Macrostructure.** A writer's meaning at the discourse level reflected through cohesion, organization, and genre structure (Hall-Mills & Apel, 2015).

**Subvocal Rehearsal**. The formation of words while reading solely in the mind (Chomsky, 1967).

**TLC (The Teaching and Learning Cycle).** A framework for scaffolding academic reading, writing and discussion that recognizes the importance of using mentor text and the reciprocity of reading and writing (Halliday & Matthiessen, 2014).

**Systemic Functional Grammar (SFG).** A system of grammar that defines language as a functional resource for making meaning as opposed to a set of structural rules (Halliday & Matthiessen, 2014).

## CHAPTER 2: REVIEW OF RELATED LITERATURE

**Theoretical/Conceptual Framework**

Sociocultural theories of language acquisition have created unattainable teaching goals for classroom teachers. Relying on the schema of students' social languages is unrealistic in a school setting (Fang et al., 2006). This study seeks to inform literacy research with practical methodologies for teaching writing by making language accessible to all learners. It also serves to suggest new methods for improving reading comprehension. To that end, its results were analyzed using the tenets of Lev Vygotsky's *Theory of Inner Speech* and Elizabeth Selkirk's *Match Theory* whose work provides a rationale for how writers' metalinguistic awareness can also improve their reading skills (Vygotsky, 1962; Selkirk, 2011).

Social cognitive theorists claim writing is a social act invoking an awareness of an audience. As such, there should exist a referential communication between both parties, in this case the writer and the reader. The problem is that organic negotiations existing naturally between two speakers as they exchange information during spontaneous speech are often absent or difficult to achieve in writing (Rijlaarsdam, et al., n.d.). Accomplishing this in writing requires writers to have a basic linguistic knowledge of how language works in sentences and how sentences work in paragraphs so that they may create a clear text base. As well as this, writers need to anticipate how their words will be read by readers. This is because successful reading comprehension occurs when readers understand the meaning behind the basis of a writer's text as well as the situation behind the text (Kintsch, 2013). Readers' deeper understanding occurs when they can infer the writer's implications. To ensure that this is not lost between the writer's ability to create

an appropriate text base and the reader's ability to infer an appropriate situation for the text, writers need to be especially aware of their audience while drafting (Rijlaarsdam, et al., n.d.). The tenets of Systemic Functional Grammar (SFG) assist writers in this process which is best explained by the theories of Lev Vygotsky and Elizabeth Selkirk (Halliday & Matthiessen, 2014; Vygotsky, 1962).

The Theory of Inner Speech discusses the relationship between writing and one's initial experiences with the cadences of speech. According to Vygotsky (1962), written language develops from oral language. To be specific, a certain transformation of thought occurs because of our social interactions and conversations. He defines inner speech as our external conversations having transformed into internal ones with oneself. This internalization of social speech, often equated with a writing voice, develops as an inner voice by the age of eight because of transformative stages in the development of children's problem-solving strategies (Ehrich, 2006). It is this inner voice and our ability to hear it that facilitates both writing and reading skills during a process termed *subvocal rehearsal.* Subvocal rehearsal is what Vygotsky suggests happens during silent reading when readers use their inner speech to rehearse sounds of words and phrases normally heard during spoken speech. This phenomenon which Fodor (2002) terms *auditory imagery* in *The Implicit Prosody Hypothesis* simply means that when readers decode words in text, they use the spelling of words as well as the placement of constituents in sentences to access speech codes stored in their phonetic sounds. By activating the phonological aspects of words and constituents, readers mimic speech sounds stored in their mental lexicon at birth and can silently recreate speech streams to disambiguate syntactic information required for comprehension. Vygotsky's theory, confirming how

written language depends on spoken language to facilitate cogency, can also explain how readers comprehend text.

In her Match Theory, Elizabeth Selkirk (2011) defends the relationship between how a sentence is structured and how it is pronounced. She argues that sentence constituents interact with sound so that the pronunciation of them informs readers and listeners of their syntactic placement. Likewise, their syntactic placement informs readers of their phonological pronunciation and prosodic rhythm, fostering a perfect match. Given the fact that a syntactic and prosodic hierarchy exists among words and constituents, one could argue that syntax affects sentence prosody, especially in spoken language. In other words, how you say something is sometimes more important than what you say. The transformation from spoken speech to inner speech to a writing voice, as posited by Lev Vygotsky's theory (1967), ultimately facilitates the disambiguation of text during a subvocal rehearsal in silent reading. This connection between the inner speech we hear and the writing voice we express on paper, as well as the series of cognitive processes we use to syntactically disambiguate text while reading, shows how Vygotsky's and Selkirk's theoretical frameworks join to create a sound theoretical basis for exploring the effects of writing on reading performance. Still put another way, teachers can improve readers' experiences with text by creating a context for learning how writers express meaning. Thus grammar, when taught effectively in a writing class, becomes a metalanguage for writing. To sum up, good writing instruction just might lead to good reading comprehension.

**Review of Related Literature**

Research shows that linguistic knowledge of language influences our comprehension of it (Hawthorne et al., 2016). Therefore, the interrelated cognitive processes of reading and writing make reintroducing grammar to literacy curricula a critical option for improving one's reading comprehension (Fitzgerald & Shanahan, 2000; Schleppegrell, 2013). What made the traditional grammar of the nineteen sixties so futile to literacy curricula was the prescriptive nature in which it was delivered. Language is organic and acquired intuitively. As well as this, it is constantly changing as the communicative needs of people change. Prescriptive, rule driven approaches to language do not evolve or adapt to change. Therefore, asking writers and readers to follow rules that have been in place for hundreds of years that may not match how language is currently used is asking people to conform to an elite standard for the sake of conforming.

Instead, Functional Grammar bridges gaps between the way we speak and the way we write. Studying the use of words in sentences and the use of sentences in larger pieces of writing provides a framework for learners to explicitly come to terms with language. This study focuses on the impact of a metalinguistic awareness of writing on reading comprehension. It is supported by the following research couched in this study's theoretical frameworks according to the following topics: Functional Grammar, speech-writing connection, writing-reading connection, and sentence phonology and paralanguage.

### *Functional Grammar*

Referential communication studies and studies in applied linguistics confirm the need for a Functional Linguistic approach to writing. Studies show that when writers understand how readers perceive their text, and when they are taught how to accurately convey their ideas so that readers properly perceive their text, they become better writers and readers (Rijlaarsdam, et al., n.d.). From a linguistic standpoint, writers who are aware of their linguistic choices tend to create more purposeful text. A mixed-methods study analyzing the quality of narrative and argumentative writing across grade levels based on the linguistic features of sentences found that regardless of age, the quality of writing improved significantly with the use of longer sentences with subordinating clauses in conjunction with shorter sentences (Myhill, n.d.). This implies that when writers are knowledgeable of the linguistic possibilities for writing sentences and shaping text, and they are taught how to use these linguistic tools to their advantage, they become more successful writers.

From a social cognitive viewpoint, to be a successful writer means to interact with readers when producing a text. Writers need to consider what their readers need to know before writing a text. This means that for writers to form meaningful ideas with purpose, they must make informed linguistic choices based on readers' metacommunicative needs (Rijlaarsdam, et al., n.d.). A study couched in the problem-solving model for writing found that teaching writers to revise their writing based on their readers' feedback was an effective way for writers to effectively communicate to their readers. Results of this study claimed that exposing writers to their readers' communication needs transferred to their

future writing tasks and improved readers' understanding of text exponentially (Rijlaarsdam, et al., n.d.).

A great example of this was seen in a study where readers were asked to describe in pertinent detail how to draw a certain geometrical shape based on writers' written descriptions. These writers were separated into two groups: a regular writing group and a 'high-audience awareness' group who used readers' awareness feedback to plan out their written descriptions. The latter writers were more apt to plan before writing and write longer complex descriptions. The readers of this 'high-audience awareness' group, therefore, were able to draw the shape flawlessly, thus supporting the effectiveness of considering one's audience when writing (Sato & Matsushima, 2006).

Such an approach is invaluable to improving reading comprehension because unlike the traditional grammar instruction of the past, Systemic Functional Grammar (SFG) considers how words, phrases, and clauses function in the context of communication (Halliday, & Matthiessen, 2014). Traditional grammar has a history of arbitrary, prescriptive rules proving to be ineffective in improving writers' clarity or ensuring readers' understanding. However, structural linguists map the function of spoken words, phrases, and clauses in speech onto their written structures (Kolln, 1985). For example, where traditional grammarians would assign the role of noun to the word 'Tuesday', a structural linguist would consider how the word 'Tuesday' acts as an adjective to describe the word 'seminar' in the phrase 'Tuesday Seminar', or as an adverb in the phrase 'They left Tuesday' (Kolln & Hancock, 2005). Halliday's and Matthiessen's tenets of SFG are crucial to writing and reading pedagogy because they present an

understanding of how language makes meaning (Schleppegrell, 2001; Halliday, & Matthiessen, 2014).

### *Speech-Writing Connection*

A Functional Grammar approach to writing acknowledges spoken language as our first experience with language acquisition. To that end, SFG informs writers of their linguistic choices so that they may fulfill the communicative needs of readers as they would in any spoken discourse. It presents the linguistic structures for writers to experiment with their linguistic options, and this preserves the integrity of meaning. In *The Architecture of Language,* Chomsky acknowledges the relationship between a language's meaning (function) and its syntactic structure (form) when mentioning the importance of phonology in grammar (Mukherji, N., 2000). Specifically, he gives writers the permission to punctuate text phonologically instead of grammatically, maintaining that the phonology in grammar relates to the natural rhythm of speech. In this way, he explains, meaning is mapped onto grammatical structures.

Emulating the cadences of speech in writing is important since research proves that sound properties of language support its comprehension (Hawthorne & Gerken, 2014). Speech rhythm, known as prosody, fulfills communicative functions by helping listeners separate words in speech and assign them their parts (Broselow, 1989). The short syllabic stresses in words create sound patterns of pauses which facilitate their storing and activation in and from our mental lexicons. This ultimately helps readers identify words in context without much instruction. As stated in the *pre-lexical cues hypothesis*, word boundaries occur naturally in spoken speech and, as Frost postulates in his *strong phonological theory* (1998), are stored phonologically in our mental lexicons

upon our exposure to spoken utterances. Support for this view is found in early research by Christophe, Dupoux, and Bertoncini who hypothesized that language is first acquired at birth when infants are exposed to words in speech (1994). Claiming that infants are sensitive to streams of speech carrying lexical stress and vowel harmonies, they tested these allophonic cues on newborn infants and found that three-day-old infants could discern disyllabic stimuli. This study confirmed the likelihood that pre-lexical cues exist and are used to segment words in speech. This is strong evidence for how prosodic features influence word recognition and fluency (1994).

### *Writing-Reading Connection*

Vygotsky confirms correlations between learning to write and learning to read in his theory of Inner Speech which suggests that written language comes from spoken language (1987). This is significant to our study since speech can be considered a conduit for proper text reading prosody. Specifically, he maintains that speech is transformed into inner speech to facilitate higher thinking and develop concepts. Therefore, by activating the phonology implied by a word's orthographic structure, readers are activating speech sounds generated by the length of vowels and consonants. Assuming this is true, the present study is appropriately undergirded by this theory given that syntactic structures facilitate prosody that emulate speech.

By teaching writers how to write sentences with rhythmic significance, readers, both silently and orally, should be able to easily activate the accurate prosodic boundaries for interpretation and comprehension. Moreover, an awareness of the prosodic structure of words helps with word recognition as well (Ehrich, 2006). If we assume that what we say aloud is an accurate manifestation of our inner voices, one cannot deny a correlation

between spoken language and written language. Just as the *Bootstrapping Hypothesis* suggests that cadences of spoken language facilitate the acquisition and recognition of words, so does it stand to reason that a word must need be spoken to retrieve its graphemic form for writing (Imai & Kita 2014). Therefore, sentence constituents need to be spoken with appropriate prosody to retrieve their syntactic structure during writing. This being true, learning how to write with the rhythm of words and sentence parts in mind should affect our inner voice when reading.

During silent reading, readers either mouth to themselves or silently hear themselves saying what is printed in the text. This is what Vygotsky calls *Implicit Prosody* (Vygotsky, 1976). This inner voice, activated during writing, facilitates reading comprehension. Since Vygotsky claims that outer speech becomes inner speech, and inner speech becomes a voice, it seems arguable that the voice is also a writing voice. Connecting the inner voice to the act of writing can make a writer more aware of the match between the syntactic structures in a sentence proposition and the phonology of those structures when spoken, as noted by Selkirk's Match theory (2011). After all, each time a writer sits down to write, aren't they essentially activating an implicit prosodic voice whereby they are aware of what the reader (audience) will be hearing as they read it? For example, in a study testing the effects of commas on readers during silent reading, readers who paused at commas accurately interpreted ambiguous garden-path sentences (Drury, Baum, Valeriote, & Steinhauer 2016). This presents an argument for how writing can improve reading.

It is important to note that students who struggle to process information may also struggle with subvocal rehearsal since silent reading requires the storing and processing

of linguistic information, as well as the transitioning between processes (Vygotsky, 1976). This realization is paramount to the present study which utilizes a Functional Linguistic approach to bridge the gaps between spoken language and written language for students receiving special education services. A Systematic Functional approach to writing is perhaps the most beneficial for students with reading difficulties. Learning to recognize typical sentence structures and text structures of genres provides a mechanism for readers to hold onto information for processing.

# CHAPTER 3: METHODS AND PROCEDURES

This chapter introduces the research methodology and procedures for the present correlational study examining relationships between writing instruction and reading comprehension. The primary components of this chapter are outlined as follows: research question, hypothesis, research design, the sample and population, instruments, a discussion of the instrument's reliability and validity, and a description of the treatment and methods for collecting and analyzing data.

## Research Question

RQ: Does student participation in a metalinguistic writing course or intensive reading course significantly predict grade 6 NJSLA literacy scores?

## Hypothesis

H₀. The Grade 6 NJSLA reading scores of students who participated in a metalinguistic writing course will not vary significantly from the Grade 6 NJSLA reading scores of students who participated in an intensive reading course.

Ha. The Grade 6 NJSLA reading scores of students who participated in a metalinguistic writing course will vary significantly from the Grade 6 NJSLA reading scores of students who participated in an intensive reading course.

## Research Design

This study used a non-experimental, correlational framework to understand associations between students' standardized reading scores and their enrollment in a reading or writing treatment. The variance in students' standard reading scores was

assumed to be influenced by these predictor variables while also considering participants'

biological sex, race/ethnicity, and performance on a similar standardized reading

assessment for their previous grade level. To justify the nature of these hypothesized

relationships, multiple regression was chosen for data analysis as it informs the

researcher of the strength and nature of relationships between variables, controlling for

the other variables in the model.

**Population**

This study involved a stand-alone sixth-grade middle school whose students fed

in from 6 district elementary schools in a New Jersey suburb of New York City. The

National Center for Education Statistics (NCES) school demographic data from 2018-

2019 reported 442 students in grade 6 for this study's district population. Table 1 shows

the relevant demographic characteristics for this study's population in terms of sex, race,

IEP status, and socioeconomic status.

**Table 1**

*District Population for 2018 – 2019 (n = 442)*

| Variable | Frequency | % |
|---|---|---|
| Sex | | |
| Female | 205 | 46 |
| Male | 237 | 53 |
| Race | | |
| White | 247 | 55 |
| Asian | 149 | 33 |
| Black | 13 | 2 |
| Hispanic | 20 | 4 |
| Multiple Races | 13 | 2 |
| Individual Education Program Status | | |
| IEP | 75 | 17 |
| Socioeconomic Status | | |
| Eligible for free lunch | 3 | 0.67 |
| Eligible for reduced lunch | 1 | .0022 |

**Sample**

Of this population, students varied in their enrollment in an intensive reading remediation class or a semester-long metalinguistic writing treatment. All but one student in the reading treatment had an Individualized Education Program (IEP). For this reason, and to reduce any biases by making both treatment groups more equal, listwise deletion was applied during the preparation of data, and non-IEP students were dropped from the study's data set. Therefore, of the 442 sixth grade students, 75 students with IEPs were ultimately included in this study's sample: 26 students; 10 males and 16 females were from the reading treatment, and 49 students; 33 male and 16 female were from the writing treatment (See Figures 1 and 2).
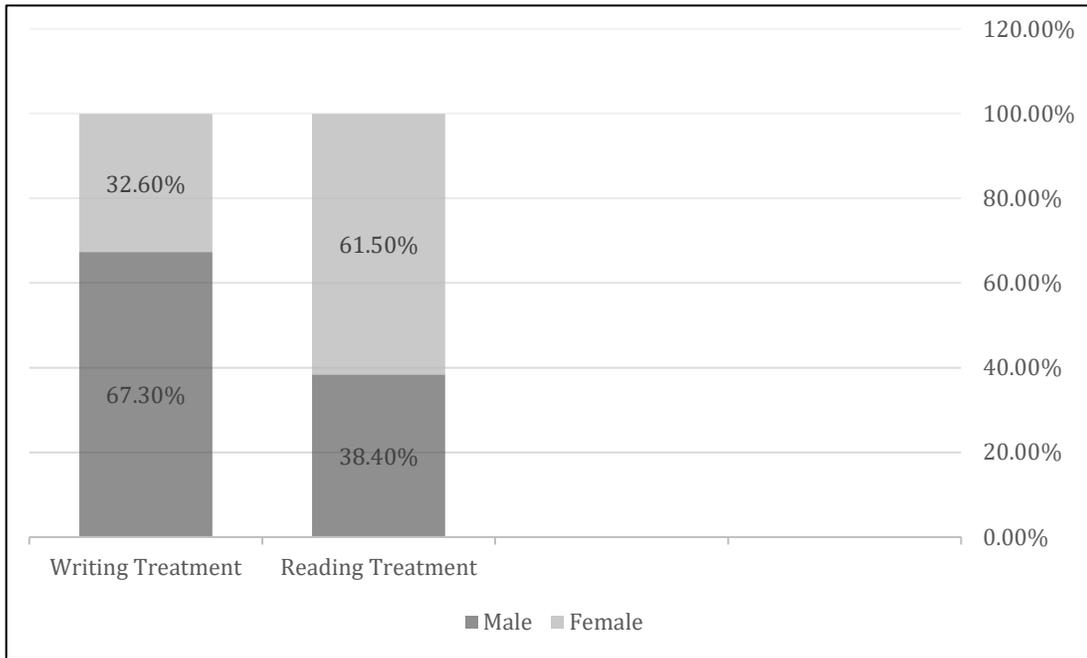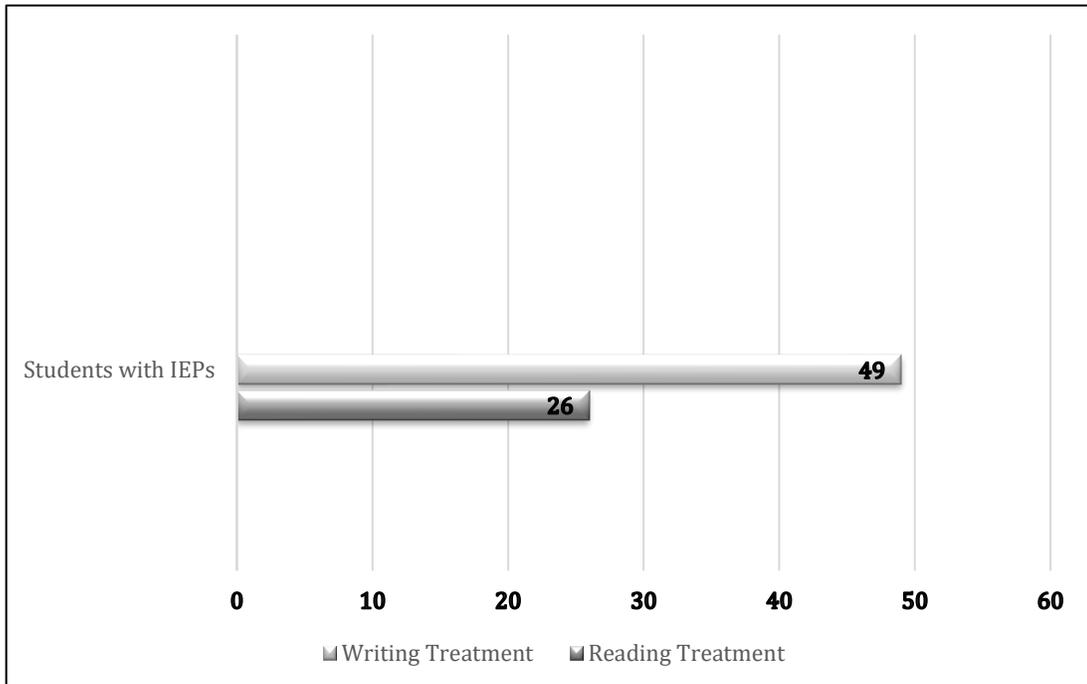
**Figure 1**

*Frequency of Sex Variable Across Treatments*



**Figure 2**

*Distribution of IEP Students Amongst Treatments*

**Instrument**

New Jersey State schools administer a standardized skills assessment every spring to assess New Jersey students' yearly progress in literacy and mathematics. In the spring of 2019, in accordance with Every Student Succeeds Act (ESSA), the Partnership for Assessment of Readiness for College and Careers (PARCC) was shortened and changed its name to the New Jersey Student Learning Assessments (NJSLA). As a result, test questions for the English Language Arts portion were reduced by one section and 90 minutes for grades four through high school (NJDOE, 2019b). Despite these differences, according to the NJDOE Office of Assessments, the content and format of these two tests are identical, and their scores are comparable (NJDOE, 2019b).

The NJSLA-ELA measures students' proficiency with grade level texts, calling on their ability to read closely and analyze implied meanings of phrases in texts of several genres. The test consists of 3 parts: Literary Analysis Task, Short Passage Set, and Research Simulation Task. This instrument is an effective and reliable tool for collecting data regarding students' overall reading comprehension. Additionally, it provides students' level of accomplishment in the domain of interest in relation to other students nationwide who have not received the study's treatment. This both accurately describes the research sample and creates implications for future research.

**Scale Scores**

Scores for this test are reported using a ratio scale which makes it conducive for running quantitative, statistical analyses (Coe, Waring & James, 2017). Scale scores for the NJSLS-ELA are arrived at from the raw score through a statistical procedure. This is to ensure that students' scores are reported using the same scale. This increases the

reliability and validity of the test, allowing for fair and easy comparisons of test forms, administration years, grade levels, and subject and content areas for further analyses. As is customary, to preserve the integrity of the test, students received different forms of this test and therefore did not respond to the same set of items. As a result, student performance was reported using scale scores rather than total points earned, or raw scores. Scores for English Language Arts are presented as overall scale scores ranging from 650-850, and separate scale scores are reported for reading and writing ranging from 10-90 and 10-60, respectively (Hargett et al., 2019).

### *Reliability*

Since both PARCC and NJSLA measure the same constructs and use the same item banks, scale scores and performance levels for each are comparable. The scaling of the NJSLA allows for the identification of trends in performances across schools and grade levels in New Jersey. However, shortening tests can decrease reliability (Frey, 2018). Therefore, the developers of the NJSLA and the PARCC support the reliability of this measure with reliability coefficients ranging from .86 to .92 for the 5th grade PARCC and .88 to .92 for the NJSLA.

## Treatment

The nascence of this study's treatment had less to do with testing the researcher's hypothesis, initially, and more with providing necessary remediation to students. The need for an additional literacy period called for extra scheduled English Language Arts classes where students would attend an intensive reading treatment or writing class with a metalinguistic focus. Enrollment in either class was based on teacher recommendations and parent requests. *The Craft of Language*, this study's writing treatment, soon

morphed into a 16-week, semester writing course administered twice in a school year for approximately 200 students each semester. The classes met for forty-two-minute periods, five times per day.

At the time, the intensive reading course was forecasted to deliver improved scores in reading, as the writing class was meant to improve students' written communication. However, instructors for the writing treatment began collecting empirical evidence of students' improved reading fluency and interpretation. That's when the researcher and co-creator of this metalinguistic writing class began speculating about the effects of students' newfound awareness of language on reading performance. Thus, the writing treatment became the impetus for this study's research question and hypothesis. The following is a description of the metalinguistic writing treatment and the linguistic research that validates its legitimacy.

This course relies heavily on current research in referential communication, concerning the relationship between the writer and their audience, as well as principles of *SFL*, a meaning-based theory of language (Sato, 2006; Halliday & Matthiessen, 2014; Oliveira & Smith, 2019). As such, it is a writing class that explicitly teaches the structures of language and text. Using the text and sentences of published writers, both instructors sought to adhere to the following Teaching-Learning Cycle (TLC) for lessons. There are three phases in TLC of this treatment: deconstruction of mentor texts, joint construction of text, and independent construction of text (Oliveira & Smith, 2019). Each of these phases is framed by what Halliday refers to as the three meta functions in language: *ideational, interpersonal, and textual* (Halliday & Matthiessen, 2014). In the deconstruction phase, for example, students are prompted to break apart the sentence

constituents that make up clauses, as well as the paragraphs that carry a text's central argument. This is an examination of what Halliday & Matthiessen refer to as the *ideational* meta function, focusing on the way writers form ideas in context (2014). In this phase, students are often asked to notice "what is going on in the text?" and name it for reference (Oliveira & Smith, 2019).

The next two phases in the TLC, the joint construction phase, and the independent construction phase, employ the *interpersonal* and *textual* meta functions (Oliveira & Smith, 2019). In these phases readers are asked to consider the author's perspective in the text, as well as how the mentor text is organized. Such consideration fosters a relationship through discussion between the text and the reader. First, the instructor and students collaborate on writing a version of the mentor sentence or paragraph together, and then students are expected to create a version independently with formative teacher guidance.

Teaching in this way fosters students' analysis of language use, which advances their development of knowledge about language. When students are taught to write with certain linguistic features, an awareness of such features makes them more intentional readers as well. The classroom instructors offering this treatment used the principles of SFL as a pedagogical framework to deliver lessons that help students discover the language patterns of text. To the extent that was possible, both instructors preserved the fidelity of this course by co-designing the curriculum before executing it. Some threats to the treatment's integrity include the timeline of the program's deliverance in semester two which generally experiences more schedule interruptions due to spring activities than semester one.

**Data Collection**

Data collection and analysis were completed during the Fall semester of 2021 once permission was granted from the St. John's University's Institutional Review Board. The assistant superintendent and superintendent of the sample population's school district approved the research to be conducted using secondary data from the 2018-2019 school year. The researcher cooperated with the director of curriculum, instruction, & testing in collecting the following secondary data for analysis as follows: ELA Summative Assessment scores from the NJSLA for the 2017-2018 (grade 5) and 2018-2019 (grade 6) school year; students' sex (male or female); students' IEP status (IEP or non- IEP); students' race/ethnicity (Asian, Black or African American, Hispanic or Latino, white, multiple categories); student's participation in *The Craft of Language*, the district's 6th grade, semester metalinguistic writing course; student's participation in *ELA* double periods, the district's 6th grade, year-long intensive reading course.

**Data Analysis**

Students' reading comprehension skills were assessed using the NJSLA, and statistical analyses of data results were performed using *SPSS* (Statistical Package for the Social Sciences, version 28). This software was first used to measure data accuracy by determining the goodness of fit for this model. The strength and direction of relationships between the independent variables and the dependent variable were measured by examining the correlation coefficient, R, and the regression coefficient, $R^2$. A residual plot was also run to rule out any patterns in errors. The regression coefficient, "$R^2$" was considered to determine if the model fit the data when accounting for changes in the

outcome variable (Creswell, 2003). Lastly, the statistical output was interpreted to determine if changes in any of the independent variables were associated with changes in the NJSLA scores for ELA. This evidence was used to reject or accept the null hypothesis and address Research Question #1.

# CHAPTER 4: RESULTS

This study was conducted to determine if writing instruction is associated with reading comprehension. Multiple regression was performed to specify predictions of learners' success in 6th-grade reading based on participation in a reading or writing treatment. This chapter presents the results of the following research question and hypothesis:

## Research Question

*Does student participation in a metalinguistic writing course or intensive reading course significantly predict grade 6 NJSLA literacy scores?*

## Hypothesis

*$H_0$. The Grade 6 NJSLA reading scores of students who participated in a metalinguistic writing course will not vary significantly from the Grade 6 NJSLA reading scores of students who participated in an intensive reading course.*

*Ha. The Grade 6 NJSLA reading scores of students who participated in a metalinguistic writing course will vary significantly from the Grade 6 NJSLA reading scores of students who participated in an intensive reading course.*

## Multiple Regression Model

A Multiple linear regression was used to test if students' sex, race/ethnicity, 5th-grade PARCC scores, attendance in a metalinguistic writing treatment or intensive reading treatment significantly predicted sixth grade NJSLA scores. Table 2 indicates the outcome results of the overall regression model. As displayed, the variables 5th grade

PARCC score ($\beta$ = .719, $p$ = < .001) and Writing Treatment ($\beta$ = 11.7, $p$ = <.037) both predicted 6th grade NJSLA scores. Students' sex and race/ethnicity did not significantly predict NJSLA scores. As displayed in Table 2, standardized regression coefficients indicate that the treatment accounted for 19.8% of the variation between NJSLA scores and 5th grade PARCC scores accounted for 61.7%. Since the significance for both predictor variables were less than the assigned .05, the null hypothesis is rejected.

All other variables held constant, the beta coefficient for COL-writing indicates that an increase of 1 point in 5th grade PARCC scores is associated with an average increase of 7 points in NJSLA scores. Additionally, all else being equal, a student enrolled in the COL-writing treatment will score an average of 11 points higher on the NJSLA 6th grade assessment. These results reject the null hypothesis and accept the alternative hypothesis stating that Grade 6 NJSLA reading scores of students who participated in a metalinguistic writing course will vary significantly from the Grade 6 NJSLA reading scores of students who participated in an intensive reading course. Therefore, the outcome results satisfy this study's research question indicating that student participation in a metalinguistic writing course does in fact significantly predict grade 6 NJSLA literacy scores.

**Table 2**

*Multiple Regression Results for Learners' Success in 6<sup>th</sup>- Grade Reading (N = 75)*

| Variable | $\beta$ | SE | $\beta$ | P |
|---|---|---|---|---|
| Constant | 199.755 | 74.680 | | .009 |
| Writing Treatment | 11.741 | 5.515 | .198 | .037 |
| 5<sup>th</sup> Grade PARCC Scores | .719 | .102 | .617 | <.001 |

*Note.* $R^2 = .60$, $F (6,68) = 16.9$, $p = < .001$. Collinearity was ruled out as none of the predictor variables were associated with each other. B = unstandardized regression coefficient; SE = standard error of the coefficient; P = p-value.

**CHAPTER 5: SUMMARY**

Writing activities such as summarization and writing about reading have traditionally been used to deepen readers' comprehension. However, researchers have been exploring the effects of actively constructing a text, on readers' comprehension (Turcotte & Caron, 2020; Graham & Hebert, 2011). Therefore, the goal of this study was to investigate if learning to create text could influence one's understanding of it. What emerged was promising results which could lead to new approaches to teaching reading comprehension. This chapter summarizes the study's findings as they relate to the research question and hypothesis. It also provides a discussion of the study's limitations as well as implications for future research and practice in education.

**Discussion**

This non-experimental, correlational study, conducted during the 2018-2019 school year, included a sample of 75 sixth grade students receiving special education services in a New Jersey suburb of New York City with a population of 442 students. A Multiple regression analysis was performed using SPSS Version 28 to investigate the association between state standardized reading scores for the convenience sample and their enrollment in writing and reading treatments.

Based on the R score of .8, this study's strong positive linear relationship answers the research question confirming that student participation in a metalinguistic writing course over a traditional reading comprehension treatment significantly predicts grade 6 NJSLA literacy scores (See Table 2). As noted by the beta coefficients, when all other variables are held constant and all else is equal, a student enrolled in the writing treatment

will likely score an average of 11 points higher on the NJSLA 6th grade assessment. This indicates that writing instruction with a Systemic Functional Linguistic approach is effective in improving reading comprehension for students with learning differences.

A basic understanding of how SFL approaches language is necessary to understand the significance of this study's results for a sample of students receiving special education services. SFG focuses on the linguistic choices writers make to convey meaning during the creation of text (Halliday & Matthiessen, 2014). As such, when applied to pedagogy using the Teaching and Learning Cycle, students come to understand the structural makeup of text by way of deconstructing exemplar writing and constructing their own versions of the text by genre (K. & M., 2014; Nagao, 2020). In this way, they are learning the uses of language and using it practically to make meaning in their own writing (Oliveira & Smith, 2019).

What makes this approach extremely effective for struggling readers is its deliberate attention to the linguistic structure of words, how they are organized in sentences (microstructure), and how sentences are organized to form the macrostructure of a text. The way a text is structured reflects the meaning of the text. This is what is meant by form mapping onto function (Selkirk, 2011). Therefore, through the explicit teaching of sentence and text structures, writers and readers learn to organize or receive ideas in orderly ways that help deliver meaning (Schleppegrell, 2013; Turcotte & Caron, 2020). Students with reading difficulties who struggle to hold onto the meaning of words and phrases long enough to process the bigger meaning of a text benefit from learning the predictable structures in sentences and different types of text (Pyle et al., 2017).

**Implications for Education**

A particular focus outlined in the United Nations Educational, Scientific, and Cultural Organization's (UNESCO) Sustainable Development Goals for 2018 (SDG) targets minority English language speakers. Policies for respecting language rights in education suggest that minority students be taught in their mother tongue. It is stated that children struggle to learn in classroom environments where they are not native to the language, and it takes approximately 6 years of instruction taught in their "mother tongue" to bridge these gaps. Oftentimes the expectations of students' proficiency with academic language are viewed as injustices to groups with sociolinguistic variations (Balderas, Hamm-Rodríguez, & Gort, 2022). Similarly, students coming from lower income communities with low literacy rates, for whom academic English can sound like a foreign language, struggle the most with complex text in school. When we consider how the grammatical and lexical features of academic text are specific to their topic and audience, and therefore not inherent in everyday, colloquial language use, we can understand the unreasonable expectations we have been imposing on some of our most challenged students.

Schleppegrell (2001) points out that academic writers choose their words and arrangement of phrases and clauses very strategically for delivering information efficiently to readers of their field. Why, then, do we not inform our students of these writers' strategies? Unless you have been immersed in the literature of a specific topic, you probably would not have encountered the linguistic styles of such a text, making it challenging to write in that style and receive information while reading. Kitsch's theory of comprehension (1998) has long purported that readers' comprehension relies on their

cognitive ability to create a context for the text they are reading. When readers are exposed to and taught to notice a typical structure of text, they will draw on that recollection to create contexts for future texts. What's more, studies reveal that knowledge of how a particular text is structured can improve readers' ability to predict the organization of information in future texts (Welie et al., 2016). This study seeks to dispel grammar's reputation as a set of outdated rules used merely for error detection by elitist speakers and restore its importance to literacy pedagogy as a means to providing equitable literacy education to all. It validates the current national need for a literacy pedagogy focusing on the use of language in reading and writing. These are the types of learners who would benefit greatly from a Systemic Functional Linguistic approach to teaching writing and reading.

In Schleppegrell's discussion of the linguistic features found in academic texts, she reminds us of how important the linguistic analysis of written language is to learn any subject (2001). Arming students with the meta-language of school registers in academic genres enables them to access vital information in text across disciplines (Schleppegrell, 2013). Therefore, a vital component of writing instruction should include the explicit teaching of the different types of texts written for different purposes and for different audiences. This includes an awareness of word choice (academic vocabulary), sentence patterns, and commonly used text structures of organization. As readers we integrate information from text, including how it is structured, with our own background to create a situation for our understanding (Kintsch, 2013). Familiarity with different linguistic structures can lead to writers understanding their linguistic options which ultimately

improves readers' chances of comprehending text (Weaver, 1996; Turcotte & Caron, 2020; Selkirk, n.d.; Schleppegrell, 2013).

To combat issues with students struggling to read grade-level content area text, in 2010 the New Jersey Common Core State Standards (*CCSS)* included literacy standards in history/social studies, science, and technical subjects. This angered a lot of teachers who either had no interest in teaching reading skills or did not feel well prepared to do so (Gómez, 2021). However, studies testing the effects of text structure types on comprehension showed significant results for content area reading (Pyle et al., 2017; Turcotte & Caron, 2020). This indicates that it might be in the content area teachers' best interest to apply the TLC when teaching their students how to respond to document-based questions in writing.

Finally, we must acknowledge how opposing views of language acquisition over the last few decades created a stalemate for the presence of linguistics in teacher training programs and literacy education. However, as recently discovered, the Systemic Functional Linguistic approach to teaching writing can be a practical way for teachers to learn the nuances of language so that they may teach this to their students (Oliveira & Smith, 2019). Therefore, SFL has recently entered the world of teacher education programs and educational research for pre-service teacher programs. Results from this study could quite possibly fill gaps in linguistic research by informing the need for a practical approach to grammar that fosters an awareness of language that is appealing to teachers of all subjects. In doing so it also fulfills National Education Goals toward teacher education and professional development (Myhill; NEGP, 2015).

**Limitations and Recommendations for Further Research**

For this study, only students with IEPs were retained for analysis. Twenty-six of them were enrolled in a writing treatment and forty-nine of them were enrolled in a reading treatment. Given that the sample only included special education students with IEPs, this study's biggest limitation is that the results only generalize to students receiving special education services. However, since the results were significant with students who may be faced with reading challenges, such results support the effectiveness of teaching writing with a metalinguistic focus on reading. Therefore, the researcher aims to extend this area of investigation by assessing the impact that a sentence and text composing metalinguistic writing course may have on students with specific reading and language disabilities.

While several studies in the field of second language acquisition offer promising evidence for the effectiveness of an SFL approach to teaching literacy to English Language Learners (Nagao, 2020; Ryshina-Pankova, 2018), no research exists to date for how it may affect students with reading disabilities. To be specific, what is known for sure about students with dyslexia, for example, is that they benefit greatly from explicitly framed instruction that provides scaffolding tools for storing schema for retrieval during the reading and writing processes. Therefore, TLC's gradual release of responsibility model with scaffolded activities to explicitly teach writing structures may have a positive impact on students with dyslexia. With that said, identifying the learning disabilities of students receiving special education services in the sample of this study could have shed more light on the effectiveness of teaching writing using SFG.

Another area of interest for future research could be to test the student

achievement of content area teachers before and after being trained to use the TLC with

SFL approaches to writing and reading. Finally, this study's research design could be

replicated to examine the reading performance of general education, non-IEP students.

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Vita

| | |
|---|---|
| Name | *Anna Giambattista Incognito* |
| Baccalaureate Degree | *Bachelor of Arts, Rutgers University, Newark*<br>*Major: English* |
| Date Graduated | *May, 1995* |
| Other Degrees and Certificates | *Master of Arts, Seton Hall University, South Orange*<br>*Major: English* |
| Date Received | *May, 2010* |