A Blended Cognitive, Linguistic, and Vygotskian Approach for Teaching and Learning the Prepositions *in, on,* and *of* in the Advanced ESL Classroom

By

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Abstract

Despite a plethora of new approaches in ESL writing and grammar instruction that were introduced in the twentieth century, ESL students and instructors continue to struggle with the teaching and learning of English prepositions. The members of this small class of high-frequency words are noted for their polysemy and varied contexts of uses as well as their multiple syntactic functions. This research is based on O'Dowd's (1993) argument that a semantic unity holds for English prepositions across their syntactic constraints—a factor that was developed in the instructional materials of this research. Cognitive linguistics (CL) and sociocultural theory (SCT, as developed by Gal'perin, 1969, 1992c) from his mentor, Vygotsky (1978, 1986), are two areas of research which apply full linguistic expression of word *sense* to their applications in ESL pedagogy. The combined principles of these two compatible theories were applied to the teaching and learning of three targeted prepositions, *in, on,* and *of,* in an experimental ESL advanced grammar class. Results were compared to the results of an additional ESL advanced grammar class, a control in the quasi-experimental study. This study is distinguished by its application of recent cognitive linguistic insights (Jang & Kim, 2010) in regard to the preposition *of* to ESL pedagogy and the inclusion of this highly frequent preposition in the targeted learning items. Statistical significance was found in the gains achieved in the accurate use of the targeted prepositions for both classes, the *with-in* subject factor; yet, while the experimental class clearly outperformed the control class during the short duration of the instruction (75 minutes), the study failed to find statistical significance for the curriculum, the *between* subject factor. The study is one of a very few which have attempted to apply CL and SCT insights to ESL teaching and learning of

English prepositions, has pioneered classroom research with the preposition *of*—one of the three most frequent English words, and suggests the need for additional ESL classroom research with longer time frames and a more robust application of these encouraging results for longitudinal validation.

Key words: cognitive linguistics, sociocultural theory, English prepositions, word sense, Gal'Perin, Vygotsky

Table of Contents

List of Figures

List of Tables

Chapter One

Introduction

> We live in an age of the triumph of form . . . in mathematics, physics, music, the arts, and the social sciences . . . The spectacular success of form approaches in many domains . . . encouraged people to develop these approaches as far as they would go in fields like artificial intelligence, linguistics, cybernetics, and psychology. Yet, invariably, form ran up against the mysteries of meaning. What looked simplest—seeing a line, picking up a cup, telling the difference between 'in' and 'out,' combining a noun and an adjective . . . —turned out to be diabolically hard to model. (Fauconnier & Turner, 2002, pp. 3, 7)

Fauconnier & Turner (2002) go on to posit that behind even in the simplest possible meanings of human communication and language, the elements of linguistic *form* are only mere prompts for the powerful and complex processes of "massive imaginative integration" (p. 6) in human cognition. No nonhuman species can be found that can operate with such "advanced conceptual integration" (p. 217) processes that can conceive fictive scenarios (such as pretense), use metaphors, categorize, fantasize, and suggest hypotheses. A complex dynamic of human imagination lies beneath both the extraordinary phenomenon of human mental creativity as well as daily human communicative activity that frequently includes constructs such as *what-if* scenarios and complicated decision-making processes in almost any real or unreal domain.

The intense focus of linguists on form analysis through the twentieth century that followed the approach of the hard sciences to uncover "deep hidden forms" (Fauconnier & Turner, 2002, p. 4) as a way to discover and describe meaning was limited both by its

failure to appreciate the capacity of human beings for meaning construction and the fact that linguistic form can only find language *regularities* of meanings that must be fitted to different social contexts. For example, even viewing a cup of coffee depends on many contexts and may be perceived in multiple ways:

> The simple recognition of a single entity, as when we look at a cup of coffee and perceive the cup of coffee . . . the many aspects of the cup of . . . coffee—the color of the cup, the shape of the opening, the topology of the handle, the smell of the coffee, the texture of the surface of the cup, the dividing line between the coffee and the cup, the taste of the coffee, the heavy feel of the cup in the hand, the reaching for the cup, and so on and on—are apprehended and processed differently in anatomically different locations, and there is no single site in the brain where these various apprehensions are brought together. (Fauconnier & Turner, 2002, pp. 7-8)

However, Lantolf (2011) observed that *one* theory of psychology and *one* theory of linguistics defied this dominant approach of focus on linguistic form in the twentieth century. The theory of psychology he had in mind was *sociocultural theory* which had been formulated in the early decades of the twentieth century from the work of Lev Vygotsky and the linguistic theory he was referring to was *cognitive linguistics*—a theory that only came to the forefront of this field in the latter part of the twentieth century, especially through the pioneer work of noted linguists Lakoff & Johnson (1980) and Langaker (1987, 1991). The impact of these theories for cognitive science, linguistics, and second language acquisition educational theory and practice can hardly be overstated. If, as Gal'perin (1992a)—a researcher who followed Vygotsky and formulated many of

his ideas toward L2 pedagogy—argued, that linguistic consciousness and cognitive consciousness operate on two different domains and are fused together only in language at *social* and *psychological* levels, we can quickly conclude that both of these theories have profound implications for approaches toward effective teaching and learning in second language classrooms.

Background of the Study

As the number of non-native speakers (NNS) has grown and in some cases has fairly exploded in colleges and universities in the United States in recent years, *English as a second language* (ESL) classrooms have had to adjust to increasingly varied cultural and linguistic backgrounds of their students with a complex range of English proficiencies, literacy skills, and stages of cognitive development. A dozen other student-based factors also enter the mix, such as attitudes toward formal instruction, aptitude, age, motivation, social distance, learner anxiety, self-doubt, and personal academic goals.

If the challenges that the incoming NNS into U.S. and other English speaking countries have been great, this has been no less true for ESL writing instructors who attempt to expand the lexical and linguistic skills of their students toward a par of first-year NS (native speaker) essay writing proficiency. In recent decades, ESL writing instructors have witnessed multiple changes of emphases in teacher training and dominant approaches for Second Language (L2) classroom instruction. Such political trends have too often left both ESL instructors and their NNS students short-changed in both theory and curriculum support for meeting the objectives of L2 writing. I fully agree with Wang (2011), a NNS herself who experienced the frustration of learning ESL and

currently teaches English as a Foreign Language (EFL) in China: "Writing is *not* the hardest thing; teaching writing *is*" (p. 285).

A Survey of ESL Writing Instruction

The product approach. The guiding principle of composition in U.S. colleges and universities from the early decades of the 20th century up to the 1960s followed literature analysis. Students would read and react to literature, often using textbook models of the common essay forms such as the descriptive, narrative, comparison/contrast, and argumentative forms that are often used today. This traditional, or *product* approach, rooted in First Language (L1) practice of NS in composition classes, was also commonly used by L2 writing instructors. Additionally, the audio-lingual method of L2 oral teaching practice that was then in vogue at the time, with its emphasis on repetition of well-formed sentences, seemed to support the product approach in L2 writing classes.

The process approach. The product approach became heavily criticized in the 1960s and 1970s by advocates of a *process* approach, which purported to place more emphasis on the writer as an original creator of text—an approach that was immediately praised for its values of personal expression and self-discovery of writers. The intention was to promote an uncritical free-flow of writing by the NNS, and consequently increase proficiency and fluency. Some important innovations came out of the new process approach revolution. The older product approach was now viewed as a static process which limited the development of students' skills in the planning stages of writing and in its strategic processes. On the other hand, process writing teachers placed considerable focus on problem-solving skills. Emphasizing ideas, defining problems and suggesting solutions, revision and multiple-drafting, peer collaboration, and strategizing text

organization were processes that Zamel (1982) and Krashen (1982) encouraged in their theoretical support.

An underlying premise of this method was to postpone the task of editing the composition—attending to the language mechanics of such issues as grammar, spelling, vocabulary, and punctuation—to the end of the composing cycle, which often meant that they were little attended to or 'almost never addressed by teachers or their students in the ESL writing classroom' (Ferris, 2011, p. ix). An immediate result of this failure was student and teacher frustration at the seeming incompleteness of the writing task itself. Additionally, few would argue that the L2 students, most of whom, despite years of ESL training, found themselves with writing skills little beyond the skills of elementary NS students (Bereiter & Scardamalia, 1987) and with such limited ranges of syntactic structures and collocations in comparison to NS (Hinkel, 2002a), were seriously affected by these omissions. To its credit, however, process writing instruction recognized that academic writing is an inherently *social* and *transactional* process that involves a communication of meaning between a writer and his or her intended audience (Berlin, 1987). This concept would highly influence ESL writing instruction theory in the decades that would follow.

New ESL writing approaches in the 1980s. ESL writing teacher trainers and teachers experienced a plethora of new approaches in the 1980s. One emphasis resulted from a perceived need for ESL students to be familiar with content in specific areas of academic discipline, and the pendulum began to swing toward a *content* based approach. ESL students would practice writing skills and learn vocabulary and collocations within the context of academic-like topic-based materials. While the approach was not directed

specifically toward writing skills and its popularity seemed to be premised on "its intuitive and experiential validity for ESL teachers and researchers, who are in most cases NSs . . . (it) did not indicate whether university-level ESL students can be similarly enabled to read academic texts and produce research papers in the disciplines" (Hinkel, 2002a, p. 51).

An additional focus that was researched in ESL writing during the 1980s was the target of the anticipated *reader*. Writers anticipate an audience; thus, all composition infers a social relationship to one or more communities of discourse. The term *genre,* developed in ESP studies primarily from the work of Swales (1981, 1990), has come to represent the demands upon a writer or speaker to meet the expectations of readers or listeners of a particular social context. The approach views language in a highly functional sense, and seeks to acquaint writers with the explicit language, textual features, discourse organization, and goals for recurring communicative situations.

A third area of intense interest and research for ESL writing classes in the 1980s was brought to prominence by an influential work published by Pawley & Syder (1983) that challenged traditional methods of teaching grammar and syntax. Pawley & Syder observed that as "native speakers do not exercise the creative potential of syntactic rules to anything like their full extent" (p. 193), new instructional approaches to lead argued that leading ESL students toward a mastery of "the puzzle of native-like selection and fluency" (p. 191) were required. Like Pawley & Syder (1983), Sinclair (1991) also agreed that native speakers appear to rely heavily upon semi-constructed word phrases that may be retrieved from memory as whole units with little cognitive load. Sinclair's (1991) work on word collocations (two or more words that appear together more frequently than

by random selection) suggested that language production does not always follow what he termed an *open-choice principle,* which views language choice as a wide and complex selection process, but rather, native speakers make extensive use of institutionalized or lexicalized *multi-word units* to produce language they need to fit various *genre* (recurring communicative event types designed for specific audiences, such as business letters, casual conversation, or academic essays).

A Survey of ESL Grammar Instruction

Directly related to ESL writing instruction theory is ESL grammar instruction, a field that was undergoing its own revolution in the middle and late decades of the twentieth century. Instructors often held to a traditional method of grammar instruction of presenting a rule of grammar, rule exceptions, and paradigms of forms, followed up by a memorization stage and practical applications of the rule in reading and writing situations. The student was expected to acquire abstract knowledge first and then to apply it in concrete language situations—a task that is not only separated by time, but which also requires infers a massive psychological load of memory retrieval and time-consuming searching when complications and rule exceptions are encountered.

It is not surprising that ESL grammar instructors welcomed *direct* methods of teaching grammar with enthusiasm. *Immersion language* learning methods greatly reduced the use of the L1 in the classroom, providing a considerable psychological benefit to students, but it was soon recognized that difficult L2 language structures were not being mastered in haphazard conversational structures. Concentration of attention on difficult grammatical forms went against direct method theory.

Concurrent to the rise of behaviorism in psychology, further solutions were sought in the association between *stimuli* and *response*; it was argued that grammar is learned through an association of knowledge and practice that would result in language skill. Language laboratories made controlled drilling easier, but often led students to overgeneralizations and distorted views of language structures. Cognitive insight was not a prerequisite in this method.

After it was recognized that rigid laboratory pattern practice did not translate into error-free language performance outside the classroom, *conversational drills* were added to grammar curriculum. This attempt to add a bit of cognitive inventiveness to language learning, however, was still heavily influenced by the theory of reinforcement and pattern frequency of behaviorism theory (van Parreren, 1975).

Theoretical foundations were often abandoned as many ESL instructors attempted to combine some method of mechanical drill with verbal explanation—but neither approach strictly followed behavior or cognitive learning theories (van Parreren J. , 1975). The question remained as to where the grammatical explanations should be presented—at the beginning, middle, or the end of this process.

Can an effective method for grammar instruction be found that can combine the positives of *rule explanation* of traditional grammar instruction, *pattern practice* of behaviorism, and *insightful activity* of cognitive approaches—and, at the same time, integrate grammatical knowledge with procedural language skill?

The Problem Statement

In summary, while methodology for teaching ESL writing and grammar has changed in multiple ways over the last several decades, the serious charge has been made

that “reactions of faculty to the shortfalls in ESL writing, such as a lack of rhetorical organization, discourse coherence, and grammatical accuracy, have remained from the time when they were first investigated in the late 1970s” (Hinkel, 2002a, p. 261). Can solutions to this multi-faceted problem be found? This research will argue that such solutions can be found.

A number of researchers have encouraged ESL instructors to move beyond *methods* alone as a model for teaching strategy (Freeman, 1996; Woods, 1996, cited in Kumaravadivelu, 2001) toward becoming “efficient teaching professionals . . . (with) a greater awareness of issues such as teacher beliefs, teacher reasoning, and teacher cognition” (Kumaravadivelu, 2001, p. 537). Under the label *postmethod pedagogy,* Kumaravadivelu (2001) argues that ESL instructors must generate their own personal theories of teaching practice which include not only reflection and action, but in addition, their insights and intuition, a wide sociocultural understanding of L2 students in local context, and a view of pedagogy as an empowering tool for *sense making*—a term used by van Manen (1977) several decades ago. It is the opinion of this researcher, among others, that the perceived need of new practical, sense-making instructional approaches can be met, in part, with pedagogy formulated from *cognitive linguistics* and *sociocultural theory*—two areas of research which demand full linguistic explanation of word *sense* in their applications to pedagogy. The theoretical constructs of both cognitive linguistics, which developed from 1980 onwards (Lakoff (1987); Lakoff & Johnson (1980); Langacker (1987, 1991); and Talmy (1883)), and sociocultural theory—based on the early 20th century theories of Lev Vygotsky—have enjoyed renewed interest in the

last two decades. These two movements will form the primary and general parameters of the current research study.

The teaching and learning of L2 writing is a complex process involving multiple variables such as rhetorical organization, lexical choice and accuracy, syntactic coherence and accuracy, punctuation, and in some types of writing, more cognitively advanced processes of information gathering and analysis which Bereiter & Scardamalia (1985) call *knowledge transforming.* The current research is limited to a focus on the more basic *knowledge-telling* essay, the narrative essay, and is prompted by a long-developed frustration of the researcher of a perceived instructional inadequacy and the consequent inaccuracy in the use of prepositions in narrative essays in the advanced ESL writing class.

Native English speakers refer to an item's location as being '*on* the right but *in* the centre and *at* the top,' … we arrive '*on* Monday, but *at* Easter and *in* Autumn,' … and we get '*in* a car but *on* a bus' (Rastall, 1994, p. 229, emphases my own). The substitution of alternate prepositions in these phrases, as Rastall (1994) points out, is impossible or greatly limited. In addition, as Chiavarini (1993) pointed out, these small prepositions, generally unstressed, frequently undergo phonological change in rapid native speech.

Many ESL students often find little L1 support for the learning of English propositions. Some languages do not have prepositions, often using case marking to perform the equivalent function (Saint-Dizier, 2006). Compounding the task for ESL instructors and students is the fact that English prepositions are not only notorious for their polysemy (multiple meanings) and varied usage contexts, but in the languages that do contain this word class, usages are often not directly transferable from the student's

L1, making them very difficult to learn. For example, the Spanish *married with* must become *married to* for correct English usage (Chiavarini, 1993), and some common usages of the English prepositions *on, in,* and *at* are included in the range of meanings of the Spanish preposition *en* (Lindstromberg, 2010).

The cognitive costs in memorization of multiple preposition definitions for what appears to be such limited gain in communicative skill leads many ESL students and instructors to attach limited value to learning these lexical forms. A clear result of this omission is a fundamental lack of accuracy and fluency in language production tasks of ESL students of all levels, as Larsen-Freeman & Strom (1977) discovered in their study which attempted to construct a second language acquisition index of development. This is unfortunate, for Saint-Dizier (2006) point out that about every eighth word in English text, on average, is a proposition (Mindt & Weber, 1989, cited in Saint-Dizier, 2006) and the simple prepositions *of* and *in,* for example, are among the 5 most frequent words used in everyday English.

Additionally, prepositions are key function words in academic English. Hyland (2008) identified the top 50 of the most frequently used lexical bundles (word collocations of three or more words that appear together frequently in a particular register, extremely common in both written and spoken English, making up about 30% of the content of spoken English and about 21% of academic prose (Biber, et al., 1999, p. 995) in a corpus of university master's theses and Ph.D. dissertations across four disciplines written by students whose first language was primarily Cantonese. Hyland (2008) discovered that of the top 50 most frequently used 4-word collocations in the master's theses, 40 used a simple preposition or a complex preposition that contained a

simple preposition (p. 51). Of the 50 most frequently used lexical bundles in the Ph.D. dissertations, the result was comparable, with 38 of the bundles making use of a simple preposition or containing a simple preposition within a complex preposition (p. 51).

Ene (2006) found that advanced and highly advanced ESL writing students continued to be plagued by lexical errors over syntactic errors, particularly the function word classes of articles and prepositions. Second language acquisition research to date has made almost no concerted efforts (*sic*) to understand the highly advanced ESL writer," asserts Ene (2006, p. 27), who pleads for more corpus-based language teaching methods to improve the accuracy of advanced ESL writers. One must acknowledge some effort, however, in that direction—a topic that will be examined in chapter 3. The purpose of this dissertation is to build upon that body of research by designing and implementing an instructional plan that will improve the accuracy of the use of prepositions in the ESL writing classroom.

Some might question whether or not explicit emphasis should be given to the teaching of grammar in the ESL writing classroom. Hinkel (2002b) referred to several studies to argue that grammar instruction should, indeed, be a part of the ESL writing classroom instruction, including those of Johns (1997), Fathman and Whalley (1990), and Ellis (1997). The research of Johns (1997) showed that grammatical errors in NNS writing negatively affect the perceptions of writing quality by NS. Fathman and Whalley (1990) concluded that instructor feedback and attention to grammar issues in the writing classroom resulted in general writing improvement. Ellis (1997) noted the complexity of many English grammatical features, and argued the need to include specific instruction in them in the ESL writing classes. Ferris (2011) observed that persistent grammatical error

and student frustration in advanced ESL writing classes spawned “whispered restroom discussions” (p. ix) among herself and her instructor colleagues whom she described as feeling ashamed and holding onto a “dirty little secret” (p. x) of incorporating a bit of grammar to students who were thought to have advanced beyond those issues. This researcher agrees with Ferris (2011) to argue that an explicit emphasis on specific troublesome grammatical issues, combined with effective instructor feedback, will enhance writing fluency and accuracy.

Yet, the researcher assumes that L2 teaching and learning of prepositions as discrete functors of grammar relationships must be only a mere starting point in the process, and that the subject must be fundamentally approached as a lexical learning issue (Davy, 2000; Ene, 2006). “Grammar is a grammar of meanings, and not of words,” asserts Sinclair (2004, p. 18), who argues for an *indeterminacy* of word meaning that is subtly constructed as a shared phenomenon across word phrases and text genres in the contexts of local environments. “It is no longer possible to imagine a sharp division between one type of patterning which behaves itself and conforms to broadly statable rules, and another which is a long list of individual variations, and then to insist that they both create meaning at the same time,” (Sinclair, 2004, p. 19) he asserts. Summarily, it is posited in this research that effective second language acquisition teaching and learning must move beyond both grammar and the lexicon to follow an approach to learning that recognizes a partial *delexicalization* process of independent word meanings that associates a word meaning broadly with its local environment, reducing assumption of clear-cut word meanings. It is evident that new teaching and learning approaches are necessary.

The Research Question

Is there a statistically significant difference in the comprehension and accurate isolated use of the prepositions *in, on,* and *of* between a control group that receives traditional, non-cognitive instruction in the use of prepositions and an experimental group that receives an instructional plan on the use of the prepositions *in, on,* and *of* based on cognitive linguistic and sociocultural theory?

Purpose of the Study

The research is prompted by the researcher's classroom experience in ESL advanced writing classes. The purpose is to determine if there is a relationship between an explicit teaching focus on teaching certain prepositions and students' knowledge of and use of these prepositions in classroom assignments. Quantitative measurements will be made of both the initial preposition lexical skill and student skills that will be assessed immediately after the classroom teaching focus. As both a control class (the class receiving traditional instruction) and an experimental class (the class receiving cognitive linguistic and sociocultural instruction) will be involved in the research, both classes will be measured with identical assessment instruments.

This classroom study is a pedagogical approach toward the teaching and learning of targeted prepositions in the advanced ESL classroom. The dissertation makes no claim to represent a complete and accurate linguistic description of all syntactic uses or semantic categories that apply to the specific grammatical elements of the study.

Significance of the Study

Chapter 3 represents a selective overview of recent research that relates to the current study. I will briefly note here that there are several gaps in the current literature that the current research attempts to address.

The study of Tyler, Mueller, & Ho (2011) is a recent quasi-experimental study that attempted to apply cognitive linguistic theories to the learning of 3 common English prepositions: *to, for,* and *at* to a group of advanced ESL learners. The authors recognized that although the interest in cognitive linguistics has grown considerably in the last few decades, few experimental studies have been conducted that apply cognitive linguistic theory to L2 learning. The current study will make an important addition to this field.

More specifically, there has not been, to date, a classroom study that I am aware of that has attempted to combine a cognitive analysis of the most common preposition, *of*, with ESL classroom instruction. This appears to be a huge gap in the field, as the preposition *of* is frequently found to be one of the top three most common words in English text, and "is approximately every fiftieth word—over two per cent of all the words—regardless of the kind of text involved" (Sinclair, 1991, p. 84).

Thirdly, perhaps the most innovative goal of this research is to bring together, in one study, some of the phenomenal research and implications of both cognitive linguistics and sociocultural theory—research that has been inspired by the cultural-historical framework that was initially formulated by Lev Vygotsky in the early 20th century. Cognitive linguistics (CL) is premised on the foundation that language, broadly, is about meaning, and is more specific than psychological approaches in that it "focuses on natural language as a means for organizing, processing, and conveying that

information" (Geeraerts & Cuyckens, 2007, p. 5). Cognitive linguists have shown interest in L2 pedagogy in recent years (Pütz, Niemeier, & Dirven (2001); DeKnop & DeRycker, 2008), but "so far, has failed to present a unified approach to the psychological processes that underlie development" (Lantolf, 2011, p. 304). Sociocultural theory (SCT), on the other hand, with its longer history than cognitive linguistics, lacks a "coherent linguistic theory" (p. 303), argues Lantolf. Sociocultural theory is a psycholinguistic theory that privileges communicative activity—primarily speech—to mental development, conscious control, and such cognitive functions as planning, attention, memory, and rational thought. Both CL and SCT rely upon conceptual knowledge and understanding, and their approaches to language learning and pedagogy have clear similarities.

Outline of the Dissertation

Chapter one has provided a background for the dissertation, including surveys of ESL writing and grammar instruction in the U.S. over the last several decades and a short review of the perceived need of new instructional approaches in the ESL writing classroom. The problem of proposition lexical errors in advanced ESL writing classes is introduced, followed by a general praxis toward a correction of these errors. The research questions of the dissertation are stated, followed by the purpose statement. The chapter concludes with the significance of the current research—including an introduction to gaps that exist in current research, goals of the current study, and a brief introduction to the research constructs of this study—cognitive linguistics and sociocultural theory.

Chapter two explores the primary theoretical constructs of the study of cognitive linguistics and sociocultural theory from their early beginnings to some of their current applications in second language classrooms. Chapter three contains a review of the

relevant literature within and related to applied linguistic applications of both cognitive linguistics and sociocultural theory as well as applications which blend the two approaches in second language acquisition contexts. Chapter four describes the research methodology of the current research, premised by a detailed account of the grammatical context of the targeted learning items and how the targeted learning elements fit without that context and within the theoretical constructs of the dissertation. The chapter also includes an identification of the research context, the research participants, the research questions, instructional materials and assessment instruments, and a description of the pilot studies and their results. Chapter five details the procedures of the research and an analysis of the results of the study. The concluding chapter six includes a discussion of the research findings, limitations of the study, suggestions for further research, and conclusions.

Chapter Two

Theoretical Constructs of the Dissertation

The current research is informed by two primary theoretical constructs—cognitive linguists and sociocultural theory. As the current study is a blend of the two approaches, it is necessary to review the underlying principles that establish the framework of each of the theories before a comparison of the blending elements is formulated.

The Perspective and Principles of Cognitive Linguistics

Cognitive Linguistics (CL) is about language and the mind, just like its name implies. It is one of several *usage-based* models of language that began, in part, as alternatives to structural approaches that dominated the field of linguistics from the mid-twentieth century and are distinguished by their premise that language and linguistic form are developed through language *use.* Language learning theory, it is posited, must reflect advances in research in sociolinguistics, discourse function, and language frequency analyses—areas that are linked with language use, culture, and the contextual dimensions of the communication. Tyler (2010) identifies five assumptions of usage-based approaches: a) the communicative purpose of language shapes language, b) natural language is never separated from its context, c) language is a learned phenomenon rather than an innate module, d) language meaning extends beyond lexical items to include such items as grammar and syntax, and e) language can be accounted for in a single strata model.

Perhaps the best known usage-based model is *systemic functional linguistics* (SFL), which maintains that language is fundamentally tied to its social contexts and behavior (Halliday, 1978; Halliday & Matthiessen, 2004). Often working with language

through the lens of language *genre* (a specific type of text), SFL theorists assume that lexico-grammatical choices of speakers and writers are based on meaning and that textual patterns can be found in representative genre that represent a writer's context and intent of the communication. Like SFL, *discourse functionalism* recognizes a social-cultural dimension to language, but is distinguished from SFL in that it is less attentive to textual surface structures, privileges discourse and purposeful communication as a view to understand grammar and syntax (such as the way focused elements are typically placed before known information), and recognizes cognitive and language processing factors in shaping language. *Cognitive linguistics* places an even greater emphasis on sociocultural values in language development, and categorically assumes that the architecture of human neuro-cognitive capacities and abilities such as of memory, classifying and categorizing, and expressions of mental conceptions (as Gestalt psychologists determined that the human visual system tends to focus on the smaller, moving entity—the *focus*, or *trajectory*—rather than on a fixed, larger item—the *ground*, or *landmark*—in perception) are intimately related to language use and function.

More specifically, CL maintains that the primary functions of language are to allow mental conceptualizations to be formed through sounds and gestures (the *symbolic* function of language) and that all linguistic units derive from language *usage* (the *communicative/interactive* function of language) (Langacker, 2007). The *cognitive* part of the name relates to "the crucial role of intermediate informational structures in our encounters with the world" (Geeraerts & Cuyckens, 2007, p. 5), which include the mental processes of remembering, pattern-finding, classifying, and developing conceptual schema in a theatre of consciousness. The *linguistics* part of the CL name holds that

functions of language—focusing attention on one's world, conveying and processing information, and the like—will spring out of one's cognitive perception of self-identity, concept development, and social experience. Thus, semantic meaning and the influence of social factors and experience are privileged in CL, which rigidly maintains that linguistic structure "subserves meaning rather than being an end in itself" (Langacker, 2008, p. 8). *Applied cognitive linguistics*—the particular focus of this study—refers to pedagogical implications and the processes involved in *Second Language Acquisition* (SLA) or *Foreign Language Learning/Teaching.* Although the term *cognitive grammar* is often employed to refer to a specific part of the CL movement, no distinction between the 2 terms will be made in this study.

While the appeal of CL to many second language acquisition professionals in the United States began to emerge in strength only as recent as the mid-1980s, CL is a part of a much wider field of approaches collectively known as the *second cognitive revolution* which has emerged in the last few decades. It has a history of development that is much longer, however, in a much older tradition in the late 1800s and early 1900s that was centered on psychology, including German Wundt's psychology of language and Gestalt psychology, but also drew from a wide variety of disciplines and perspectives. Prominent scholars associated with this movement included linguists of the functional and socio-psychological frameworks and psychologists such as Bartlett, Piaget, Vygotsky, Whorf, Bakhtin, and Vološinov (Sinha, 2007). The shared values of these theorists in this *first cognitive revolution* included a rejection of the view that cognitive processes operated from arbitrary, resource-limited, computational and algorithmic-type mechanisms that rejected general cognitive processes. The tradition predated the ascendancy of

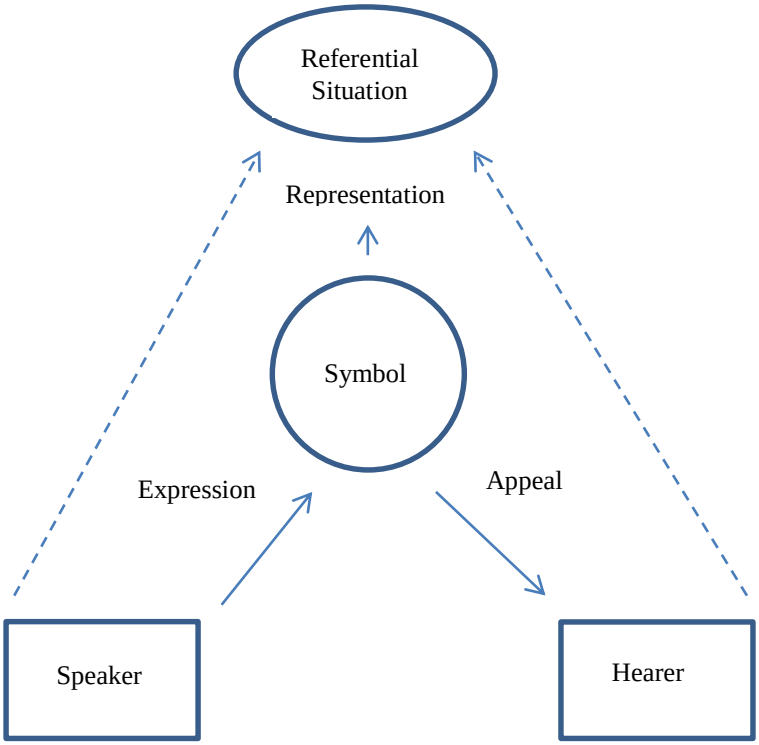
behaviorism, but was its main alternative up to the mid- twentieth century when generative linguistics began to dominate theories of language. While CL challenges some of the theories in the field of *classical cognitive science* which have emerged in recent decades, some of its theoretical perspective can be traced to the earlier tradition with which, it can be argued, it is more theoretically aligned than with either traditional generative linguistics or classical cognitive science (Sinha, 2007).

Karl Bühler's symbolic/conceptual nature of language representation. One clear example of this earlier cognitive/psychology tradition that has strong parallels with CL comes from the language theory of the early twentieth century Gestalt psychologist Karl Bühler, born in 1879, who was "one of the first to understand the immense theoretical importance of phonology and of the abstractive procedures underlying the grasp of phonemes not just for language theory but also for the theory of knowledge as a whole" (Innis, 1990, p. 2). In other words, *phonemes*—the minimal diacritical sound-marks that distinguish meaning in a linguistic expression or alphabetical writing—only represent the first part of the psychological reality of meaningful human language. For example, Bühler (1990) noted that a phoneme often has multiple realizations in various language contexts, and different values in two different languages. Since the symbolic (representational) function of language is "perhaps *the* most important, and most contested, foundational concept in modern cognitive science" (Sinha, 2007, p. 1280), Bühler's theory of language is quite relevant.

Bühler (1934/1990) argued that there are 3 separate semantic functions of language which he termed *representation, expression,* and *appeal*—independent variables of semantic function, separately derived. Figure 1, below, is Sinha's (2007, p.

1282) simplified version of Bühler's *organum* (multiple parts operating together in parallel) model of language (p. 35):

Figure 1. A simplified version of Bühler's *organum*



The middle circle of the chart represents the acoustic phenomenon which is clearly related to the other three corners of the triangle. The acoustic, phonetic symbol in the center is related to a referential situation, above, through a *two-class* (lexical and syntactical) character, in a *coordination* of representation that is unique to human language, as all languages have morphosyntactical rules as well as a lexicon. Bühler (1990) identified the referential situation as "objects and states of affairs" (p. 37) to represent this coordination as a grammatical one as well as a lexical one. On the lower part of Figure 1, it may be observed that word sound is mediated between a speaker and a hearer, with each acting as *partners* in the exchange rather than merely playing roles in the transmission of message content. Bühler illustrated the appeal relationship with

animal communication that is designed to affect the behavior of another, and observed that Indo-European languages often use undeclined demonstratives as language signals to appeal to a receiver. Scientific language is an excellent example of an extremely close relationship between language symbols and their representations, and a poet illustrates the use of expression in a speaker's choice of language. While Bühler noted that few would argue that the representational function of language is the dominant one, he argued that each of the three entities—representation, expression, and appeal—identify "a specific realm of linguistic phenomena and facts" (p. 39) and that language representation is reconstituted in these multiple dimensions. To capture Bühler's concept of how a speaker uses a *symbol* to express an intention toward a referential situation and how the hearer is directed toward the referential situation through the symbol, Sinha (2007, p. 1282) modified Bühler's chart (Figure 1) with dotted lines which extend from the speaker and the hearer to the referential situation.

Succinctly, Bühler (1934/1990) placed the symbolic function of language as fundamental to human communication. Bühler's work contrasted sharply with *behavioral* theorists such as Thorndike, Jennings, and Pavlov, whom he linked with a *code* or *signal* view of language—theories that predated generative linguistics, another code theory. It also may be observed that Bühler's cognitive, functional model posits no distinction between the lexicon and syntax—a contrast from the theories of generative grammar theory and classical cognitive science which would emerge later. Finally, it may be briefly noted that it was easy for Bühler to extend his multi-dimensional theory of language representation to recognize the role of *imagery* in language which, he argued, must be paired with "arbitrary" factors for a "relational faithfulness" (p. 212-213).

Clearly, Bühler's (1934/1990) work illustrates that the modern framework of CL has historical roots that have been further elaborated and defined. Cognitive linguistics defines language as a "structured inventory of conventional linguistic units" (Langacker, 2007, p. 424) that relate to each other in multiple ways to create meaning within a speech community. The lexicon is a bounded set of linguistic expressions, but a linguistic system draws upon a large number of other sources for speaking and understanding, such as fundamental cognitive abilities (as planning, memory, and aesthetic evaluation) (Langacker, 2007), capabilities of imagination (metaphors), and the creation of fictive scenarios (Talmy, 1996). This bundle of resources combines to form an active, energetic processing system that requires a broad definition of linguistic *meaning* that can only approximately be captured in the word *conceptualization*—that is, if we can infer that conceptualization may include *novel* concepts, phenomenon that unfold and change over time, and social, physical, cultural, emotional, and kinesthetic expressions (as eye movements, blushes, and shrugs). Actually, conceptualization may be "broadly defined as any kind of mental experience" (Langacker, 2007, p. 431), including the phenomenon of *perception* as well as the control of one's motor activity and kinesthetic expressions. In addition, because conceptualization is formed from a real world experience or at least *grounded* in such an experience, conceptualization has a nominal character (a conception must be *of* something) (Langacker, 2007).

Conceptualization in cognitive linguistics. If conceptualization is central to CL theory, it must follow that CL radically departs from the view that language is merely a system of arbitrary signs to claim that far beyond the lexeme, conceptual meaning is motivated by language *structure*. Linguistic meaning is formed, in this view, through

linguistic structures, elements, and grammar as well as through lexical items, and a continuum must be posited between grammar and the lexicon. Ungerer & Schmid (1996) conclude that "the liberation from the form/content division is probably the most important contribution that cognitive linguistics has made to pedagogical grammar and language teaching" (p. 273). Terms that are closely related to this concept include *consciousness-raising* and language *noticing*—generally, bringing a stimulus into the focus of attention—as well as the more general term *language awareness*, which includes L1 language learning and language teaching, and consequently is the term most useful for applied linguistics. For the instructor, goals in *language awareness* include raising learning awareness of the systematicity of all form-meaning pairings such as metaphors, formulaic phrases, and idioms as well as lexemes and mophosyntactic units; underlying conceptual categories of meaning; and cross-cultural differences between the L1 and the target language.

The embodiment principle of cognitive linguistics. Conceptualization in CL rejects the Chomskian paradigm that assumes that language structures are to be viewed with formal objectivity through a Cartesian-like referential, rule-based, mathematical lens, to posit that "human physical, cognitive, and social embodiment ground our conceptual and linguistic systems" (Rohrer, 2007, p. 27), the embodiment hypothesis of CL. For example, cognitive psychology teaches us that people find *categories* of related meanings that surround *prototype* (family resemblance) *effects* useful, and cognitive neuroscience informs us that visualization and perception of spatial material is processed in the brain as topological imagery that is mapped in the somatosensory and motor areas of the cerebral cortex. Further, Lakoff & Johnson (1980) found that in everyday speech,

people characterize a wide range of human experience with a relatively small number of *metaphors* that are drawn, primarily, from bodily experience and which are often extended to even more abstract concepts. This concept, which is also termed *experiential realism* (Lakoff, 1987, p. xv), stands in stark contrast to the objectivist tradition that views language as a manipulation of symbols, a computational system of cognition, and any belief that language is an abstract system without reference to human social and personal experience.

The speaker's construal. An additional principle that is fundamental to CL theory is that linguistic meaning extends beyond content and concept to reflect the way a speaker's *construal*, or the way a speaker views a concept, according to a concept's *"specificity, background, perspective, scope,* and *prominence"* (Langacker, 1999, p. 5). A strong argument against an objective view of language, this multifaceted phenomenon recognizes a speaker's choice of alternatives that may result in vastly different meanings that may be specifically encoded, but if not, must be interpreted by the listener through other means.

Prototype effects. Closely related to the speaker's construal of word or grammatical meaning is the concept of *prototype effects*—the form-meaning pairing of a word that represents an entire category of meanings that are related by "degrees of similarity" (Langacker, 1987, p. 371). Cognitive linguistics recognizes the flexibility of meaning and the concept of *polysemy*—the diversity of meanings that are expressed by a single word—which it attempts to analyze through *categorization, radial sets* of meaning, and *schema*—a term that represents the abstract commonality of all variations of meaning inherent in the semantic content of the grammatical form or word (Langacker,

1987, p. 371)—and often illustrated with a simple drawing (prompting the term *image schema).*

Research on prototype effects has been extensive. Intended as an alternative to the classical category definition of word meanings that mandated clear boundaries and equal status for all related meanings, the concept of a prototype word as the core meaning for a category of related meanings is the CL starting point for the concept of categorization. Such a word would be a cognitive reference point for related concepts that could function as "idealized cognitive models" (Lakoff, 1987, p. 121)—ways to measure new events, objects, and experiences. The problem is that finding a prototype in a single word is virtually impossible. Lakoff, for example, does not recognize a prototype representation, but merely prototype *effects.* However, researchers attempt to capture these family resemblances as specifically as possible, while acknowledging that single words represent "a centrality within a continuum" (Grabois, 1999, p. 210).

Prototype theory first recognizes a polysemic set of meanings for one word or concept, but an additional stage occurs where meanings are extended to additional categories of meanings. As these polysemic, radial set meanings are regarded as troublesome, exceptions, or simply deniable by linguists of the objectivist tradition, their existence as non-objective elements of reality, recognizing the speaker's construal of different realities, form a strong argument for CL (Lakoff, 1987). Ungerer (2001) recognized that while most cognitive classifications are, to his knowledge, mostly derived from "authors' intuition" (p. 219), "basic level concepts . . . have a clearly recognizable gestalt and are related to identifiable motor movements; their linguistic labels tend to be

morphologically simple and are first acquired by children" (Ungerer & Schmid, 1996, cited in Ungerer, 2001, p. 219).

Referring to the work of Lindner (1981) and Brugman (1981) Lakoff (1987) noted that most of the work on categorization theory in cognitive psychology had been in the areas of verb-particles and prepositions, and posited that prepositions are an excellent example of a network (radial) category that is built on a central prototypical meaning which then extends outward (radiates) into a variety of distinctive meaning *senses* through metonymical or metaphorical processes.

Image schema and visualization. Schema is a term that is widely used in CL in the context of higher cognitive processes as well as perceptual categorization. The term was first used by Kant (1929, cited in Sinha, 2007):

> Indeed, it is schemas, not images of objects, which underlie our pure sensible concepts…The concept 'dog' signifies a rule according to which my imagination can delineate the figure of a four-footed animal in a general manner, without limitation to any single determinate figure such as experience, or any possible image that I can represent *in concreto,* actually presents. (p. 182-183)

Kant observed that a principle of *regularity* guides the cognitive mediation of words and concepts, and that general abstract cognitive concepts, *schemas*, guide the listener to more specific mental images (Sinha, 2007). Following the earlier pioneer research of Talmy (1975, 1983), Langacker's (1987) work is foundational to more recent image schema research. Choi and Bowerman (1991) argue that the cognitive mapping of spatial motion is dependent upon the language used. After researching gestural paths in Spanish and English speakers, McNeill (2000, cited in Sinha, 2007) reported findings that suggest

clear differences in the visual-spatial cognition of the two language groups, concluding that "language and imagery are inseparable" (p. 57).

Visualization is a related term that reflects one's ability to form a cognitive representations of a mental experience—not to be conceived as an "image projected on a screen inside the skull for viewing . . . (but, rather) the mental experience engendered by viewing the world 'outside'" (Langacker, 2007, p. 451). Visualization is frequently used to identify the formation of mental images, as it is assumed that 80-97% of these images are visual as distinguished from tactile, olfactory, auditory, or kinesthetic in nature (Shone, 1984, cited in Langacker, 2007).

From Lev Vygotsky to Sociocultural Theory (SCT)

Karl Bühler was not alone in his exploration of the symbolic nature of language and its relation to higher mental processes in the early twentieth century. A Russian psychologist, Lev Vygotsky, who initially set out to explain human consciousness (Lantolf & Poehner, 2008), made several major contributions in his short lifetime to psychology and education, including his framework on child and cultural development, mediation, and the zone of proximal development. While his views did not become well known in the United States until several decades later, few psychologists today would deny that he left a research framework and "a school of thought that has few parallels in the twentieth century" (Zebroski, 1994, p. 154), or that "in recent years he has acquired the status of a grand master" (Miller, 2011, p. 1) in psychological theory and research.

In spite of Vygotsky's short career, an immense body of secondary scholarship and commentary has been created since Vygotsky's time, and a few references to his writing began to appear in the West shortly after his death. Vygotsky's works were

indexed in the Soviet Union after the Communist Party's Central Committee outlawed educational testing and pedagogy (Zebroski, 1994, p. 287). The following decades would result in little attention or publication of Vygotsky's works in English—in part, presumably, due to the state of Soviet-U.S. relations—but ideas were introduced that would become dominant in educational and psychological theory for years to come. Vygotsky has been judged to be "the first to understand the dependence of the progress of applied . . . psychology . . . on creating a general psychology as a methodology of the 'middle level,' which would specify the concrete categories through the prism of which mental reality would become distinguishable as a special scientific subject (distinct from knowledge at the level of 'everyday' concepts), accessible to empirical study, operations research, and direct instrumental control" (Yaroshevsky, 1987, p. 266).

Foundations and fundamentals of Vygotsky's legacy. Vygotsky's philosophy was formulated, in part, on the work of Spinoza, a 17th century Dutch philosopher; the writings of A. A. Potebnya; Russian linguistics of the 1920s and 1930s—dominated by the influence of German educator and philosopher von Humboldt; and the dialectical theories of Hegel, Marx, and Engels.

A major problem that philosophers and psychologists of Vygotsky's time faced was how human beings could know the physical world if, as dualist thought asserted, the mind is a spiritual entity, not subject to empirical examination. Spinoza was a monist who attempted to refute the widely-accepted Cartesian mind-body dualism premise. A rejection of dualism appeared to limit psychologists to two options of natural reduction, which Valsiner & van der Veer (2000) identify as *upward reductionism* (all human higher psychological processes are derived from physical environmental sources) and

downward reductionism (there is an innate linguistic/conceptual capacity, or at least the architecture of mental capacities, such as categorization, is genetically specified).

Starting from a Spinozian premise, Vygotsky (1986) studied tests that were given to higher animals to understand their capacity to communicate, but he concluded (1977) that:

> The fundamental and most general activity of the cerebral hemispheres in both man and animals is signalization; but the fundamental and most general activity distinguishing man from animals, psychologically speaking, is *signification,* i.e., the creation and use of signs. (p. 62)

Vygotsky further defined this concept of *signification:*

> Signification: a person creates connections from without, and controls the brain, and through the brain, the body. The internal relation of functions and layers of the brain, as a fundamental regulatory principle in nervous activity, *is replaced* by social relations independent of the person and in the person (controlling the behavior of another) as a new regulatory principle. (p. 63)

Spinoza provided a framework for Vygotsky to objectify higher psychological processes, but Vygotsky did not accept all of Spizoza's tenets uncritically. He often spoke of plans to analyze Sponiza's methodological principles (Yaroshevsky, 1987), perhaps concluding that "no simple answers for the problem of dualism in psychology were to be found in Spinoza's writings" (van der Veer & Valsiner, 1991, p. 357). Vygotsky asserted that reduction could not provide a complete solution to the problem of human consciousness, but that it emerges from biologically endowed mental architecture and symbols (*artifacts,* as Cole (1996) identified them) from culture—in dialectic

processes that create a unified whole. “His aim was to redirect the basic understanding of behaviorism, placing it within the lower mental processes on which the higher mental processes were based, hence there is an automatic reciprocity between the two” (Robbins, 2001, p. 100). In Vygotsky’s (1978) words,

> Human behavior differs qualitatively from animal behavior to the same extent that the adaptability and historical development of humans differ from the adaptability and development of animals. . . . Naturalism in historical analysis, according to Engels, manifests itself in the assumption that only nature affects human beings and only natural conditions determine historical development. The dialectical approach, while admitting the influence of nature on man, asserts that man, in turn, affects nature and creates through his changes in nature new natural conditions for his existence. This position is the keystone of our approach to the study and interpretation of man’s higher psychological functions. (p. 60-61)

Vygotsky (1979) decried the fact that the field of psychology in his day had generally ignored the concept of human consciousness, and had, in his opinion, “deprived itself of access to the study of some rather important and complex problems of human behavior” (p. 5). “Sociology is “biologized” and psychology is “physiologized” (p. 7), he asserted. Such an approach “preserves all the dualism and spiritualism of earlier subjective psychology” (p. 8), an approach he rejected. Instead, Vygotsky placed the subjective processes of consciousness as the central focus of his theory, agreeing with Russian psychoneurologist Bechterev (1933) that “we know that everything superfluous in nature atrophies and is destroyed, whereas our experience tells us that subjective phenomena achieve their highest level of development in the most complex processes of

interrelated activity" (Vygotsky, 1979, p. 9). Vygtosky also drew upon the conclusion of British neurophysiologist Charles Sherrington (1906/1947) who asserted that "a simple reflex is probably a purely abstract conception, because all parts of the nervous system are connected together and no part of it is probably ever capable of reaction without affecting and being affected by various other parts" (p. 7), asserting that this premise must form the foundation of the study of human behavior, rather than the mere study of reflexes, as was common at the time (Vygotsky, 1979).

Vygotsky (1979) recognized Pavlov's research of the conditioned reflex in animals. Yet, "the inherited experience of human beings is incomparably broader than that of animals" (p. 13) and "man's adaptation and the behavior associated with it assume new forms compared with those of animals" (p. 14). Besides learning from physical experience, man also receives the benefits of what Vygotsky called "the experience of former generations . . . (or) historical experience" (p.13) as well as "social experience" (p. 13), the interactions of other people. Animals build nests and other structures by instinct, but they can only adapt passively to their environment. In contrast, Marx (1886/1952) posited that only in man is a work of construction first built in the architect's head in an ideal form. "What distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality," (p. 85), Marx noted. Thus, the physical work of a human construction is actually a *repeated experience*, or a secondary form of what was previously planned.

Pavlov (1955) was also forced to recognize the complexity of multiple reflexes in his experiments with animals. In experiments that were designed to test a single reflex, he recognized that multiple reflexes were occurring and that the two colliding reflexes did

not always result in the same behavior. Noting that Pavlov compared mental operations with a telephone switchboard where elements of the environment and competing specific responses were temporarily established (Vygotsky, 1979) countered with his own analogy:

> Much more than a telephone switchboard, our nervous system resembles the narrow doors in some large building through which a crowd of many thousands is rushing in panic; only a few people can get through the door; some get through intact, but many thousand(s) (of) others die or are pushed back. This more closely conveys the catastrophic nature of the struggle, the dynamic and dialectic process, between the environment and the person and within the person that we call behavior. (p. 17)

As Sherrington (1906/1947) pointed out in his research, motor neurons are the building blocks of reflex *systems* which struggle against competing systems in collision. A primary function of the brain is to coordinate these different receptor groups in the nervous system into an integrated whole. Behavior is the result of a *win* among competing reflex systems. The implication for learning, then, is that even a small, seemingly insignificant stimulus can challenge the equilibrium of the nervous system, assume a prevailing role, and result in new, desired behavior (Vygotsky, 1979). In a more recent work, cognitive psychologist Rosenbaum surveys recent studies in cognitive psychology in his work *It's a Jungle in There: How Competition and Cooperation in the Brain Shape the Mind* (2014). Rosenbaum's subtitle summarizes his thesis that the forces of cooperation and competition *inside* the brain "are the ultimate mediators of *all* experience" (p. 116). Echoing the earlier premises of Sherrington and Vygotsky.

Rosenbaum claims that through use, some neurons "get stronger and others . . . get weaker" (p. 102); the stronger neurons gain faster reaction times (a lower firing threshold) for improved responsiveness.

Vygotsky (1979) recognized one group of human reflexes that are clearly reversible—social stimuli:

> What distinguishes them (social stimuli) is that I myself can reproduce them and that they become reversible for me very early, and hence determine my behavior in a fundamentally different way from all others. They liken me to others and make my actions identical with one another. Indeed, in the broad sense, we can say that speech is the source of social behavior and consciousness…we are aware of others because in our relationship to ourselves we are the same as others in their relationship to us. (p. 29)

Speech can be heard (a stimulus) or produced (to become both a reflex as well as an internal stimulus). The center of this activity, according to Vygotsky, is consciousness, which has a dual, *mediating* role in these reversible, two-pronged processes. Consciousness becomes, then, both a "reflex of reflexes" (p. 32)—both external and internal—as well as a secondary derivative of the outside world. It is the mediating center for "the experiencing of experiences" (p. 19), which he further explained "means nothing less than to possess them (one's experiences) in object form (in stimulus form) for other experiences" (p. 19).

Vygotsky's concepts are not unlike the analysis of psychologist William James (1962), who recognized that the total self is "partly object and partly subject, (which) must have two aspects discriminated in it, of which for shortness we may call one the Me

and the other the I" (p. 189). Vygotsky recognized a similarity of his theories with the *Ego* and *Id* in Freud's (1961) analysis of competing forces of will and desire in human psychology. Many years later, Vocate (1994) would also argue that while in social communication, the focus is on the "I" and "you," internal, psychological speech is characterized by an interaction between an "I" that guides personal decision making and a "me" that performs roles such as evaluating, monitoring, and interpretation much like the "you" in social communication.

Vygotsky was also impacted by the writings of A. A. Potebyna—writings that also reflected the Humboldtian tradition of linguistics that was then in vogue in Russia—particularly in regard to the concepts of *word* and *image* (Robbins, 2001). As Kharitonov (1991) explains,

> According to Potebnya, "Originally every word consists of three elements: the unity of articulated sounds, i.e., the *external sign* of signification; representation, i.e., the *internal sign* of signification; and *signification* itself." By "signification" Potebnya means the image of an object expressed in words . . . "representation" plays the role of a substitute for the object's sensory image, realized in words as its "inner form." The inner form of a word is, in turn, an image unrelated to the word, but its "essential" attribute . . . The word thus becomes a unique instrument of thought . . . (yet) does not have a thought in it, but is only its "imprint." (pp. 10-12)

Potebnya reflected von Humboldt's theory that single words must be understood in context and carry different meanings—to a greater or lesser degree—for the speaker and the listener. Potebnya posited that while a word is a *sign*, it is also a *tool* that has the

capability to transform physical, outer images into inner, abstract concepts (Matejka, 1978/1980). Vygotsky, then, "transforms Von Humboldt's emphasis on the word's inner form into a site in which the interaction between language and thought can be studied" (Burgess, 1993, p. 24). *Word meaning,* rather than the sentence, would become Vygotsky's (1987e) unit of analysis as he explored the inner site where meanings function in reversible directions—inwardly as a unit of thinking, and outwardly as speech in social action. Specifically,

> Each word has meaning . . . *meaning is the path from the thought to the word.* <Meaning is not the sum of all the psychological operations which stand behind the word. Meaning is something more specific—it is the internal structure of the sign operation. It is what is lying between the thought and the word. Meaning is not equal to the word, not equal to the thought. This disparity is revealed by the fact that their lines of development do not coincide.> (pp. 132-133)

Vygotsky (1986) carefully separated the terms word *sense* and word *meaning*, noting that

> Meaning is only one of the zones of sense, the most stable and precise zone. A word acquires its sense from the context in which it appears . . . the dictionary meaning of a word is no more than a stone in the edifice of sense, no more than a potentiality that finds diversified realization in speech. (p. 245)

Vygotsky used the dialectic principles of Hegel and classical Marxism as a heuristic for the bi-directional changes that occur where thought meets word meaning and word meaning meets thought. The term *dialectic* is derived from a Greek word meaning *conversation,* and while it represents a tension between opposing elements, is not necessarily a contradictory opposition; two distinct elements that are in tension with each

other can be *complimentary* to each other. In Vygotskian theory, a *conceptual dialectic* (an internalized, atemporal ideal) interacts with an *empirical dialectic* (the physical world of time and space) (Norman & Sayers, 1980).

A process of *internalization* occurs when a conscious process that began with a physical object and a deliberate, mediated intention is moved away from the mediating activity center and becomes a subordinate, reflexive element of repeated behavior. Vygotsky used the well-known illustration of a lady who ties a knot in a handkerchief to remind herself to do a task (Vygotsky, 1978). An external object is used to trigger the mental activity of remembering; the object is to make the task of remembering (a behavioral reflex) easier with the use of an external stimulus, illustrating both the reversible characteristic of human mental processes as well as internalization. In regards to language, Vygotsky agreed with the American linguist Sapir that "the single word expresses either a simple concept or a combination of concepts so interrelated as to form a psychological unity" (1979, p. 82)—illustrating the wide-reaching capabilities of language in goal-directed tasks (requests, making promises, solving problems), encoding information in multiple levels of generalization or categorization, and its self-reflexivity, as "language is the only sign system that can refer to itself" (B. Lee, 1985, p. 77).

Summarily, Vygotsky's contribution and legacy was to view higher mental processes through the lens of *development* and he "added to them (his premises) his thesis of reversibility" (B. Lee, 1985, p. 77). Several ideas from Vygotsky's work have been explored at length by second language acquisition theorists including mediation, egocentric (private) speech, and the separate learning processes of both spontaneous and

scientific concepts. Learning is most effective, Vygotsky reasoned, in a *zone of proximal development.*

Vygotsky's theory of mediation. Referring to what is frequently referred to as Vygotsky's *theory of mediation,* Miller (2011) notes that:

> What makes Vygotsky's contribution distinctive and innovative, but not necessarily original, is not that he breaks down the barriers between the individual inside and the social outside, or extends the mind beyond the skin, but that *he incorporates the social as part of the constitution of his concept of a human person.* (p. 26)

In Vygotsky's (1998) own words,

> Considering the history of the development of higher mental functions that comprise the basic nucleus of the structure of the personality, we find that the relation between higher mental functions was at one time a concrete relation between people . . . every function in the cultural development of the child appears on the stage twice, in two forms—at first as social, then as psychological; at first as a form of cooperation between people, as a group, an intermental category, then as a means of individual behavior, as an intramental category. (p. 168-169)

Mediation, for Vygotsky, was not merely an external process that makes use of physical objects, but primarily an internal process that uses signs (primarily language) to develop higher mental functions such as attention, memory, and concept formation. The culmination of such a process that begins as other-regulation (external) transfers into one's ability to self-regulate through conscious awareness (internal).

Egocentric speech and self-regulation. It is well known that most of the speech of young children talk—whether alone or with others—consists of what Piaget labeled *egocentric speech*—a self-centered speech that reflects the child's inability to view the world from an external point of view. As a child develops, use of egocentric speech decreases in quantity. Piaget theorized that this speech merely dies out, but Vygotsky posited that a child's spontaneous, egocentric speech moves internally to become *inner* speech. A defining characteristic of this spontaneous, egocentric speech, he argued, was not so much about its content, but that if reflects a child's lack of conscious awareness and volition (Vygotsky, 1987c). It follows that as the child becomes more consciously aware, the need for egocentric speech decreases.

As presented in a compilation of Vygotsky's work that he wrote near the end of his life, *Thought and Language* (1986), Vygotsky argued that a child's early egocentric speech moves *inward* to form inner speech where it intersects with thought to create "verbal thought" (p. 88). Vygotsky identified several progressive stages in the development of inner speech, but emphasized that *"the lines along which a complex develops are predetermined by the meaning a given word already has in the language of adults"* (p. 120). As child matures and feels understood by adults and peers, egocentric speech that lessens in its quantity of outward expression merely moves inward to form the roots of inner speech. This inner speech is marked by several unique characteristics; it is "speech (that is) almost without words" (p. 244) and prone to *agglutination* (a blending of words, phrases, or longer texts into a single word), *immersion* (word meanings and senses begin to flow into each other, especially in context-dependent ways), and in its

highly *predicated character* (the individual and contextual nature of inner speech allows subjects to be dropped, leaving only predicates). Coming from the other direction, an *affective-volitional tendency* (personal desire, need, emotion, interest, etc.) prompts a thought which then leads to "the shaping of the thought, first in inner speech, then in meanings of words, and finally in words" (p. 253).

Spontaneous concepts, scientific concepts, the zone of proximal development, and implications for educational theory. An innovation of Vygotsky's work that has been a construct model for educational theorists since his time is his axiom of the existence of two separate learning processes at work in the learner. Unconsciously, a learner receives external, social input outside the contexts of explicit instruction to form *spontaneous,* or *everyday concepts* that are immediately available. On the other hand, the conscious, deliberate methods of teaching and learning lead to the formation of a learner's *scientific concepts.* The two processes of mental formation move from opposite poles and in reverse directions to meet each other. In *Thought and Mind*, Vygotsky (1986) argued that as spontaneous concepts slowly move upward, they create primitive mental structures and paths for scientific concepts which, in turn, grow downward through spontaneous concepts to "supply structures for the upward development of the child's spontaneous concepts toward consciousness and deliberate use" (p. 194). In the *zone of proximal development*—probably Vygotsky's most widely-recognized contribution to the fields of psychology and education (Chaiklin, 2003)—these two processes meet in a dialectical tension, theoretically creating the optimal area for *development* (as distinguished from *learning*).

More definitively, just as a child's spontaneous concepts (socially-situated knowledge, characterized by its practical and trial-by-error nature) move upward toward concept formation (complex thinking), Vygotsky (1986) argued that a child's scientific concepts—which result from the input of knowledge which is conscious, deliberate, rigorous, and testable—will move *top-down* from the general to the specific. Mental concepts have properties long before they have symbols and move downward toward verbal expression as words. While the mere direct teaching of such concepts often results in a frustrated learning result which Vygotsky labeled "impossible and fruitless" (Vygotsky, 1986, p. 150), his premise was that development occurs and conceptual thinking is then created in a *mediated zone* (the theoretical space where the two elements meet) called the zone of proximal development.

The goal of educational practitioners, Vygotsky claimed, should be "first to bring spontaneous concepts up to a certain level of development that would guarantee that the scientific concepts are actually just above the spontaneous ones" (1986, p. 194-195) in an attempt to reach this zone of proximal development. From the top-down perspective, this entails a carefully designed educational input. From the bottom-up perspective, the instructor will make use of the student's ability to take facts and internalize meaning through current knowledge, experience, and tools of culture. Education, Vygotsky asserted, must not only seek to transmit content, but must also seek to bring the learner to a reflective understanding that allows a learner to control and monitor the learning in a sense of *know-how* and conscious awareness that will precede development.

Specifically, students in each age of development meet a socialized expectation to be able to reason with prescribed academic (scientific) concepts to be considered in

normal development. This reasoning skill with concepts, according to Vygotsky (1987f), includes conscious awareness and volition:

> *The foundation of conscious awareness is the generalization or abstraction of the mental processes, which leads to their mastery.* Instruction has a decisive role in this process. Scientific concepts have a unique relationship to the object. This relationship is mediated through other concepts that themselves have an internal hierarchical system of interrelationships. It is apparently in this domain of scientific concept that conscious awareness of concepts or the generalization and mastery of concepts emerges for the first time . . . (where) it can—like any structure—be transferred without training to all remaining domains of concepts and thought. Thus, *conscious awareness enters through the gate opened up by the scientific concept.* (p. 191)

An objective zone of the individual student's social development can thus be assessed, which includes a) the present development of higher mental processes, b) psychological functions that are in the maturation process that are currently leading to cognitive restructuring, and c) the psychological functions of the next age of development (Chaiklin, 2003). From the student's standpoint, a subjective zone also exists that is based one's ability to imitate actions—rather than merely *copy* them—for, according to Vygotsky (1987b), "Imitation is possible only to the extent and in those forms in which it is accompanied by understanding" (p. 96) and includes "everything that the child cannot do independently, but which he can be taught or which he can do with direction or cooperation or with the help of leading questions" (1987d, p. 202).

For second language learners, Vygotsky (1986) was specific: “Learning a foreign language (is) a process that is conscious and deliberate from the start” (p. 195). These scientific concepts only begin the process of second language acquisition, and few language ESL teachers would question Vygotsky’s observation that “with a foreign language, the higher forms (complex thinking) develop before spontaneous, fluent speech” (p. 195). Concept formation, according to Vygotsky (1986), is socially formed and is

> impossible without words . . . verbal thinking . . . and a specific use of words as functional ‘tools’ . . . (for) words and other signs are those means that direct our mental operations, control their course, and channel them toward the solution of the problem confronting us. (p. 106-107)

Additionally, Vygotsky (1986) claimed that complex thinking is “the very foundation of linguistic development” (p. 130). As Vygotsky’s term *zone of proximal development* suggests, Vygotsky maintained that learning precedes development in a *movement of movement,* as thought moves to word and word moves to thought continually, as one’s private, inner self alternately agrees with or contradicts one’s motives in one’s life in community and as one experiences oscillating desires of both maintaining the status quo of current knowledge and permitting the threat of new learning to fragment and challenge the *status quo.* Many educators would agree that a level of *mismatch* between current knowledge and new knowledge is necessary for efficient learning and cognitive development.

For second language learners, new words are learned from a bottom-up process only as they are associated with a student’s culture, experiences, and previously

established meanings in the L1. As the newly acquired L2 words attach to L1 meanings, they become mental hooks as they move upward, opening up paths for the development of the more general conceptual foundation of language development that recognizes words as tools of *function* (Vygotsky, 1986). This development, in turn, provides a platform for the upward movement of spontaneous L2 learning.

Vygotsky (1986) theorized that a zone of proximal development exists in an individual's learning with an optimal blending of the two distinct processes at work when the scientific concepts remain just ahead of the spontaneous, bottom-up process. In the context of learning as a social activity that leads learner development, the zone of proximal development (ZPD) "measures the distance between what a learner is able to do and a proximal level that they might attain through the guidance of an expert-other" (Warford, 2011, p. 252). In Vygotsky's (1987f) words,

> The development of the scientific social science concept, a phenomenon that occurs as part of the educational process, constitutes a unique form of systematic cooperation between the teacher and the child. The maturation of the child's higher mental functions occurs in this co-operative process, that is, it occurs through the adult's assistance and participation. . . . In a problem involving scientific concepts, he must be able to do in collaboration with the teacher something that he has never done spontaneously. . . . We know that the child can do more in collaboration that he can independently. (pp. 168-169, 216)

The hierarchical, systematic thinking that characterizes the scientific concepts, Vygotsky theorized, will gradually become associated with the everyday referents

that initially spawn the spontaneous concepts, and work themselves into the contextual richness of daily thought and communication.

Along with *Thought and Language* (1986) that Vygotsky wrote when he was near the time of his death, he also wrote an article on *play* (Vygotsky, 1976)—the activity of children that he argued was a leading force in the development of a child's higher mental functions. Using the common toy of the stick horse, Vygotsky asserted that the object of a stick horse becomes a meditational device for young children. Suddenly, the stick becomes an object tied to a referential meaning which the child mentally sees as a horse. Play with the stick-horse is governed by rules of the game; the child controls his impulses for the sake of the pleasure of the game, seeing the imaginary situation and action as a force to guide his actions. The meaning (the horse) is not divorced from reality, either linguistically (the word *horse* is used) or socially (the stick is called a horse because it can be placed between one's legs and ridden). Vygotsky noted that a crucial point was reached when an object stands for a meaning which is then foregrounded and used to guide actions and human motivation.

In addition to childhood play, Vygotsky viewed grammar as a mediating device between spontaneous concepts and scientific concepts, a dialectically positioned bridge between the two. A child is unconscious of grammatical regularities even though he uses them. He only becomes conscious of grammatical concepts with the introduction of scientific concepts which, while they are decontextualized, presuppose grammatical regularity and existence, thus forming a bridge between the two directions of learning. Vygotsky (1986) noted:

> The opinion has even been voiced that school instruction in grammar could be dispensed with. We can only reply that our analysis clearly showed the study of grammar to be of paramount importance for the mental development of the child. (pp. 183-184)

Both "grammar and writing," Vygotsky (1986) maintained, "help the child rise to a higher level of speech development" (p. 184). "Writing . . . from a Vygotskian perspective, is more than a product or a process or a set of processes; it is a *relation*, specifically a *social relation* shared by a community with its own history, traditions, and motives, and individuated by each new student in his or her own unique way" (Zebroski, 1994, p. 196). Writing requires the use of alphabetical symbols that are totally divorced from phonetic sounds, sensory context, and the interactive, dialogical nature of speech. It requires a careful and deliberate structuring of word combinations to express intelligible and intended meaning. First drafts may be formed from a thought, and then more fully formed from inner speech, but drafts are created in written production, even if they are not written. According to Vygotsky, writing is much harder than normal speech activity, and represents "the most elaborate form of speech" (p. 181). Because the motives for writing are often abstract or unclear, writing must be relevant to life and its values clearly defined (Vygotsky, 1978).

A Vygotskian-inspired legacy. As insightful as they are, Vygotsky's writings are sometimes imprecise, and it has been left to other researchers to expand and clarify many of his views. Alexei N. Leont'ev (1981) and Alexander Luria (1979) were able to keep Vygotsky's work alive in their own research following Vygotsky's untimely death, and

soon, a flood of theorists would aspire to be heirs of the legacy and prompt "a bewildering variety of literally hundreds of neo-Vygotskian investigations" (Van der Veer, 2007, p. 114), some of which is based on traditions of national or regional distinctives. To be sure, Vygotsky had insufficient time to fully develop some of his ideas, and while some of the secondary literature attempts to present balanced summary, extension, and analysis of his work, it also includes new theoretical constructs that in some cases are radical departures from Vygotsky's original ideas. Thus, they can generate a type of pre-emptive filter on the author's intents and definitions, and Miller (2011) warns researchers not "to miss the subtle differences between 'Vygotsk*ian* theory' and 'Vygotsky's theory' with the former allowing for many more degrees of latitude and license" (p. 36). Miller (2011) places the Western tradition of Vygotsky's work, sociocultural theory, within the first of these categories—which is not to say that the tradition is not Vygotskian *inspired* and worthy of theoretical investigation and pedagogical application. In a more general sense, I agree with Lantolf & Thorne (2006) that optimistically, "even in doctrinally stretched appropriations of Vygotsky-inspired concepts, there is the possibility that—compared with conceptualizations of learning that support more atomistic modes of instruction and transmission—they may facilitate critical awareness of pedagogical options and social-epistemological approaches to development through collective engagement" (p. 264). Vygotsky was not a professional educator, but his "inspiring view of a human being as a creator and modifier of knowledge" (Grigorenko, 2007, p. viii) and his legacy of ideas that have the "flavor of richness of testable hypotheses" (p. ix) has attracted U.S. educators in widely divergent

settings since the 1950s (Zebroski, 1994)—language teachers being prominently among them.

Vygotsky's (1978) theory of "historical-cultural development" (p. 37) of human psychology, also termed cultural psychology, cultural-historical psychology, or cultural-historical activity theory (CHAT), is usually labeled *sociocultural theory* (SCT) in Western applications of applied linguistic and second language acquisition research. The use of the term was been encouraged by James Wertsch (1991) and currently represents the conventional term for the multiple and divergent applications of Vygotskian-inspired research in the West.

Alexei N. Leont'ev and activity theory. Both Michael Cole (1996) and James Wertsch (1985, 1991) have prominently brought Vygotsky's legacy to English-speaking researchers with approaches that move beyond Vygotsky's original work, especially in their emphases on *activity* as the foundation of mediation and the development of higher mental processes. Alexei N. Leont'ev (1981), a Russian who collaborated with Vygotsky, is well known for this variation of Vygotsky's work which he developed after Vygotsky's death. Leont'ev's approach is summarized by Zinchenko (1995):

> The main difference [between cultural-historical and activity approaches] is that for cultural-historical psychology, the central problem was and remains the mediation of mind and consciousness. For the psychological theory of activity, the central problem was object-orientedness, in both external and internal mental activity. Of course, in the psychological theory of activity the issue of meditation

> also emerged, but while for Vygotsky consciousness was mediated by culture, for Leont'ev mind and consciousness were mediated by tools and objects. (p. 41)

The researcher follows Miller (2011) who posits that Wertch has close parallels with the activity theory of Leont'ev. For example, Wertch (1991) summarizes Vygotsky's theories as follows:

> Three basic themes run through Vygotsky's writings: 1) a reliance on genetic, or developmental, analysis; 2) the claim that higher mental functioning in the individual derives from social life; and 3) the claim that human action, on both the social and individual planes, is mediated by tools and signs. (p. 19)

The analysis of Vygotsky by this well-known researcher is enlightening on his perspective. First, as Miller (2011) notes, "Missing from the list is any mention of consciousness, word meaning, inner speech, and two lines of development, the natural and the cultural" (p. 231). In addition, the second claim, above, is virtually meaningless, for Vygotsky claimed that higher mental functioning results from a transformation of natural processes into which signs are introduced, allowing internal functions such as volition, memory, and attention to be controlled by the individual. The third claim, above, is perhaps the most revealing about Wertsch's concept of Vygotsky's theory. Vygotsky discusses the function of physical tools and activity (1986), but notes that "no one has ever argued that teaching someone to ride a bicycle, or to swim, or play golf has any significant influence on the general development of the child's mind" (1987a, p. 200). Summarily, while both Leont'ev and Wertsch place human activity as the "mediated whole" and "the *individual(s)-acting-with-mediational-means* as the appropriate unit of

analysis" (Miller, 2011, p. 231), Vygotsky places *"consciousness"* as "the culturally mediated whole" and "*word meaning*" as the appropriate unit of analysis" (p. 230-231).

A. R. Luria, the zone of proximal development, and dynamic assessment. Other researchers who have worked in the legacy of Vygotsky include researchers who worked in the tradition of another Vygotsky colleague, A. R. Luria (1979). According to Wozniak (1980), Luria played a fundamental role in promoting the zone of proximal development (ZPD) as a methodology to distinguish between individuals with differing cognitive potentials.

In the West, Vygotsky's ZPD has been widely adopted by educators and psychologists as a metaphor and an educational heuristic, and is often used to identify individual learning targets of specific skills for particular developmental periods—interpretations which Chaiklin (2003) suggests were not intended by Vygotsky, and better reflected by terms such as "*assisted instruction*" and "*scaffolding*" (p. 59). The development of the ZPD in the Russian context, however, has been more narrowly defined. In the former Soviet Union, some of the assessment procedures that originated from the concept of the ZPD reflect some of the fundamental principles of the pedagogical methods that came to be known as *dynamic assessment* (DA) in the West (Lidz & Gindis, 2003). Sternberg and Grigorenko (2002) point out that DA was the only acceptable method of assessment in those years in the Soviet countries, as standardized testing was illegal, beginning in 1936. Luria was one of the leading researchers in the theoretical development of DA in the Russian context which—unlike the West, which focused on cognitive factors—emphasized the components of emotion and motivation in their research (Lidz & Gindis, 2003).

Americans who have been influenced by Lyria's work in DA include Milton Budoff and his colleagues, Carlson & Weidl (1992, cited in Miller, 2011), and Poehner (2008). The DA approach uses the concept of the ZPD to insist that that the student receives assistance *during* assessment to promote learner development. A separate, but related strand of research that claims to have been developed independently of Vygotsky's work is that of Feuerstein and his associates (Feuerstein, Falik, Rand, & Feuerstein, 2003, cited in Miller, 2011)—research which may best reflect Vygotsky's ideas of mediation by psychological tools (Miller, 2011). Feuerstein developed a theory known as *mediated learning experience* (MLE) which used a set of assessment tests to focus on the assessment of the learning potentials of culturally deprived students and active intervention by the test administrator.

Piotr Gal'perin and systemic-theoretical instruction. Haenen (1996) suggests that the first stage of Vygotsky's cultural-historical theory was developed, up until 1930, as a joint endeavor between Vygotsky, Luria, and Leont'ev. In 1930, both the pressures of remaining close to the center of the Soviet government's scrutiny and Leont'ev's invitation to head the Khar'kov school of Russian psychology encouraged Leont'ev, Luria, and other colleagues of Vygotsky, including Piotr Gal'perin, to move from Moscow to Kharkov, a city in Ukraine which was also its capitol at the time. The moves also represented a separation in the distinctive research strands that emerged over the following years. Vygotsky maintained a strong influence on the Khar'kov school and often traveled there, but Leont'ev soon developed a clear separation from Vygotsky's views on the medium of the development of inner psychological function in his hypothesis that a child's *activity,* rather than word meanings, becomes mediated into

individual consciousness. Luria remained closer to Vygotsky's theories (Haenen, 1996), and founded the new field of Soviet neuropsychology. Gal'perin (1902-1988), the last of the Soviet psychologists who were former colleagues of Vygotsky, operationalized many of Vygotsky's concepts—such as psychological tools, mediation, and internalization—into a new instructional framework that generates cognitive development. In Lantolf's (2011) view, most of the impact on educational theory that has been generated from Vygotskian theory—especially that related to L2 pedagogy—has been derived from Gal'perin's work.

It is commonly known that Gal'perin "tended to operate somewhat in isolation from other Vygotsky followers such as A. N. Leont'ev and A. R. Luria" (Wertsch, 2000, p. 104). A general observation that summarizes the distinctiveness of Gal'perin's theory is Haenen's (1996) statement that Gal'perin considered both Leont'ev's activity theory and Vygotsky's cultural-historical theory as "too broad and too all-embracing" (p. 83). Arguing from Vygotsky's theory that the origins of consciousness were external, Gal'perin (1965) maintained that Vygotsky's theory was "unfinished" (p. 4) in that it did not provide or analyze any processes of internalization. In regard to activity theory, Gal'perin (1986) refused to accept activity itself as the unit of consciousness, but placed his emphasis on the *personal experience of the actor* in the context of activity—or *"personalized activity"* as it may be used in an English equivalent (Haenen, 1996).

Leont'ev hoped to be the "legitimate heir" of the Vygotsky tradition (Miller, 2011, p. 41), but he parted company with his mentor in his all-embracing doctrine of *activity* as the dominating principle as well as the subject of psychological theory—a problem in itself, according to Kozulin (1986, cited in Miller, 2011). Support for

Leont'ev's theory is widespread, including that of American Vygotskian theorist Michael Cole (1996) in his cultural-historical activity theory (CHAT) and James Wertch (1991, 1998). Yet, according to Miller (2011), in spite of the fact that "given that Vygotsky deals extensively with the difference between material tools and signs, or what he calls 'psychological tools,' it is odd that Cole and Wertsch appear to gloss over their differences with Vygotsky in this regard" (p. 21). Vygotsky recognized that material tools (hammers, saws, graphs, charts) are quite different from signs (psychological tools), even though both are involved in mediation. External activity is limited to its relationship to an object. However, "activity, by changing the environment, also forces the active subject to change" (Gal'perin, 1992, p. 39). Thus, the medium of transformation of human consciousness is not the activity itself, but the transformation of the actor in the context of this internalization process. Vygotsky (1978) noted:

> The search for method becomes one of the most important problems of the entire enterprise of understanding the uniquely human forms of psychological activity. In this case the method is simultaneously prerequisite and product, the tool and the result of the study. (p. 65)

Newman and Holzman (1993) make a distinction between what they label Vygotsky's "tools *for* results [italics added]" (p. 88) and "tools-*and*-results [italics added]" (p. 88) concepts. Human tools (like hammers and saws) are designed to be functional and to produce results. Other tools, like graphs, concepts, and formulas, carry meaning and can be internalized. The tools which Vygotsky was referring to, as "simultaneously prerequisite and product," or "tools-*and*-results [italics added]" (p. 88) must refer only to concepts that we both think through and which at the same time become the content of

thinking and a part of self-identity. This distinction is critical to understanding the process of L2 development from an SCT perspective.

Gal'perin recognized two main components in the processes of mental development: *images* (perceptions, concepts, images, and representations) and *modes* (ways of handling these mental images, or thinking) (Galperin, 1957). Gal'perin did not isolate these two components, but recognized that mental actions are abbreviated forms of real-world activity that go through a process of transformation and that once transformed, they form mental images and concepts.

Gal'perin's SCT theory focuses on the role he established for the orientation of the learner and how material objects are to be used. It was his intention that in instruction, "students are always fully in the picture as to the distinctive features of the learning task" (Haenen, 2000, p. 95) and to give students "qualitative new tools to deal conceptually with a wide range of objects and phenomena extending far beyond the immediately studied area" (Arievitch & Stetsenko, 2000). Gal'perin (1957, 1969, 1992c) identified six stages in the learning process, each stage being guided by the parameters of generalization, abbreviation, and mastery, conveniently summarized by Haenen (1996):

1) Motivational stage: preliminary introduction to the learner of the action and mobilization of the learning motive;
2) Orienting stage: construction of the orienting basis of the action;
3) Material(ized) stage: mastering the action using material or materialized objects;
4) Stage of overt speech: mastering the action at the level of overt speech;

5) Stage of covert speech: mastering the action at the level of 'speaking' to oneself (covert speech);

6) Mental stage: transferring the action to the mental level. (p. 133)

Other educational theorists and practitioners have crafted a few different variations of these steps in their applications of Gal'perin's approach. Haenen, Schrijnemakers, and Stufkens (2003), for example, use the steps of a) orientation to the task, b) use of models, and c) educational dialog, in developing classroom lessons to teach historical concepts. Negueruela's (2003) application of Gal'perin's approach for teaching Spanish verbal mood was guided by four of Gal'perin's principles, which Negueruela (2008) summarizes:

1) Concepts form the minimal unit of instruction in the L2 classroom;
2) Concepts must be materialized as didactic tools that can be assigned psychological status;
3) Concepts must be verbalized: speaking to oneself utilizing concepts as tools for understanding to explain the deployment of meaning in communication; and
4) Categories of meaning must be connected to other categories of meaning, that is, a curricular articulation of categories of meaning. (p. 203)

Gal'perin's steps should only be considered as a blueprint, or outline of his approach, for eventually, even he abandoned the necessity of a strict sequence of steps to favor the primary elements of the learning process, although he recommended that a teacher have a minimal sequence in mind (Haenen, 2001). Three emphases from

Gal'perin's STI approach that that seem to encapsulate Gal'perin's approach will be reviewed here: a) concept orientation, b) concept materialization, and c) concept internalization—a stage that involves the sub phases of both overt verbalization and covert verbalization.

Gal'perin's explicit orientation to concepts. Acknowledging that Vygotsky had taken the first steps to develop a psychological theory of consciousness, Gal'perin felt that the next step could be found from a functionalist standpoint if the question were asked, "Why do we need mental activity in daily life?" (Gal'perin, 1965, cited in Haenen, 1996, p. 81)—theorizing that *function* could inform the educational processes of teaching and learning. His conclusion was that the basic function of the mind is its function of orientation toward future actions that will guide the individual in new situations. "An action is a process, and a concept is something static . . . that guides the subject in carrying out an action; it is the component of the orienting part of that action" (Gal'perin, 1989b, p. 66). Gal'perin argued that if the cornerstone of both educational purpose and life is *action,* then the formation of the underlying concepts of such actions is a "key *psychological* problem of learning" (Gal'perin, 1989b, p. 66). With similarity to Ausubel's (1960) theory of advance organizers, Gal'perin recognized the need to draw the learner's attention to the end goal of a unit of instruction, which would then aid the learner's motivation and provide cognitive and affective support. Of interest to this study, it appears that Gal'perin's theory leads toward two distinct implications for second language learning and instruction.

One of these implications applies to the nature of word meaning and its linguistic and conceptual mapping in L2 learners. Of Weinreich's (1968) model of bilingualism

(mapping of an L2 lexeme to an L1 lexeme, an L2 lexeme to an L1 concept, or an L2 lexeme to an L2 concept), Grabois (1999) posits that Vygotsky did not develop this final possibility—a position with which this researcher argues to be one place in which Gal'perin's theory has theoretically extended Vygotsky's work. (Of course, this is not to deny Vygotsky's theory of scientific concepts—a kind of explicit knowledge—nor his view of the fundamental importance of conceptual word meanings.) Gal'perin (1992a) insisted that "the first stage of learning to speak a foreign language becomes 'reconceptualization' of an intention in consciousness, a question of how that intention will look from the standpoint of people speaking the language of the intended message" (pp. 91-92), supporting the concept of L2 lexeme to L2 concept mapping.

A second key implication from Gal'perin's systematic theoretical instruction (STI), alternatively labeled *concept-based instruction* (Lantolf, 2011), is that the content of learning must be presented as a meaningful whole from the very beginning of the learning process. It is assumed that the result of this approach will increase motivational and affective factors as well as cognitive awareness throughout the instruction and learning. If the student can capture the *end goal* (the concept) from the very beginning and be guided toward that goal throughout the learning process in a logical, systematic way, much of the inherent limitations of the trial and error methods of teaching can be eliminated, Gal'perin (1989b) theorized. Gal'perin (1992a) illustrated his theory with the process of second language acquisition.

The objective foundation of second language acquisition, according to Gal'perin (1992a), demands that a careful distinction be made between *cognitive consciousness* and *linguistic consciousness*—which he posited to be two separate systems. While the former

determines veracity (truthfulness), acts systematically upon things, is not bounded by immediate needs, and is open to modification through practice and evolves when new facts emerge, etc., the role of linguistic consciousness is much different. Linguistic consciousness is an *organizer* which mediates between a linguistic sign and an object in order to create a definite meaning and allows the individual to perform an action in a certain way. The fundamental characteristic of linguistic consciousness, then, is not a real-world reflection of reality, but a means—or a set of means—of communication so that in a given social setting, appropriate action or behavior will be the result.

"Linguistic consciousness of every lexical and, especially, grammatical category is the sum of all the meanings of all the forms of that category," argued Gal'perin (1992a, p. 85). The properties of linguistic meanings "are organically fused with characteristics on a totally different level, the level of social relations" (p. 85). Systemic-theoretical instruction, according to Gal'perin, is instruction with the goal of blending a student's cognitive processes with "a clear identification of linguistic consciousness, a picture of all the meanings of each linguistic category is required" (p. 86). Orientation, according to Gal'perin, is the key to all human action, which then determines its quality.

Gal'perin's materialization of concepts. To guide a learner toward the attainment of a conceptually based learning goal, Gal'perin (1989b) introduced the term OBA (orienting basis of an action), which is the complete set of elements that a learner needs to be guided in an action. In addition to the OBA, Gal'perin (1989b) coined a second term, the SOA (schema for the orientating basis of action), or SCOBA, as it is often called, which is a *systematic* presentation of all the necessary information that a student needed to guide an action—a virtual cognitive map, an explicit "solution tree" (p. 75)

containing levels of a family of related concepts, together with the "tools of the action" (p. 69)—the specific properties of the variants of a concept—as well as an "algorithm" that provides general delimiting factors for each section of the SCOBA.

The psychological reasoning for such a learning approach is that the presentation of large concepts, being reduced into a format of logical choices, will increase learning efficiency by eliminating a great deal of memorization, eliminate frustration that is inherent in the trial-and-error learning method, and open the door for the student to assimilate entire concepts. The schemas can be in the form of an algorithm with massive amounts of information to guide the student, but rather intimidating flow charts or diagrams for adults, or they can be minimal visual sketches which SCI researchers have also found were understood better than the presentation of mere verbal concepts (Karpay, 1974; Talzinia, 1981). Teachers of young children implicitly recognize the value of teaching with visuals, but the STI researcher Talzinia (1981) found that some materialization was necessary when adults were presented with new concepts to be learned, as well.

Gal'perin's internalization of concepts. While Gal'perin's SCOBA is an external model, it becomes an internal OBA—the *reflection* of the SCOBA that becomes "a true psychological mechanism of knowledge and abilities . . . (to) ensure the cultivation of such desired properties as rationality, generalization, consciousness, ease of execution in different forms, etc." (Gal'perin, 1989b, p. 81) when it is internalized. After an action has been concretely and creatively materialized with the use of some appropriate means (drawings, diagrams or flow charts, for example, for adults, and other creative tools, it is necessary to move the action and the representation of the materialized object to a verbal

representation in overt speech. The stage of overt speech, while not representing a mental action, is a transition stage that does represent a transposition of the action from a materialized form into speech. At this point, obvious advantages are that tasks that are not possible to be materialized can now be introduced, and a learner's execution of a task is made comprehensible to both the learner and others. The communicative nature of this stage allows the learner to act according to social expectations related to the task and allows a teacher to ensure that the speech represents curriculum disciplinary knowledge. This aligns with Vygotsky's argument that social speech is necessary for the development of not only social activity, but that it also mediates mental thought processes and behavior.

Moving from materialization to overt speech requires that actions become generalized as they are replaced with words and become abstract. Since full mastery of the actions has not yet been obtained, conscious elaboration of the actions are still necessary as learning tasks are introduced to reinforce the generalizations and provide a reliable platform for the stages to follow.

In the second stage of internalization, the learner is asked to engage in self-talk, whispering or speaking to himself rather than speaking aloud. Vocate (1994) argued that while in social speech, communication is between "I" and "you," but as communication moves toward an internal, psychological domain, the focus shifts to "I" and "me," with the former guiding attention, decision-making, and choices, while the latter, the "me," performs such roles as evaluation, monitoring, and interpretation in private, psychological communication—performing much of the same role as the "you," or others, in social communication. Gal'perin (1989a) noted that although the transition

from covert speech to overt speech may be "entirely, or almost entirely, unnoticed" (p. 53), it represents a significant stage in that whereas external speech is primarily a means of communication, overt speech is primarily an instrument of thought—"part of the process of thinking" (p. 53). In the beginning of overt speech, speech will remain the carrier of the action and its related objects. As the action becomes more automatic and habitual, it becomes more abbreviated. Finally, Gal'perin's (1989a) final stage is "no more and no less inner speech . . . about which the subject might say, 'I just know that's how it is already'" (p. 54)—a process in which verbal activity becomes automatic and leaves consciousness, so that what appears in consciousness is only the essential, non-psychological object content of an action.

The Best of Both Worlds: An Instructional Approach That Combines Elements of Cognitive Linguistics and Socio-Cultural Theory

Cognitive linguistics for second language acquisition pedagogy. It has been observed that cognitive linguistics, in spite of its claim of being a user-based approach, is "often heavy on theory and surprisingly light on method" (Kristiansen & Dirven, 2008, p. 7). There is reason for optimism, however, for great advances have been made in the field since Wierzbicka (1988, cited in Kristiansen & Dirven, 2008) noted that "the non-arbitrariness of grammar . . . is becoming one of the dominant characteristic features of linguistics in the last quarter of the twentieth century" (p. 491). Cognitive linguistics stoutly claims that all structures of grammar reflect semantic value, even if "grammatical meanings are generally more abstract than lexical meanings" (Langacker, 2008, p. 8). Words are viewed only as prompts for conceptual meaning construction that is created through the use of a wide range of mental resources. "An appreciation of the richness and

flexibility of these resources would seem essential for effective language instruction, especially at advanced levels" (p. 14).

Consequently, Langacker (2008) maintains that "the first order of business in analyzing grammar is to ascertain the meanings of grammatical structures and the elements invoked to describe them" (p. 15). As many grammatical structures (such as prepositions, the focus of this study), are generally polysemous, this task is not an easy one. Meanings are often abstract and frequently reside in mental conceptualizations of life that are far removed from direct correspondences to the physical world itself. However, broad generalizations in schemas ("an abstract characterization that is fully compatible with all the members of the category it defines" (Langacker, 1987, p. 371)) and prototypes (the primary or typical category representations) make the task approachable for pedagogic application.

Pedagogical grammar for language learners must maintain a focus on learner difficulties. The approach of the *contrastive language hypothesis* was to posit that language structures that were non-isomorphic with the L1 would identify ideal L2 learning targets. The approach resulted in pedagogical prescriptions of rules for L2 learners (Richards, 1972), limiting its success. The approach of CL, in contrast, targets conceptual categories of *meaning* rather the formal linguistic elements (Taylor, 2008).

The goal of CL is to reduce the perceived arbitrariness of the L2 by informing L2 learners of conceptual categories and explaining why a particular language element belongs in the category or is associated with it (Taylor, 2008). The task of finding and applying "descriptively adequate, intuitively acceptable, and easily accessible formulations of these meanings" (p. 58) is difficult. My assumption is that L2 learners

should be encouraged to learn the most frequent generalizations of grammar structures for the most productive and quickest development of language use and fluency.

Further, it is widely assumed that conceptualizations of language contain a naturalness that is widely appreciated , a part of L1 language learning, and easily learned by speakers of all languages, derived from concept formation processes that are posited to be universal (Langacker, 2008; Taylor, 2008). The naturalness in the acquisition of conceptualizations of language is supported by an underlying "dialectic of convention and motivation," asserts Taylor (1995). The conventions of semantic categories will force language development to follow natural principles of language development while a speaker's creative, metaphoric extension of language, created by a motivation for meaning, "may be seen as a regression to an earlier stage of language development, where word meanings are fluid, and subject to uninhibited and idiosyncratic extensions in all directions" (p. 255). I certainly agree with Langacker who views these conceptualizations as "being useful in language learning, especially at the more advanced levels" (p. 29), and argue that this dialectical process that is involved is a crucial element of language learning.

Sociocultural theory for second language acquisition pedagogy. Lantolf & Poehner (2014), who have worked extensively with the implications and theory of SCT, state that SCT is:

> a theory that explains human psychology, including L2 development, as a dialectical unity of a biologically endowed brain functioning with socially generated forms of mediation that give rise to what Vygotsky called 'higher'

> forms of thinking where humans deploy mediation appropriated through social activity to control (i.e., regulate) their mental functions. (p. 7)

Vygotsky drew support for his theories on the development of human consciousness from Marxian dialectical materialism, but recognized that dialectics in the domain of human consciousness operated on different principles than those at work in the physical and social worlds. Vygotsky used the work of many other scholars to help formulate his theory that the dialectics of historical movement guides development in an uneven pattern.

Vygotsky (1986) posited that egocentric (private) speech originates from external (social) speech, and that the movement of external speech to inner speech will result in the expression of egocentric, or private form of speech. Thus, it is important to recognize the dialogical nature of private speech, which Vygotsky summarily defined as "inner speech in its psychological function and external speech physiologically" (Wertsch, 1985, p. 111). It is equally important that the relation between dialectics and dialogue be established in regard to these processes in mediation.

Private speech has a dialogical character and is related to dialectic, though neither dialogue nor dialectic can be reduced into the other (Nikulin, 2010). One might say that dialectic is *birthed* "out of the spirit of dialogue" (p. ix). Dialogue, which is essentially live conversation, is spontaneous and an inherent part of being human, but it *"neither imitates nor produces anything"* of itself, rather allowing "interlocutors to be in communication with each other" (p. x). The purpose of dialogue "is to continue the activity of conversation and (well)-being with the other" (p. x). While dialogue may appear to be incomplete and open-ended, it *is* complete and meaningful because it is

inherently a *human* activity. On the other hand, dialectic seeks to leave the uncertainty of dialogue to chart a course toward that which purports itself to be a proof or argument that is the *result* of the dialogical deliberation, assuming that the initial starting points are correct and rules of logic have been faithfully followed.

Nicolin (2010) identifies four features of conversation and dialogue:

> To be in conversation means to be with the other . . . even if the other is physically absent. . . . (2) reaching out for the other—answering the other and responding . . . (3) the meaning of the subject being debated has not yet been fully extinguished . . . (and) (4) there is no method that can instruct the interlocutors which question to ask as a given moment. (p. 73)

Wertsch (1985) summarizes the dialogical nature of private speech in Vygotsky's writings:

> (1) Egocentric (private) and inner speech function to control and regulate human activity.
>
> (2) A genetic analysis of semiotic regulation must begin with social speech. It cannot begin with . . . egocentric (private) and inner speech.
>
> (3) Intrapsychological forms of verbal regulation reflect the structural and functional properties (such as dialogicity) of their interpsychological precursor.
>
> (4) Contra Piaget, egocentric (private) speech does not simply reflect egocentric thinking; rather, it plays an important role in the planning and regulation of action. (p. 127)

Self-regulation and planning encompass many roles in higher mental development processes such as focus of attention, error correction, pre-activity mental rehearsing, and organizing and clarification of thought. J. Lee (2006) summarized the self-regulatory functions of private speech:

> (1) establishing meanings to the self (Kohlberg, Yaeger, & Hiertholm,1968),
>
> (2) memorizing (de Guerrero, 1994; Fuson, 1979; Saville-Troike, 1988),
>
> (3) monitoring and planning one's own activity (Frawley & Lantolf, 1986; Vygotsky, 1986), and
>
> (4) expressing feelings (Frawley & Lantolf, 1986; Vygotsky, 1986). (p. 92)

Vygotsky's concept of internalization proposed that a *dialectical* unity is formed between external activity and the development of higher mental functions. Social communication, *inter*personal communication, becomes transformative process as it moves inward to become a means for human self-regulation. Interpersonal communication takes on *intra*personal forms of private and inner speech as they become entwined with personal motives, goals, and actions.

Imitation of others, of course, is a key process in this transformation, and cannot be overlooked in pedagogy for second language learners. According to Vygotsky (1998),

> It is always important to ascertain not only the child's mature processes but also those that are maturing. . . . We can solve this problem by determining what the child is capable of in intellectual imitation . . . The area of immature, but maturing processes makes up the child's zone of proximal development. (p. 202)

An initial use of imitation in our study will be to provide a theoretical access to a student's zone of proximal development (ZPD).

As fleshed out by Hegel, dialectic challenges the one-sidedness of normal human understanding (which tends to reject opposites) by appealing to reason that is capable of conceiving a unity between two opposites (Nikolin, 2010). From the standpoint of sociocultural theory that insists that inner speech is derived from external sources, it must be assumed that semantic organization is strongly related to cultural influences. It follows that the inner speech of second language learners must be challenged with the dialectic force of new L2 conceptual categories and the L2 approaches toward the negotiation of meaning as new linguistic tools come into use (Grabois, 1999). To make use of a dialectic concept in the sociocultural context, our pedagogical strategy for teaching and learning prepositions in the ESL advanced classroom will use prepositions with opposite or related meanings, as much as possible.

Gal'perin's (1989b) steps of concept development as they are summarized by Negueruela (2008) will be guiding points for the pedagogic plan of this research: 1) concept orientation, 2) concept materialization, and 3) concept internalization through both overt and covert verbalization. The study of concept formation as it relates to category development has been well-researched in learning theory. Joyce, Weil, & Calhoun (2000) identify the features of all concepts: name, examples (both positive and negative), attributes, and a provisional definition. Students will be oriented to the concept with diagrams, sketched images, and examples, and then practice the concept categories with the learning aids in the *materialization* step that includes executing "the action verbally so that it is comprehensible not only to himself by to others as well" (Gal'perin, 1969, p. 260). Following this, students are then encouraged to carry out the action by speaking the action *to themselves* alone. The purpose of the covert speech act is to move

away from the external learning aids to an internal, consciously controlled plane, and finally to a situation in which "the material audiomotor component departs from consciousness" (p. 264) altogether.

Blending two approaches. From cognitive linguistics, the current research study will draw upon the descriptive analysis of conceptual categories and the use of prototypes and schemas in language description. Cognitive linguistics brings organization to meaning in culturally-acceptable ways and through conceptual metaphors (Lantolf & Thorne, 2006) to the forefront of language learning. Yet, without a clear theory of learning and with various methods of presenting conceptual ideas to learners, some of the studies in applied CL have produced uneven results (Lantolf & Poener, 2014, Tyler, 2012). Sociocultural theory does provide a clear path of developmental education, positing that higher mental functions are developed through dialectic mediation and internalization of interpersonal and intrapersonal communication. Both of these approaches posit that language development is dependent upon dialectic processes of mediated internalization—a fundamental assumption of this study.

Summary of the Chapter

The purpose of chapter is to establish cognitive linguistics and sociocultural theory as bold frameworks from which new applications of pedagogy for second language learning can be effectively built. From their initial motivations, these approaches are traced through their historical processes of development in interaction with other key influences. These theories have slowly been adapted and applied in second language classrooms, and in several situations, have been blended together for effective language learning classroom approaches.

Chapter Three

A Review of Related Literature

A review of the literature regarding the lexical, syntactic, and morphological errors in the ESL advanced classroom is presented in this chapter, followed by a review of specific studies regarding the teaching and learning of prepositions from both the perspectives of cognitive linguistics and sociocultural theory in second language acquisition contexts. Finally, a short review is provided of a recent study that attempted to include elements of both the theoretical perspectives of cognitive linguistics and sociocultural theory in an ESL classroom.

An Overview of Research on L2 Lexical, Syntactic, and Morphological Errors of Advanced ESL Learners

There has been some research that has focused on the lexical, syntactic, and morphological errors of advanced ESL learners. Bardovi-Harlig & Bofman (1989) studied college admission essays of 30 NNSs (non-native speakers) with TOEFL scores averaging 550, and concluded that there was a developmental stage that was characterized with a high level of accuracy in syntax, but with weak accuracy in morphology—a conclusion that was also reached in an earlier study by Newport, Gleitman, and Gleitman (1977). Master (1995) found that explicit instruction on the use of the English article *the* to a group ESL grad students improved TOEFL scores, but found no relationship between the students' TOEFL scores and their *types* of errors—a reminder that the relationship between proficiency and writing accuracy is quite complex. Additional research has focused on writing revision and writing processes. In her study of NNS university writers who had passed freshman composition, Zamel (1983) noticed that while the more skilled writers more frequently used larger word chunks, even after

editing, there continued to be problems with such things as “articles, agreement, and usage” (p. 175). These studies add support to a pattern of continued problems with lexical, syntactic, and morphological errors in advanced L2 writing.

More specifically toward the interests of the current research, Meziani (1984) concluded that L2 writer errors involving the use of *prepositions* were some of the most frequent types of lexical-grammatical errors. More recently, several others (Lindstromberg, 2010; Rudzka-Ostyn, 2003; Tyler & Evans, 2003) have applied prototype semantics to the analysis of preposition meanings, arguing that second language acquisition English teaching methods that ignore or treat the wide range of both spatial and non-spatial associated meanings with each preposition as exceptions are simply unsatisfactory, and lead to predictable errors and frustration for language learning.

Research has pointed out that L2 writers use a lower number of prepositions, by percentage, than L1 writers (Reid, 1992). Yet, not surprisingly, as the *level* of L2 writer’s writing abilities increases, the number of prepositions *used* by the students also increases (Grant & Ginther, 2000). Ferris (1994) saw a positive correlation between the number of prepositions used in L2 writing with holistic scores of the students’ writing samples—an assumption that is included in the current research.

Second language acquisition language instruction and assessment as well as research in the field that is based on open-ended elicitation data has tended to focus more on accuracy than on the totality of productive uses of language forms (De Jong, 2005). The argument of this research is that both accuracy and measurement of the totality of productive use best reflect an accurate portrayal of second language acquisition gain and development.

A Review of Cognitive Approaches in Second Language Acquisition Teaching and Learning of Prepositions

The interest in cognitive linguistics has spawned a few studies in recent years that attempted to incorporate the distinctive tenets of cognitive linguistics to the teaching and learning of English prepositions in the second language acquisition classroom.

Davy (2000). As late as her study in 2000, Davy noted that the acquisitions of prepositions in second language acquisition remained a "relatively unexplored area" (p. 56). Using approaches from cognitive linguistic theory, Davy conducted a series of experiments attempting to determine the extent of L1 lexical-semantic transfer and prototypical effects in the usage of the prepositions *in, on,* and *at.* The experiment of our interest, Experiment 1, analyzed the usage of four types degrees of prototypicality in the prepositions of the study which she labeled *core exemplars, close exemplars, extensions, and metaphors* among both high and low levels of Japanese ESL undergraduates.

Davy (2000) found the highest correct preposition usage in *both* ESL levels in the categories of *core exemplars* (the highest) and *extensions* (the second highest), and greater usage errors with *close exemplars* and *metaphors* (p. 189). These results led Davy to conclude that while prototypicality effects do appear to aid the acquisition of prepositions, consistent error patterns across levels and especially out of the expected second language acquisition sequence pattern (one would expect *close exemplars* to be a close second highest result) argue against prototypicality as the sole factor in L2 acquisition. Davy's study was not the result of a classroom teaching method and she recognizes that her conclusions may have greater theoretical value than immediate benefits for pedagogy, but her experiments based on cognitive linguistic theory do provide support for pedagogic approaches. Summarily, she suggests that successful

second language acquisition approaches to the teaching and learning of prepositions may require L1 concept restructuring, more attention to "the significance of general meaning a speech community has assigned to a lexical item" (p. 226), and "mastery of the varied array of uses of locatives which lie *between* [italics added] core exemplar and metaphor" (p. 228).

Tyler, Mueller, & Ho (2011). A more recent article entitled *Applying Cognitive Linguistics to Learning the Semantics of English to, for and at: An Experimental Investigation* (Tyler et al., 2011) illustrates both recent and current interest in the topic of this dissertation as well as the need for additional research in this field of inquiry. Tyler co-authored an earlier significant work, *The Semantics of English Prepositions* (Tyler & Evans, 2003), which argued that prepositions, in general, have origins in human spatial perceptions of relationships that exist between two entities. From a cognitive linguistic theoretical framework, the authors claim that the primary, central, unique, spatial meaning of each English preposition forms the basis of an elaborate network of contextual and metaphorical meanings. Tyler & Evans (2003) illustrate their concept with the preposition *over*—first identifying a unique *proto-scene,* and then discussing the extended network of *over*'s 15 distinct meanings. Fortunately, some of the identified meanings can be related into *clusters* of related meanings! Recognizing that "few empirical studies that attempt to demonstrate the effectiveness of a CL-based approach to L2 pedagogy have been undertaken" and that "carrying experimental investigations strikes us as crucial step in moving the field of Applied Cognitive Linguistics forward," (Tyler et al., 2011, p. 196), the purpose of this later article was to report on an

experimental study of application of the principles and perspectives of the earlier work to a small group of advanced second language acquisition English learners.

Tyler et al. (2011) relate the work of Gestalt psychologists to their contention that, as noted above, spatial relationships are primary in the human perceptual system, and cognitive mechanisms use the language of prepositions to describe these structures of human experience. "All English prepositions have developed complicated polysemy networks in which many of the meanings are non-spatial" (p. 184), the authors maintain, and they further hypothesize "that representing the many meanings associated with a preposition as a systematic network, whose principles of semantic extension draw on salient human experiences with the physical world, has the potential to provide a useful rubric for aiding L2 learners in mastering the semantic complexities of prepositions" (p. 184).

Tyler et al. (2011) briefly identify four principles that apply to the extended meanings (meanings which have moved from the original spatial meanings) of prepositions. First, the use of an extended meaning of a preposition, it is theorized, would only be used if the speaker (writer) believed the receiver could reasonably interpret such a meaning from context. The principle would infer that preposition meanings, while originally spatial, developed as they were derived from context to form additional independent meanings that eventually seemed far removed from their origin. Secondly, spatial scenes are viewed from particular places, and the speaker (writer) usually is describing something at some point removed from the action. The speaker (writer) can *move* during the description or emphasize certain parts of a scene, but each such shift of perspective will result in a new *sense* for the description. A third principle of meaning

extension common to prepositions is the use of the universal cognitive process of metaphorical thinking. Cognitive linguists have long theorized that humans often use metaphoric references of their physical world to talk about inner emotions, states, and experiences (Lakoff & Johnson, 1980; Lakoff, 1987; Grady, 1999). For example, *warm, emotional attachment* is commonly referred to with a metaphor of distance in the physical world, as in the expression *He and I are close.* Fourthly, the principle of real-world dynamics recognizes that speakers (writers) who conceptualize elements in space or in movement along a path will assume that natural forces, such as gravity and kinetic energy, will act upon the given elements.

The study of Tyler et al. (2011) was conducted with fourteen professional English translators whose L1 was Italian and who were students in a short term English learning program in the U.S. All participants were regarded as advanced learners, having studied English for at least 10 years. Even so, the learners noted the difficulty of learning English prepositions, especially the task of memorizing multiple meanings in collocations that they often confused. The *with-in subjects* treatment plan was devised, which included 1) a pretest on Day 1, 2) a 50-minute instruction on the preposition *to* on Day 2, followed by an additional 30 minutes of paired-student classwork, and 3) a 50-minute instruction on the prepositions *for* and *at* on Day 3, followed by 30 minutes of paired classwork and a posttest. Two tests of similar design were used as both the pretest and the posttest, and the students who used one as the pretest used the alternate version for the posttest. The test was constructed with short paragraphs or dialogs with missing prepositions. Native English speakers were used in pilot drafts of the test, to assure the researchers that only one preposition was appropriate for each of the 60 test items. Students were asked to

select from a list of possible choices for each of the missing items, which included 20 filler items which were not used in the calculations.

The study reported significant gains between pretest and the immediate posttest scores and can be viewed as "a hopeful first step in experimentally investigating the usefulness of a CL-based approach to teaching the semantics of English prepositions" (Tyler et al., 2011, p. 201). Yet, as the authors readily admit, the lack of a control group in the study limits the conclusions that can be made regarding the relative effectiveness of a CL approach. Additionally, the study of Tyler et al. (2011) makes use of professional translators as the subjects of the study—advanced English learners who do not represent the typical second language acquisition undergraduate student.

In contrast to the Tyler et al. (2011), the current research uses a *between-subjects* design between a control group and an experimental group to form the basis for quantitative measurement, which includes a pretest and an immediate posttest. In addition, the prepositions chosen for the current research, *in, on, from,* and *of,* are different from those of Tyler et al. (2011)—a study which focused on *spatial particles of orientation.* The current research focuses on *bounded landmark* prepositions (a conceptual category as identified in Tyler & Evans, 2003). Finally, in contrast to Tyler et al. (2011), the current study will use undergrads who are developing their ESL skills in preparation for academic work in a university.

Matula (2007). The Matula (2007) study, an earlier study than the Tyler et al. (2011) study, is reviewed in this order, as Matula, a student and advisee of co-author Andrea Tyler of the Tyler et al. study, based her dissertation on Tyler & Evans' (2003) polysemic framework of distinct meanings that can be derived from a single word form.

Fundamentally, prepositions express a relationship between two entities (Quirk, Greenbaum, Leech, & Svartvik, 1985)—a relationship that is interactive between a *trajector* (TM, a moving entity) and a *landmark* (LM, a stationary entity). Tyler & Evans (2003) posit that a *functional* element that reflects this inherent interaction, like any linguistic form, "is paired at the conceptual level, not with a single meaning, but rather with a network of distinct but related meanings . . . (although) some uses are created on-line in the course of regular interpretation of utterances" (p. 7). These constructed uses are formed through inference strategies such as *best fit* (a speaker chooses the best word to express a conceptual relation and meet a communicative need), *real-world dynamics* (forces such as gravity apply to human conceptualizations of spatial structures), and *topological extensions* (conceptions of spatial relationships "involve relativistic relationships rather than absolutely fixed quantities" (Talmy, 2000, p. 170)).

The work of Tyler & Evans (2003) was the first major work to assert that prepositions have one *proto-sense* (the primary sense of the semantic network of a preposition) and that analysis does not require multiple *proto-senses.* The *spatio-configural* relationship and *functional* aspect that is shared between the TM and the LM is simply reflected in multiple senses through inference strategies. Each preposition only has one functional element, according to Tyler & Evans (2003), but multiple *consequences* of meaning that may be derived. This view of Tyler & Evans (2003) was adopted for the research of Matula (2007) and will be a foundational assumption of the current research. The pedagogical implication of this premise, of course, is that the second language acquisition instructor must teach full explanations of the different domains of a preposition's consequences.

Tyler & Evans (2003) illustrate the spatial relations of the primary sense and functional element of a proto-scene expressed by a preposition with a simple diagram. While the use of simple images to illustrate the relationships and functional qualities of prepositions has been criticized as "doomed to represent properties that are irrelevant for the relationship" (Vandeloise, 2003, p. 409), they nonetheless appear to have immense benefit to the second language acquisition classroom. Matula's (2007) study adopts the use of proto-images to illustrate the functional element and the interaction of the TM and the LM in the relationship expressed by the preposition, and the current research will make use of proto-images as learning tools, as well.

Despite the fact that a number of studies have analyzed the multiple senses of English prepositions from the standpoint of cognitive linguistics (Queller, 2001; Tyler & Evans, 2003), Matula (2007) pointed out that to the date of her work, published research that included the cognitive linguistic perspective—particularly the polysemic networks of prepositional use—for systematic use in the ESL classroom had been nil. However, Matula noted that some of the tenets of cognitive linguistics were making their way into pedagogical grammers (Pütz et al., 2001; Achard & Niemeier, 2004), and since her writing, more interest has developed in the educational implications of cognitive linguistics (De Knop & De Rycker, 2008).

Matula (2007) designed her quasi-experimental study with an instructional plan for both a traditional and a cognitive group to test the effectiveness of using cognitive principles in the teaching of the prepositions *in, on,* and *at.* The intensive English program used in the study served adult students in classes over a 4-week period. The intermediate proficiency level students in each class of 10 students received a total of

4.25 hours of instruction throughout the short term, which included a pre-test and a post-test. A delayed post-test was built into the design, but only about one-half of the students could participate in the delayed posttests which were conducted between 30 and 35 days later, so statistical analysis was not made for significance of this data.

The test materials included the four parts of picture-recognition, fill-in, and two free essay tasks that required the writing of sentences from prompts of a picture of a room and a schedule of events on a calendar. While the first test was designed to test basic preposition comprehension, the latter three tasks elicited written production under the constrained conditions of being asked to use the target prepositions as much as possible. The tests included samples of both spatial and temporal senses of the prepositions, so each use could be analyzed separately. Oral stimulated recall was used after each test with each student, as an additional attempt to discover qualitative insight into the students' processing strategies.

Data from the tests was scored and converted to *T*-scores for both group and individual comparison analysis. For the picture recognition task, both the traditional and the cognitive groups improved in accuracy of overall, spatial, and temporal preposition use, but while statistically significant improvement for the traditional group did not include the temporal proposition group, all 3 groups were statistically significant for the cognitive group. For the fill-in task, both groups increased between the pre-test and the post-test, but while the traditional group gained the greatest increase, neither group had statistically significant differences. The fill-in delayed post-test which was limited by its smaller number of students, however, showed a decrease for the traditional group (from the post-test to the delayed post-test), but an increase for the cognitive group. In the

written production tests which were analyzed to measure the difference between the pre-test and the post-test in prep/T-unit ratio, statistical significance was found for the cognitive group—a group which used a significant greater number of prepositions per T-unit—but not for the traditional group.

Conclusively, Matula's (2007) did not show that a cognitive linguistic approach in the instruction and learning of prepositions yields a clear immediate benefit to the students. There are other considerations that show its positive usefulness, however. The qualitative post-test elicitations revealed that the cognitive group increased their metalinguistic knowledge about the motivations for prepositions, and the limited data on the delayed post-test would suggest that an increase in preposition accuracy for the cognitive group but a decline for the traditional group points to the need for more experimental verification of a hopeful trend. Matula's (2007) cautions that the use of culturally contextual fill-in exercises may represent a student's lack of understanding of a prompt or context more than a lack of understanding of the preposition use—a factor that must be recognized in the preparation or use of this type of test material.

The current research holds some similarity to the Matula (2007) study, but will incorporate key differences. The premise of Tyler & Evans (2007) that each preposition has a single proto-sense and a single primary functional element will be followed in this study. Some of the prepositions in the Matula study, *in* and *on*, will be included in the current study, but an additional preposition, *of,* will be added. Matula's instructional time—including time for assessments—for both a cognitive class and a class that was taught through traditional grammar methods was 4.25 hours, spread out over 15 days; the current study will include 2.25 hours and be conducted over three days (including time

for assessments). Matula's intervention in the cognitive class focused on cognitive theory that underlies preposition use, including pictorial proto-scene representations, spatial encodings, and functional aspects of the targeted prepositions, and made use of popular class activities for preposition learning and assessments such as fill-in tasks, using the targeted prepositions in picture selections, and essay tasks of picture descriptions or with topic prompts. The current study, however, incorporates several elements of STI theory in its design that are not included in the Matula study such as the use of a SCOBA as a guide for choosing between prepositions with its extensive use of image schema to separate meaning categories. In addition, while Matula made use of some classroom visual objects, the current study sharply differs from Matula's study in its clear focus on materialization of the prepositions through clay modeling—a tool of SCT that has been found to be effective in the learning process (Davis, 1997; Serrano-Lopez & Poehner, 2008).

A Review of Sociocultural Approaches in Second Language Acquisition Teaching and Learning

Cognitive linguistics departs from conventional understandings of the nature of language that are typically reflected in descriptive grammars and ESL instructional materials to assert that language must be analyzed and taught to focus on meaning and language use as fundamental to the nature of language. Semantic understanding is aided by identifying roles of human vantage points, embodiment, category formation, metaphor, and other conceptual processes of human cognition. Grammar is treated as conceptually and contextually based rather than contextually independent. While sociocultural theory rejects none of these emphases, it is fundamentally a theory of

language internalization that also requires an explicit, conceptually based approach to language that cognitive linguistics provides.

Following the introduction and early development work of Gal'perin in STI *(systemic-theoretical instruction,* Gal'perin's term for instruction in sociocultural theory), the new approach was widely tested and used in hundreds of classrooms in a variety of subject areas. However, in L2 language learning contexts, only a few studies have appeared in the literature until recent years (Lantolf & Thorne, 2006). Following these earlier studies, Negueruela (2003) attempted to implement Gal'perin's principles of learning in an L2 context at an American university classroom. Negueruela's extensive work, which will be examined in this section, may be considered a turning point in SCT research for FL instruction and ESL pedagogic practices, for several other important contributions to the field have been made in the last decade.

Early studies in systemic-theoretical instruction and applications for L2 learners. Lantolf & Thorne (2006) point to only a few studies in SCI (alternatively, *SCT, sociocultural theory,* the more general term used for this field) that appeared in the literature before Negueruela's (2003) study, noting that they all have the commonality of being "short-term studies that lasted only a few hours" (p. 306).

Carpay (1974). Over a three-hour instructional time frame, Carpay (1974) taught L1 Dutch students the grammatical concept of Russian verbal aspect. A programmed instructional plan was devised and provided to the students, with all needed information and aids. For orientation and materialization support, Dutch explanations and subtitles were used with the visual models and activity-guiding algorithms. Internalization was

encouraged through the use of progressively *less* explicit algorithms through the learning program.

Carpay's (1974) instruction on the targeted grammar concept was carried out on the sentence level, and Carpay noted that no teacher was used "in order to control the variable of 'teacher'" (p. 172). Results for Carpay's study were favorable, as 10 students out of the 12 participating students gained the 80% accuracy threshold. As Negueruela (2003) noted, Carpay's didactic algorithms are an interesting application of teaching grammar, but the current study, like the study of Negueruela, will be conducted in a classroom setting rather than a controlled experimental setting as Carpay's study. Negueruela suggests the possibility that "participants are more likely to do what they are asked to do in experimental circumstances, while students in a classroom environment may not" (p. 136), especially in regards to verbalization procedures.

van Parreren (1975). Van Parreren (1975) reported on a study of SCI principles which was implemented by Gochlerner, a student of Gal'perin. Using procedures similar to those in the Carpay (1974) study, Gochlerner used visual models and algorithms to teach German attributive adjective declensions to Russian children. Gochlerner stressed the use of visual models to supplement blind algorithm learning to reduce 44 paradigm forms into manageable categories, noting that "visualization has the additional advantage of permitting a simultaneous view . . . (and) are less remote from the linguistic reality they picture than were the verbal rules of grammar" (p. 125), providing minimal transition between cognition and activity. The study resulted in fewer errors for the experimental group as well in far less time than that used in the control class. In addition, a highly significant positive difference between knowledge and language use was found

for only the experimental class. Van Parreren noted, however, that Gochlerner's SCI procedure would be too time-consuming for general use in L2 grammar applications, but should be used "only for those grammatical structures which even under optimal teaching conditions do not lead to satisfactory learning results" (p. 130). I argue that the focus of the current research, the learning of select prepositions, falls within this guideline. The current study will include categorizations, as Gochlerner, but will focus more on conceptual sematic analysis of categories and less on the didactic algorithmic distinctions of grammatical forms—largely due to the difference in the grammatical class that will be targeted in this study.

Kabanova (1985). Kabanova (1985) conducted an extensive STI study on German language instruction for Russian students at Moscow State University. Recognizing that a "split between knowledge and action" often exists in language teaching approaches, Kabanova asserted that "success in teaching a foreign language depends on the completeness and quality of language material proposed for study and on the clearly determined methods of cognitive activity with which the student will master the foreign language" (pp. 3-4). In other words, Gal'perin's (1992a) distinction between *cognitive consciousness* (and understanding of the objective world) and *linguistic consciousness* (an understanding of how the objective world is organized in the L2) is fundamental to all language activity. Cognitive consciousness is similar in its objective reality for all people, but linguistic consciousness "is a particular aspect of this reality seen through the interests of speech communication . . . with other people aimed at organizing their behavior" (p. 8). Such reflection must include "peculiarities and aspects common to all languages and the particular linguistic peculiarities of the specific

language" and importantly, be "treated not as a set of unconnected phenomenological details, but as a unified system of meanings" (p. 8) from its deep, conceptual structure to its surface forms.

Kabanova (1985) ascribed a central role for semantics in her understanding of Gal'perin's linguistic consciousness and how it must be applied to L2 learners. Her instructional plan included detailed OBA algorithms and charts and careful description of all internalization steps from overt verbalization to full internalization of the OBA as a psychological base for language construction in the L2. After about 20 hours of instruction, Kabanova claimed that students' who were guided by the Gal'perin's SCI step-by-step method had as good or better translation skills than 3rd course L2 students, although Kabanova did not identify exact proficiency measurements or the procedures used to obtain them.

Oboukhova, Porshnev, Porshneva, & Gaponova (2002). The study by Oboukhova et al. (2002, cited in Lantolf & Thorne, 2006) was a computerized instructional plan. The materialization of the targeted L2 grammar, the French past tense verbal aspect, was accomplished through cartoon animations of a narrative that included conceptual explanations on the screen as well. Students were asked to verbalize their choices of verbs, and as the activity continued, fewer conceptual explanations appeared on the screen until an error occurred, which then caused the explicit explanations to reappear. The activity was repeated until the student no longer needed the support of the explicit support. Results of the study post-test showed that the experimental group performed significantly better than a control group.

The Negueruela (2003) study. Negueruela (2003), who claims to have the first North American study linking SCI to an L2 classroom, argues that the "L2 classroom is a privileged environment for promoting awareness and regulation of what Vygotsky called academic or theoretical concepts that pull up everyday concepts to achieve higher levels of mastery" (p. 50-51). The study attempted to trace the development of theoretical concepts—in their orienting, executive, and genetic formations—of L2 university students who were taking an advanced Spanish course in composition and advanced grammar. In the time constraints of a 16-week semester, Negueruela attempted to apply Gal'perin's principles of a complete orientation to the grammar concept (explicit instruction), materialization of the concept with dialectic activities, and the use of classroom and private verbalization exercises for internalization. The researcher termed his approach "conceptual linguistics . . . (which) attempts to explain language as an object of teaching" (p. 218), focusing of conceptual meaning categories and mediating the invisible relationships between meanings and speakers' intentions. The grammatical concept of choice for the study was Spanish tense, aspect, and mood.

Negueruela (2003) began his orientation of the grammar instruction with a motivating introduction of a new action. Several SCOBAs provided materialization aids—action algorithms that connect L2 forms to meaning—designed to guide the student beyond mechanical form choices to the conceptual meaning that lies behind the forms. Negueruela commented on both the challenge and the pedagogical imperative of developing these materials. Class and homework activities were designed to guide students toward verbalization in the learning process—explaining the grammar choices to partners and to themselves. Since classroom verbalization exercises tended to become

brief and quickly completed, the instructor assigned some verbalization exercises as homework, requiring a taped recording for the instructor.

Negueruela (2003) used three tools of data collection: definitions of grammatical features, written and spoken discourse data before and after the SCI instruction, and verbalizations from taped recordings assigned as homework. Students showed improvement on their semantic understandings of the targeted grammatical categories—a measure, Negueruela admits, demonstrates orientation proficiency but not activity proficiency. All students improved in oral and written performance over the course of the semester, and although a mere tabulation of correct forms can reflect what Negueruela calls "empty formalism" (p. 343)—use of correct forms without a deep conceptual understanding—it can be argued that taking the assessment over multiple times will demonstrate at least a limited view of a student's developing linguistic range. Data from verbalization activities, required as homework four different times throughout the semester, allowed students to verbally express their grammatical choices of Spanish verbal mood and aspect. Negueruela argued that the results confirmed a progressively greater semantic understanding of meaning and features of the theoretical concepts, providing a key to the emergence of L2 conceptual development.

Negueruela's (2003) heavily qualitatively-based work contributes to an understanding of "development as a conceptual process" (p. 463) in the L2 classroom—the main contribution of his study. His theoretical discussion provides a back-drop for similar studies which follow Vygotsky and Gal'perin, theorizing that as "L2 development is defined through awareness and regulation, theoretical concepts need to be brought into the L2 learner's consciousness through specific instruction and concrete activity . . . not

to push development forward; instead it tries to pull it up to higher levels of awareness and control, creativity and participation" (p. 464).

Negueruela's (2003) work is foundational to further studies that incorporate the principles of SCT in a second language classroom. Unlike Negueruela's work, however, the current research focuses on ESL learners. Negueruela found one key plank in Gal'Perin's method of STI, verbalization, was difficult to institute in the second language classroom, and thus assigned the task to homework. The current study is making use of this step, but limiting the application to an informal group dialectical exercise.

Studies in STI verbalization. Verbalism, or *languaging* as it is sometimes called when verbalism is used to mediate a complex language task, is also known as *self-explanation* in cognitive psychology. A few studies that have explored this phenomenon are presented here.

Swain, Lapkin, Knouzi, Suzuki, & Brooks (2009). Swain et al. (2009) investigated the quality and quantity effects of verbalization in nine intermediate level students who were learning the grammatical concept of voice in French. The students were divided into three groups according to the number and quantity of languaging units they used, and analyzed accordingly. Data was collected primarily through student talk and scored for quantity and quality in a pretest, immediate posttest, and delayed posttest design. Researchers noted several types of student languaging of the target grammatical concept: paraphrasing, analyzing (applying new knowledge to an example), and inferencing through integration (combining data from multiple data cards that the study used), elaboration (incorporating prior knowledge or making comparisons and contrasts), and hypothesis formation.

Swain et al. (2009) found that while both the quality and quantity of languaging units the students used varied a great deal and a statistically significant positive relationship was found between the quantity of L2 student languaging and posttest scores and stimulated recall performance, only the high languagers demonstrated use of the grammatical concept in the delayed posttest. Swain et al. argue that the higher attention that the high languagers paid to the function and meaning of the grammatical concept as well as its form in the delayed posttest provides evidence for a qualitatively different way of understanding the complex grammatical concept.

The design of the Swain et al. (2009) study was based on 36 cards of explanation for the grammar concept which the students read and explained for the researchers. Some prompts were given, but instructor guidance was not a part of the design.

Gánen-Gutiérrez & Harun (2011). Like the Swain et al. (2009) study, the Gánen-Gutiérrez & Harun (2011) study focused on the effects of verbalization in six advanced L2 English students who were learning English tense and aspect markers. Students were given a pretest and then were asked to read and verbalize their way through a PowerPoint presentation (which included SCOBA diagrams), talking, explaining, and discussing their way through the slides in regards to what they understood as well as all related thoughts. The verbal data was analyzed and scored. Five of the six students scored higher on the identical posttest. Theorizing that self-explanation of the grammatical concept is a tool for understanding (rather than a mere vocal repetition of the concept) and that the goal of L2 grammar learning is for learners to learn to use language to convey meaning, Gánen-Gutiérrez & Harun found in their quantitative and qualitative analysis that verbalization aided students in getting control of the targeted grammatical concept in order to manage a

communicative task. The current research is informed by the results that verbalization is an important step in the internalization process of second language acquisition. However, this factor will not be quantified in the current study.

Escandón & Sans (2011). Escandón & Sans (2011) incorporated verbalization in their research design with a different focus than the previous two studies. Twenty-one Japanese students in an L2 Spanish class were divided into two cohorts. An experimental cohort was guided in the learning of the Spanish grammatical concepts of adjectives and subject-predicate agreement from a bottom-up perspective, which the authors define as language activity that has a non-linguistic object as its focus, or "language activity as a result of learning tasks responding to pragmatic paradigms such as communicative functions or within the framework of the strong version of the communicative approach" (p. 348). The control group targeted the same grammatical concepts from a top-down perspective, or language activity which "has a linguistic object . . . (and is) informed by the weak version of the communicative approach—which has a grammar form instructional component" (p. 348).

Participants in Escandón & Sans' (2011) experimental bottom-up group were guided through a learning task in which they grouped the targeted forms into parts of speech, then were asked to draw a schema as a material support for the concept of agreement. The students were publicly praised in their efforts, encouraged to share their findings with others, and to verbalize their findings and conclusions. On the other hand, the participants in the control top-down cohort were taught the targeted grammar of Spanish adjective agreement from a rule-based approach and given class activities from traditional textbooks to support the top-down approach. An oral test was administered

three weeks after the classroom intervention and the verbalization data was counted and analyzed.

Results of Escandón & Sans' (2011) study showed that the experimental, bottom-up group had statistically significant positive difference from the control group. However, when a follow-up assessment was made four months later, the experimental groups' difference, while higher, did not have a statistically significantly increase over the control group at that time. However, Lai (2012) suggested that while the time periods in this study were so short that they failed to provide more than a little time for the students to use and practice the schema (SCOBAs) that they had constructed, there is evidence that actual recontextualization of the concepts took place to guide mental actions and thinking.

Unlike the Swain et al. (2009) and the Gánen-Gutiérrez & Harun (2011) studies, the current research will not focus on the effects of languaging itself, but will use the process as a mediating aid after an instructor-guided presentation of the grammatical concept. In addition, I agree with Escandón & Sans' (2011) conclusion that the bottom-up approach to concept learning appears to aid students in their mastery of the targeted grammar. The limited results of the second assessments in the Escandon & Sans' study, however, suggests that "to cultivate a scientific concept, organized instruction, appropriate guidance and mediation along with accompanying learning activities are crucial parts of the teaching-learning process, as is forcefully proposed by Neguerela (2008)" (Lai, 2012, p. 81).

Blended Cognitive Linguistic and Sociocultural Approaches in Second Language Acquisition Teaching and Learning

After the Negueruela (2003) study, a few more recent studies attempted to combine elements of advances in cognitive linguistics with sociocultural theory. The studies that are presented in this section have commonality with the Negueruela study in that they were also conducted as doctoral dissertation projects by students who were advisees of James P. Lantolf, author and professor of language acquisition and applied linguistics at The Pennsylvania State University, State College, Pennsylvania. The studies focused on L2 Spanish and L2 Chinese. A few additional studies focus on the verbalization step of STI.

Yáñez-Prieto (2008). Rejecting a popular view of psychologists of his time, Vygotsky (1971) denied that there was not an "impregnable barrier" between the subconscious and conscious areas, but argued, rather, that "in our minds there exists a continuous, lively, and dynamic connection between the two areas" (p. 72). Further, it was Vygotsky's premise that the starting point of analysis of the subconscious mind should be works of art since the subconscious mind reveals itself most clearly through art. Aesthetic reactions are created, not by the psychology of the author or the reader, he argued, but by the stimuli in the art that are designed to excite aesthetic reaction—human feeling, surprise, and other such expressions of human behavior. Vygotsky contended that a dialectical relationship exists between form and content in works of art as each force moves in opposite directions to produce mental impact and emotional release that has a transformative quality. Yáñez-Prieto (2008) based her work on Vygotsky's argument, as presented in his work *Psychology of Art* (1971).

Yáñez-Prieto conducted her qualitative with 13 students in a 6th semester Spanish literature class in which she hoped to use the ambiguous, associative, suggestive properties of literature to draw the attention of her students to alternative ways of creating meaning in a 2nd language. The instructor provided explicit linguistic explanations to students on Spanish tense, aspect, figures of speech, etc., and pointed out diverse perspectives that the author could use to narrate a specific event. Charts and diagrams were used to portray essential features of the grammar of focus, and images were used—as advocated by many cognitive linguists—that reflect an advance over Negueruela's (2003) heavily verbal SCOBA flowcharts (Lantolf & Poehner, 2014)! The current research follows Yañez-Prieto to make a strong focus—not only of pictorial proto-typical representations of prepositions, but to make extensive use of image schema to illustrate meaning categories.

A major goal of Yáñez-Prieto was to teach her students that accuracy in grammar is fundamentally related to meaning, context, and the construction of a distinct *voice* in an L2 that is from a speaker or author's vantage point. Such stylistic devices in language are not limited to use in formal literature, but are used and must be noticed and chosen in all practical, living expressions of language as a part of linguistic proficiency. The students participated in three multi-draft compositions throughout the semester and additional data was collected through a required composition learning log and interviews in regard to each of the compositions. These measures enabled the researcher to understand the dynamics of the students' personal meaning creations and their mediating processes throughout the writing process.

While the current research is structured very differently than the Yáñez-Prieto (2008) study, it is informed and concurs with this research which found that after a focus on meaning creation in the L2 Spanish class, students "not only began to read but also to write between the lines . . . paid increased attention to issues of lexicogrammar . . . (and) began to write less explicitly and more evocatively, deemphasizing on [*sic*] the propositional content and highlighting the relevance of lexicogrammatical choices" (p. 421). Unfortunately, the researcher noted that her students' previous reliance on empirical, rules-of-thumb methods of second language curriculum "had become deeply entrenched, despite students' recognition of rule unsystematicity, lack of generalizability, and, thus, undependability" (p. 488), resulting in many student struggles with the possibility that Spanish aspect was predominantly a matter of the writer's or speaker's perspective and choice. After the class, while a few of Yáñez-Prieto's students felt that a rules-based approach would be easier for beginning students who would later be introduced to the concept-based approach to Spanish aspect later, several other students in the class had the opinion that the concept approach should be introduced earlier in the Spanish curriculum. Yáñez-Prieto argues that empirical approaches rarely provide students with adequate language skill and understanding, especially in complex grammatical functions. She pleads for more application of the concept of genre to foreign language curriculum. Even beginning level students, she argues, would benefit with engagement in text-based problem-solving activities that are focused on their ZPD.

Lai (2012). The Lai (2012) study, like that of Yáñez-Prieto (2008), was a university classroom study, but the two classes of L1 English learners of Chinese in the Lai study were beginning students (although an advanced Chinese class was used for

comparative purposes). Over the final eight weeks of a 16-week semester, one of the beginning classes (the control class) received instruction in Chinese temporal expressions as planned in the course syllabus while the other beginning class (the experimental class) received instruction on Chinese temporal expressions according to STI principles as well as instruction in Chinese aspect. For the experimental class, three SCOBAs were constructed to capture the linguistic analysis of Chinese spatial-temporal expressions that were diagrammed conceptually in horizontal, vertical, or with a combination of the two directions.

Lai (2012) collected quantitative and qualitative data from student essays, fill-in and sentence translation exercises, and a questionnaire. Results showed that STI instructed students outperformed those in the traditional control class in statistical significance, providing evidence that STI procedures can have positive effects for novice language learners. The extensive qualitative analysis pointed out that in general, the STI instructed students used Chinese temporal expressions with more paragraph coherence and pragmatic functions, sometimes using the expressions to add foreground and background information in narrative writing. The level of confidence in the beginning student experimental class appeared to be much greater than in the non-STI instructed control class, and their use of Chinese aspect was no worse than that of the more advanced Chinese class.

Lai (2012) found that most of her students in the experimental class found the use of SCOBAs useful, and concluded that by the end of the experiment, “most participants were at the verbal level . . . and that some of them might have constructed mental representations of the concept or did not need the physical presentation of the concepts to

conduct mental activity" (p. 242). Succinctly, Lai states that "learners who received STI were efficient in completing more tasks with fewer mistakes than those who received traditional instruction" (p. 250).

The current research will be a classroom study, as that of Lai (2012), and will use SCOBAs for student orientation. Unlike the Lai study, however, the current study will use advanced L2 learners of L2 English in targeted grammatical structures that are very different from those targeted in her study in a second language acquisition.

Studies in Learning Prepositions from Cognitive Linguistics, STI, or Blended Approaches

The targeted grammatical concepts for the teaching and learning of the current research are selected English prepositions which are often very difficult for L2 mastery. A few studies within cognitive linguistics and/or STI have added to the knowledge base in this area and are explored here.

Serena-Lopez & Poehner (2008). Serena-Lopez & Poehner (2008) report data from an earlier study by Serena-Lopez on the teaching and learning of Spanish prepositions by 241 university students in advanced L2 Spanish classes. Two experimental groups were formed and an additional group served as the control. One of the experimental groups received concept-based classroom instruction on the four targeted Spanish prepositions *en, sobre, de,* and *a.* This class was given an English presentation of the spatial concepts underlying the targeted Spanish prepositions and a sheet that explained these concepts and were encouraged to note comparisons and contrasts between English and Spanish prepositions and to ask questions. The second experimental group was guided in the same procedures, but were also given an extra class session in which they were introduced to a 3-D clay modeling project as pioneered by

Davis (1997). This class was directed to create models of the concepts behind the targeted Spanish prepositions and encouraged to verbalize their definitions to their clay as they created the physical artifacts that represented their mental pictures of the concepts.

The research assessed the results with a self-designed test of both English and Spanish spatial prepositions, using both languages in the testing materials which included a pretest, immediate posttest, and a delayed posttest administered two weeks later. All tests used the same pictures and descriptions, but the order of the test items were rearranged for each test. Both experimental groups in the study reported in Serena-Lopez & Poehner (2008) had statistically significant positive results over the control group. However, the delayed posttest showed statistically significant results of only the second experimental group, the clay modeling group, over the control class.

Serena-Lopez & Poehner (2008) argue that concept-based instruction, such as that which was received by both experimental groups, helps reduce L2 learning difficulties, especially in areas where competition exists between L1 and L2 mental representations or where new L2 mental representations must be formed. Perhaps an even greater conclusion from the study, however, is that some materialization and/or verbalization *activities* have potential to greatly enhance L2 learning. The learners in the clay modeling projects were guided by clear conceptual definitions and examples, but the creation of physical representations of the mental representations, peer sharing and correction by others of the targeted concepts, self-verbalization and talk to the clay, and actual creative engagement in the activity to strengthen memory recall were factors that brought personal meaning to the L2 learners. It hardly mattered that some of the 3-D models were not

immediately sensible to observers; the important thing, Serena-Lopez & Poehner insist, was the mediation of personal meaning in the learners' minds.

The current research is informed by the findings reported in Serena-Lopez & Poehner (2008), and will include an element of 3-D modeling to enhance L2 materialization of the concepts underlying the targeted prepositions. The purpose of this activity is to enhance student control, accuracy, and use of newly created or L2 adjusted spatial concepts of the targeted prepositions, including long-term memory recall. This study inspires the use of a bit of creativity by both teachers and students and holds much potential for increasing interest in the learning of difficult concepts in the L2 classroom. Similar to this study, the current research will also contain an instructor-led class presentation of the grammatical concepts, a SCOBA worksheet of definitions and examples, a pretest and an immediate posttest as assessment procedures.

Condon (2008). The Condon (2008) study is included in this section for its relevance to L2 learning in the context of cognitive linguistic motivations as well as the teaching and learning of certain prepositions which function as particles in many phrasal verbs. Drawing on Rudzka-Ostnyn's (2003) cognitive linguistic inspired textbook as her primary resource for the often low salient meanings of many phrasal verbs, Condon tested the effects of a cognitive linguistic approach on 111 intermediate level university French students of English in an economics class. Two experimental groups were explicitly taught the particles *up, out, in,* and *down* in a CL-motivated approach while two corresponding control groups received traditional instruction of paraphrase examples and translations of the targeted forms. Particles with opposite meanings (*up* and *down,* for example) were used to create a dialectic mediation effect. Twenty-eight phrasal verbs

from the above particles were included in the study, and a few others were included to test learning transfer. A pretest, immediate posttest, and a delayed posttest after six weeks, all gap-filling, constituted the assessment parts of the research design.

Condon's (2008) results showed that both experimental groups made statistically significant positive gains on the delayed posttest in regards to the particles of which they had received explicit instruction. Long-term gains were limited to only two of six phrasal categories, however, and the explicit learning failed to transfer to other particles included in the assessment. In addition, one of the experimental groups did worse on the immediate posttest than the control group. Another result was that the CL-motivations for phrasal verbs which had more literal meanings yielded higher statistically significant results in long-term learning than those which had more figurative meanings.

Condon (2008) points to several implications for L2 teaching and learning from her study. First, it may be argued that CL-inspired approaches do promote retention and long-term benefits which were made most clear in the results of the delayed posttest. The low transfer rate of learning to untaught particles could be a result of a too limited exposure to students of these forms, which did not allow them to learn their systematicity. Finally, Condon pleads for a strong role in curriculum development. For example, she decries some of her supportive materials—primarily Rudzka-Ostyn's (2003) work—as "filtered and simplified versions of the CL theory" (p. 151), suggesting that meaning categories that are too few and simplistic can limit student's conceptual development and learning of these complicated, polysemous forms. Explanations should be sufficiently detailed, examples must be sufficient in number to explore the varied meanings, and better links should be sought between literal and figurative meanings of phrasal verbs.

Condon's (2008) study results influence the current research in several ways. First, Condon's results point out the necessity of careful curriculum planning, as Cordon felt her curriculum support was too weak for maximal learning results. Detailed explanations can seem to increase L2 cognitive load, but Gal'perin pled for a complete orientation to linguistic concepts, as "a picture of all the meanings of each linguistic category is required" (1992a, p 86). Explicit instruction to students must maintain a balance between generalized schema or images that apply to many applications and an adequate, carefully planned, complete set of all the meanings of the form (SCOBA). Secondly, Cordon's plea for more and better links between literal and figurative meanings is a concern and challenge for the teaching and learning of all polysemous grammatical concepts.

H. Lee (2012). In a recent study, H. Lee (2012) also attempted to blend the insights of cognitive linguistics and STI theory in the teaching and learning of English phrasal verbs. Lee's classroom study involved 23 ESL graduate students, most of whom were L1 Chinese speakers. The primary focus of the intermediate level course that was designed to prepare students for teaching in English was grammar, but general English fluency was also a key course goal. Data for the study was collected during the final six weeks of a 16-week semester, and included a pretest and a longer posttest which included three parts: a) a repetition of the questions from the pretest, but in different order—called the *matched posttest* by the researcher, b) a test of items similar to those in the pretest with different roots linked to the same particles—called the *new posttest* by the researcher, and c) a test of items with the same roots as the pretest linked to new, untaught particles, designed to test knowledge transfer, but not included in the

quantitative comparison data as there was no pretest data. In order to discover the quality of learning in her students, Lee also collected data through questionnaires, interviews, and short exercises on sentence composition of the targeted forms. Three verbalization assignments were required as homework in which students were provided with 15 sentences that included phrasal verbs and asked to explain the meaning of each and identify the image they used.

Focusing on the three particles of *out, up,* and *over,* H. Lee (2012)'s classroom procedure began with a general definition of English phrasal verbs from a meaning-based approach, and included concepts of metaphors and the use of image schemas. Specific phrasal verbs were taught separately, and included several steps: a) an interactive brainstorming session with example sentences of the target item, b) an introduction to the primary relevant metaphors with their image schemas, c) introduction of the SCOBAs—written guides which included image schemas of the various senses of each particle as well as example sentences—both physical and metaphorical, d) in-class activities of matching phrasal verbs with collocates and study and class interaction of phrasal verbs in the context of reading passages, and e) a short timed writing exercise of creating a non-coherent paragraph of sentences using the targeted phrasal verb. A homework assignment of 15 sentences required the selection of the image used in the phrasal verb, and students were required to verbalize their thinking processes involved in the selections.

H. Lee (2012) found that students had statistically significant gains in the pretest to matched posttest comparison, the pretest to the new posttest (different roots used with the same particles), and between the pretest and the combined matched and new posttests. There was no statistically significant increase between the matched posttest and the new

posttest, but rather, a slight drop in the scores. Even so, the researcher argued, the similar scores showed that "the students had indeed developed transferable knowledge regarding the fact that the particle choice is motivated rather than arbitrary" (p. 104), as both similar scores were statistically significant in comparison to the pretest. The analyzed data further revealed that student performance with phrasal verbs did not show a statistically significant difference between phrasal verbs with more literal meanings compared to those with more metaphorical senses, showing that knowledge was transferring across this often elusive boundary. H. Lee also concluded that the qualitative data she gathered from student responses to *guessing/not guessing* types of questions gave evidence of improved student confidence and control in the use of phrasal verbs and that her students "were capable of thinking systematically and conceptually taking advantage of conceptual metaphor and the SCOBAs" (p. 257).

The current research is related to H. Lee's (2012) work, particularly in its foundation of meaning-based analysis of particles, conceptual metaphors, image schemas, and verbalization which she used in her instructional plan. This research will focus on the syntactic uses of the targeted prepositions in prepositional phrases rather than particles or the adverbial uses of single prepositions. However, much like Lee's study, the insights from cognitive linguistics will be combined with the materialism and verbalization elements of SCI in a classroom study. Unlike Lee's study, the student population of the current research will not be graduate students, but undergraduate students, predominantly, who may or may not have personal goals to teach courses in English. Lee's use of image schema, to materialize conceptual meaning, will be used in the current study, but a 3-D clay modeling activity will be added for further emphasis on the

materialization of conceptual meaning in the targeted prepositions. In addition, the verbalization exercise of Lee's study will be approached differently in this study. A homework verbalization activity with a written response will not be required, but students will be encouraged to verbalize their explanations in pairs in a class activity.

Summary of the Chapter

With the purpose of motivating the current research, chapter three begins with an overview of common writing errors in advanced ESL classrooms. Then, a review of recent cognitive approaches that have been used in second language acquisition classrooms is given. This is followed by a review of sociocultural classroom approaches that have been used in a variety of classroom learning contexts including second language acquisition classrooms. Finally, a few studies in the last decade have attempted to blend cognitive linguistics with sociocultural theory in second language teaching approaches with modest positive effects. These recent studies encourage more research into these promising areas. The current research purports to fulfil a part of that hope.

Chapter Four

Research Methodology

This chapter presents the research methodology of the study as operationalized in the instructional plan. First, a detailed account will be presented of the grammatical context of the targeted learning items, the targeted learning items, and how these items were materialized into an instructional plan that is based on cognitive linguistics and sociocultural theory. Following these sections, the research questions that were previously introduced in chapter one will be briefly reviewed, followed by the research design, the hypotheses of the study, and predictions. The research context will be explored as well as the participants of the research study, data instrumentation instruments and procedures, and the planned procedure for data analysis. Since the SCOBA forms a major part of the instructional plan, these materials are presented in this section. Two pilot studies for the research project were conducted, and an overview of these results are included in this section.

The Grammatical Context of the Targeted Learning Items

The English language contains a small class of words traditionally labeled as prepositions, particles, or prepositional adverbials (or adpreps). For example, O'Dowd (1998) summarizes sentence examples from Bolinger (1971) that illustrate how a single word can be used in each of these three common constructions:

a. She (swept <u>off</u>) the stage. (particle)

b. (She swept) (off the stage). (preposition)

c. She (swept [<u>off</u>) the stage]. (adprep) (p. 26-27, cited in O'Dowd, p. 31)

Sentence (a) contains the verbal unit *swept off*, a phrasal verb that can be replaced by the alternate verb *cleaned*. Sentence (b) contains the preposition *off* in a prepositional phrase that is functioning in an adverbial role, adding non-essential sentence information that merely explains where the action of sweeping is taking place (a place not far from the *landmark*, the stage). Sentence (c), like sentence (b), identifies the stage as a landmark and the adprep *off* fulfills both situating and linking roles. The sentence could be written *She swept off, off the stage*. Here, *off* attaches a resultive meaning to the verb *swept*, creating an agentive motion event as Talmy (2000) would describe it, and also serves as a preposition.

It may be immediately seen that the use of the words in this word class—conveniently lumped together as *P-forms* (O'Dowd, 1998), a term of convention which I will adopt in this analysis—add an incredible amount of creative possibility in English language use. At the same time, ESL learners often find this class of forms notoriously difficult, fairly despairing over the long lists of verb-particle (phrasal verbs) and verb-preposition collocations they must memorize—a task that is compounded by both syntactic restrictions and the principled polysemy of the P-forms that frequently extends far beyond spatial-directional meanings that have traditionally been identified with the prototypical meanings of many of these forms.

Syntactically oriented approaches have traditionally attempted to distinguish P-forms as prepositions or particles on the basis of certain tests (passivization, NP-insertion, and verb substitution, for example), but there are many examples of "overlap and indeterminacy between the two categories" (O'Dowd, 1998, p. 9). There is also sharp disagreement among well-known linguists such as Fillmore (1969, cited in O'Dowd,

1998) and Jackendoff (1983) on the syntactic role of prepositions (Fillmore would dispense with the prepositional phrase altogether, while Jackendoff places prepositions in a lexical category equal to verbs and adjectives). Rauh (1993) concludes that a categorical description of preposition uses is not justified on the basis of syntactic evidence, as "discrepancies and inconsistencies have almost become an integral characteristic of the description of English prepositions" (p. 99) as they are approached in this manner.

O'Dowd (1998) claims that many of the problems encountered in syntactical approaches of P-form classification would be "best accounted for, not by syntactic rules, but in terms of semantic and pragmatic motivations" (p. 19). The semantically oriented approach of cognitive linguists does not focus on the preposition-particle distinction, but rather on the mapping out the polysemy of these P-forms, arguing that semantics is essential to the explanation of syntactical functions. Cognitive linguistics denies that grammar emerges from an innate, hard-wired mental system, and its approach to semantics privileges meaning and concepts over syntactic forms.

It must also be recognized that discourse-functional research, which bases its conclusions on naturally occurring discourse and written text, prompts syntactic and semantic responses through such discourse strategies as topic or participant focus, identifying old and new information, and foregrounding and backgrounding (Hopper & Thompson, 1993, cited in O'Dowd, 1993). Thus, following O'Dowd (1993), I argue that cognitive semantics and discourse pragmatics "share much common ground" (p. 43), forming an inseparable two-pronged relationship toward an analysis of complex meaning in grammatical structures. At the same time, discourse and written communication occur

through syntactical forms, and this research will use syntactical forms to categorize meaning and use of the P-forms of this research. Succinctly, I argue with O'Dowd that the P-forms—forms that have "defied linguistic description for several hundred years" (p. 3)—are best analyzed and understood within the twin frames of the motivational insights and polysemy of cognitive linguistics and a pragmatic, functional approach which is supported by corpus data.

O'Dowd (1993) posits that the underlying function of P-forms is orientation, "defined in various ways according to different theoretical perspectives . . . but all approaches invoke the notions of space, of reference points, and of a subject's relation to these points" (p. 55). This function of orientation can be subcategorized into the functions of *situating* and *linking*, according to O'Dowd—functions that she argues "are taken up by particles and prepositions, respectively" (p. 55)—while adpreps perform *both* of these sub functions. This research will not include particles and adpreps, but will focus exclusively on prepositional phrases and the *linking* function.

The linking function of prepositions is supported by Lambrecht's (1994) argument that "in English the focus articulation of a proposition is often expressed by prosody alone" (p. 221) which he identifies as accent marking (stress) on functional syntactic and semantic categories. In O'Dowd's (1993) corpus of five separate contexts of English conversation, prepositions did not receive stress in 88% of the data in contrast to particles and landmarks which received stress 66% and 83% of the time, respectively.

Prepositional phrases (PPs) use landmarks—(*contextual "props"* (O'Dowd, 1993, p. 72), or "independently identifiable referents" (p. 78)—that act with prepositions to define contexts and aid the negotiation of meaning between communicants. They

precisely define reference points in physical, metaphorical, or metalinguistical frames of orientation. In addition, PPs differ from other syntactic referents such as noun phrases (NPs), which often undergo pronominalization and carry salient participatory roles in subject, object, or agentive functions. Instead, PPs identify *independent* reference points that are essential for the communication context, having a tendency to be set off from main sentence clauses as distinct intonation units.

Categories of prepositional phrase functions. Using the preposition *on*, O'Dowd (1993) compiled a summary of Vestergaard's (1977) illustration of the semantic and syntactic continuity that exists in prepositional phrases:

a. (non-role playing): *On the other hand, it is true that . . .*

b. (abstract circumstantial): *George appeared on the appointed day.*

c. (concrete circumstantial): *The lizards ran on these steps.*

d. (marginal participant): *He was sitting on a beer crate.*

e. (central participant): *I shouldn't be imposing on you.* (p. 34)

First, it can hardly be doubted that a semantic unity holds for each use of the preposition *on* in the illustrated sentences, as we would expect from insights gained in cognitive linguistics. In addition, the uses of the PPs in the sentences form a continuum of syntactic constraint, beginning with one that is the most syntactically free (a) to one that is the most syntactically bound (e). For example, the PP in the first sentence, (a), can be moved into multiple positions in the sentence, but the PP in sentence (c) is much more constrained. In the final sentence (e), the verb *imposing* demands that the selection of the preposition *on* follow it in a tight formation in order to carry the semantic load of the sentence.

Vestergaard's (1977) work demonstrates that PP function can be categorized by syntactic constraint. His functional approach to grammar has been extended by structural-functionalist grammarians (Jolly, 1993; Van Valin, 1993, cited in O'Dowd, 1993) to assert that some PPs, such as the examples in sentences (a), (b), and (c), above, are *clause-peripheral,* for they carry no semantic content that is *essential* to the sentence meaning. On the other hand, constructions such as (d) and (e), above, clearly involve prepositions and PPs which form arguments of the sentence predicates that include essential semantic content to the core meanings of the sentences.

O'Dowd's (1993) summary of Vestergaard (1977)'s analysis of PP function is a good beginning toward a categorization of PP function, but it fails to include the *NP postmodifier* function of PPs. Quirk et al. (1985) list the syntactic functions of PPs into three primary main categories, with examples:

(I) Postmodifier in a noun phrase: *The people on the bus were singing.*

(II) Adverbial

(a) Adjunct: *The people were singing on the bus. In the afternoon, we went to Boston.*

(b) Subjunct: *From a personal point of view, I find this a good solution to the problem.*

(c) Disjunct: *In all fairness, she did try to phone the police.*

(d) Conjunct: *On the other hand, he made no attempt to help her.*

(III) Complementation

(a) Complementation of a verb: *We were looking at his awful paintings.*

(b) Complementation of an adjective: *I'm sorry <u>for his parents</u>*. (Quirk et al., 1985, p. 657 [italics and underlining added])

It is be expected that this template of Quirk et al. (1985) can be useful in forming a general categorization of PP functions that can aid the teaching and learning of prepositions in the ESL classroom. First, the use of prepositional phrases for postmodification of noun phrases is "by far the commonest type of postmodification in English" (Quirk et al., 1985, p. 1274). This study focuses on the use of the targeted prepositions within this framework of prepositional phrases. Second, a bit of distinctive definition on in the adverbial functions of prepositional phrases is appropriate. Among other variations, adverbs vary considerably in their "range of semantic roles, . . . realization forms, . . . possible positions in the clause, . . . distinctive grammatical functions, . . . and in displaying textual connections" (Quirk et al., 1985, p. 478). *Adjuncts* are characterized by their closest similarity to other sentence elements like objects, subjects, and complements. *Subjuncts*, as its prefix indicates, identifies an adverbial role that is *subordinated* to other sentence elements, and, consequently, subjuncts are less independent in their semantic and grammatical roles than the other categories. Disjuncts and conjuncts share some similarity in their greater detachment from the syntactical structure of the main sentence clause than the other categories. *Disjuncts* claim a superior role in sentence structure, having scope over an entire sentence while *conjuncts*, also outside the syntactically integrated structure of the sentence, also indicate a speaker's view of how two linguistic units are connected. Finally, prepositional phrases that syntactically function in complementation roles of adjective and verbs are distinguished by the use of a preposition that is selected by the *preceding* sentence element.

It must be quickly acknowledged that any general categorization of PP syntactic functions, such as that of Quirk et al. (1985), above, is not inclusive. Prepositional phrases in their functions as nominals (as, *In October will be fine*), quasi-adjectives (as, *in good health* or *out of date*), or those which themselves serve as complements (as, *from under the desk* or *from seven to nine*) will not be specifically targeted in this research. In addition, some overlap of categories seems inevitable. For example, as noted by Quirk et al., "the function of verb complementation may alternatively be regarded as adverbial" (p. 658). In addition, the PP syntactic functions used by each preposition are not equally distributed across any general categorization scheme. This fact quickly becomes apparent when we examine corpus data to analyze PP syntactic function from natural conversation and written text. This research will attempt to identify and select the most frequent general categories of PP syntactic function for each of the targeted prepositions in the study.

The targeted prepositions: *in, on,* and *of.* A major goal of this research is to increase proficient use and accuracy in prepositions that support narrative writing, and the propositions for this study have been selected to provide support for this general purpose. Corpus data demonstrates that these target prepositions are among the most frequently used words in English.

In* and *on. Cole (2006) identifies the prepositions *in* and *on* with commonly used narrative functions such as expressing time, location, transportation, views of the world, cause and effect, and comparisons and contrasts. As they are often used as opposites, they can be easily be used to create a dialectical challenge for students who must select the *most appropriate* preposition for native-like English proficiency. The near-oppositional

meanings, their polysemy—including uses in both spatial and temporal senses, and their general frequency in English make them ideal candidates for this research. McCarthy & Carter (1997) point to corpus data (Cambridge International Corpus, or CIC, and CANCODE) as evidence that both *in* and *on* are among the 20 most frequent words in English spoken and written contexts. Additionally, O'Dowd (1993), in her corpus of five unrelated English conversations that included 1,245 P-forms, found that *in* functioned as a preposition 81% of the time and a particle 18% of the time, while *on* functioned as a preposition 83% of the time and as a particle 15% of the time—establishing the dominant use of these forms as prepositions rather than particles.

The prepositions *in* and *on* also share similarities in the class of prepositions, as both forms are identified by Hawkins (1984) as members of a subgroup of prepositions which follow the basic parameter of *landmark configuration*. From the perspective of cognitive linguistics, the *trajectory (TR)* is "the figure (of focus) within a relational profile" (Langacker, 1987, p. 494) and the *landmark (LM)* is the "salient substructure other than the trajectory of a relational predication or the profile of a nominal predication" (p. 490). Preposition perform the function of linking, and Hawkins argues that meaning variation among prepositions allow prepositions to be grouped as a) those that involve TR properties or configurations, b) those that involve LM properties or configurations, and c) those that carry *coincidence* or *separational* factors between TRs and LMs. According to Hawkins' analysis, the preposition *in* and *on* carry the coincidence relational factor, and both of them focus predominantly on LM configurations and "an absence of any (trajectory) configurational information" (p. 89). This tendency of certain prepositions to mediate relationships of the LM is also referred

to as *boundedness* (Tyler & Evans, 2003). The relevance of this property may be seen in verb-preposition complementizer relationships and text-organizing PP conjuncts. O'Dowd (1993) illustrates this concept with the verb-preposition complementizer *believe in.* The TR (belief) is limited to the range of belief that the preposition *in* serves to link to the TR to in a relationship of *coincidence*.

Specifically, the LM configuration for *in* is the functional relation of *containment* or *inclusion*. The term functional is applied to these relationships to denote the wide range of spatial uses for the preposition that do not require LM enclosure, such as partial enclosure, movement toward enclosure, or the cognitively perceived enclosure of an item resting on top of a filled container but not actually inside the container itself. The LM configuration for *on* is the functional relation of *contact* or *support*.

Of. Like *in* and *on*, the preposition *of* is also frequently used in narrative writing. Cole (2006) identifies some of the complementary functions of the preposition *of* in a section labeled "prepositions for relating objects to one another and for simple narrating" (p 58). The preposition *of* never serves as a particle (O'Dowd, 1993), and like *in* and *on, of* involves LM configuration properties known as *boundedness,* with physical or conceptual interior or exterior borders. The dialectical challenge for students in the study of this single preposition is based on interaction with the previous targeted prepositions (*in* and *on*) as well as interaction between the primary meanings of the preposition *of,* which arguably, forms a dialectical exercise in itself that can be used as an ESL learning opportunity.

A primary reason for the selection of the final preposition of the study, *of,* is that it is been the observation of this researcher that the preposition *of* is a source of frequent

errors in the advanced ESL classroom. The usage-based research of Scott and Tribble (2006) found that *left* collocates of *of* typically involved a small set of words in conversational production, "with the top five *sort, bit, one, lot,* and *out* making up 40% of the total, and the top 20 accounting for 71% of the total instances" (p. 100). This research also found that in written academic production, occurrences of *of* were much more frequent than in conversational production because of the preposition's rich role as a noun modifier, and the collocates of *"terms of, range of, form of, case of, principle of, effect of,* (and) *function of* are all potentially valuable to apprentice writers" (p. 100). Additionally, Sinclair (1991) notes that *of* is one of the top three most common words in English—occurring once among every 50 words, approximately—comprising over 2% of every kind of text (p. 81, 84). In addition, corpus findings show that prepositional phrases, the framework of the targeted prepositions of this study, "are by far the most common type of postmodifier in all registers (Biber et al., 1999, p. 635) and that the preposition *of*, combined with the other targeted prepositions of this study, *in* and *on*, account for 71-80% of all postmodifiers (Biber et al., 1991).

Yet, as previously noted, to date there has been no classroom study that I am aware of that has attempted to combine a cognitive analysis of the most common preposition, *of,* with ESL classroom instruction. As this segment will form a substantial basis of this ambitious research project, a rather extensive analysis of this preposition seems necessary.

In Old English, *of* was a spatial preposition expressing separation, but gradually the preposition took on additional meaning—a fact attributed largely to the French influence on English that encouraged a more genitive case role for *of* as the translation of

the French *de* (OED, cited in Lindstromberg, 2010). Modern corpus research provides evidence that the most frequent uses of the preposition *of* occur in NP postmodifer roles which appear to imply no spatial orientation whatsoever (Sinclair, 1991). Certainly, semantics is an evolving phenomenon. Yet, cognitive linguists assert the meaningfulness of most grammatical morphemes, contrary to the claims of traditional grammarians and the Autonomous Syntax Hypothesis which posits that grammatical morphemes are primarily meaningless and merely used for grammatical purposes. As Langacker (1982) points out, to admit that grammatical markers carry meaning that determines their syntactic use would virtually cancel the autonomy of syntax!

Following Langacker (1982), this research posits that the preposition *of* is not a mere meaningless grammatical marker, but rather, that it carries semantic meanings that vary through a continuum of interrelated, family-resemblance senses. These senses of meaning extend from a prototype—often through metaphorical meanings—and vary in semantic complexity and degree of abstractness. Prototype theory assumes that prototypes and defining categories of meaning that are developed through meaning extension have the advantage of greater salience, allowing judgments of meaning to "percolate to all members of the category, including newly assimilated ones" (Jang & Kim, 2010, p. 213). In addition, Taylor (1995) argues that "a prototype mind-set . . . leads us to accept, even to expect, fuzziness and gradualness" (p. 121).

Langacker cautions that semantic "schemata are permissive rather than restrictive" (Langacker, 1982, p. 15, n. 12) in that some questions will always remain in regards to semantic categorization. Often, such difficulty of categorization springs from an option that is available to the speaker (or writer). For example, Langacker (1992)

points out that the PP *of the bride* can be considered a modifier in the expression *the father of the bride* as father *elaborates* the substructure PP which can be considered as new information. If the speaker's intent is to distinguish relationships among the relatives of a wedding party, as in contrast to the *father of the groom,* then this link of new information is modification. However, if the focus is on the parent-offspring relationship that is pivotal to the semantic meaning of the head, *father,* then the PP *of the bride* can be considered a complement. Langacker concludes that "modifier status and complement status are matters of degree" and that "they need not be incompatible with one another" (p. 492). This caveat does not deny the contention of Langacker and this researcher that the preposition *of* carries semantic meaning, in line with the claim of cognitive linguists that all facets of grammar reflect semantic value.

Langacker (1982) provides several examples to illustrate his definition that *of* "predicates a relation between two entities, in which one is an inherent and restricted sub-part of the other" (p. 33):

a) the bottom of the jar

b) a kernel of corn

c) most of the peas (p. 33-34)

In each of the examples, an intrinsic, non-accidental relationship exists between the propositional object and a second entity which is derived (but not necessarily in contact) from within the external boundaries of the prepositional object. Certainly (a) illustrates an intrinsic relationship between two entities that cannot be separated. Item (b) illustrates a distinct restricted sub-part of a mass noun which is no longer in contact with its object, and the quantifier in (c) illustrates a similar relationship. Each of the examples represent

part-whole relationships as well, but intrinsic relations between entities can be complex and multifaceted, and operate in a domain of the selected facets (as, color) that interact with the prepositional object in what may be termed the *active zone*, even though the entire prepositional object is often referenced by linguistic convention.

Before a map of the diverse meanings of *of* can be constructed, it is necessary to establish the prototype of meaning which, arguably, can be largely derived from its origins as a spatial preposition and its most physical, visible general meaning of *separation.* Jang & Kim (2010) illustrate how this basic spatial meaning was then extended through the cognitive-abstract domain:

a) They live within a mile *of* here. (‘spatial separation’)

b) We got to the beach at five *of* one in the afternoon. (‘temporal separation’)

c) His trouble deprived him *of* sleep. (‘abstract separation’)

d) I learned English *of* Tom. (‘origin’)

e) He is ashamed *of* his poverty. (‘cause’/’reason’) (p. 220)

From sentence (a), which illustrates *spatial separation,* sentence (b) illustrates the concept with *time* and sentence (c) with the even more abstract concept of *deprivation.* Sentence (d) illustrates a use of *of* with the meaning of *origin* or *source,* and sentence (e) illustrates that *origin* can be extended to represent a cause/effect relationship. Finally, it may be noted from example (e) that *of* is often used in structures other than linking nominal groups. Sentence (e) illustrates that *of* can link an adjective to a PP. In a corpus search, Sinclair (1991) found that about 20% of the occurrences of *of* were used in non-nominal groups, such as linking verbs, adjectives, and adverbs to PPs and in complex prepositions.

The spatial separation class of meanings eventually spawned a second class of semantic meaning of *of.* This relationship is an intrinsic, inseparable part-whole relationship between two entities, which is illustrated by Tyler & Evans (2003):

> For instance, if we see a cake from which a wedge has been cut and we see a wedge of cake that appears to be of the same composition (e.g., dense, dark chocolate) on the counter next to the larger cake, a natural inference is that the wedge of cake originated from the nearby cake. We typically draw this inference even though we did not see the cake when it was intact . . . Thus, we would not have absolute evidence that there is a non-accidental, non-random relationship between the larger cake and the wedge, but we automatically infer this to be the case and . . . we assume they are intrinsically related. (p. 210-211)

As in the spatial separation class, this intrinsic, interactive part-whole relationship meaning class has a wide range of related senses, as illustrated by Jang & Kim (2010):

a) They made dolls *of* clay. ('material')
b) He gave me a glass *of* water. ('measurement')
c) I am convinced *of* his innocence. ('realtion' (*sic*))
d) At this time *of* the year farmers plow their fields. ('belonging') (p. 222)

While sentence (a) clearly shows a part-whole relationship, sentence (b) extends the meaning to infer that the *glass* is a measurement of water and part of the unit *a glass of water*. Sentence (c) is even more abstract. Jang & Kim (2010) claim that this sentence illustrates that a tight bond of human relationships that reflects a source and its effect—best expressed as a part-whole, intrinsic relationship between two people—although I would argue that this example is best expressed as a *separation* relationship between two

entities under the reason, cause or motivation subsection where I have placed this type of sentence in my analysis. Sentence (d) carries the sense of *belonging* in that the temporal element is a specific part of the prepositional object, the year.

The part-whole linking function of *of* has been examined in Sinclair's (1991) corpus research. Sinclair identified several functions of *of* within this category, as linking conventional measures (as, *a couple of weeks*), less than conventional measures (as, *an amount of cholesterol*), focus on a part of N2 (as, *the front of the car*), focus on an attribute or component of N2 (as, *the outskirts of Chicago*), support for the N2 (as, the position of the army), or support for N2 which is sometimes used as a mechanism to express vagueness (as, *that sort of thing)*. The use of an *of* structure to focus on some aspect of N2 or to provide support for N2 would seem to imply that N2 is the headword of the phrase and the most salient noun. Yet, other part-whole *of* structures appear to show modification of N1 rather than N2, as, *a drop of it,* or, *there is small hope of new reinforcements.*

A third class of meanings for the preposition *of,* a genitive class, represents a class of meanings that are the most removed from the prototype meaning of spatial separation. It is often asserted that the preposition *of* in these functions merely assigns case and lacks semantic meaning. Clearly, the preposition *of* does not carry salience of pronunciation in this class of meaning, for it is often inaudible as it frequently reduces and cliticizes with other forms. Besides *phonological minimality,* the prototype "notion of *intrinsicness* implies a *minimal conceptual distance* between the relational participants" (Langacker, 1992, p. 488). Sinclair (1991) notes that this possessive use "has little to do with ownership or possession . . . (but rather) a fairly loose kind of association involving such

things as location, sponsorship, and representation" (p. 93). I follow Jang & Kim (2010) who argue that the genitive class of meanings for the preposition *of* is derived from the part-whole category of meanings—particularly from the concept of *belonging* which was then extended into the idea of *possession*. This concept is illustrated in their examples:

a) The children *of* his family ('possessive genitive')

b) The rise *of* the sun ('subjective genitive')

c) The city *of* Seoul ('appositive genitive')

d) The discovery *of* America ('objective genitive') (p. 224)

In example (a), *children* is possessed by *family*. In (b), *of* operates in a predicative function to the possessor of the action, *the sun*. In the appositive example (c), the two entities appear to be equal to each other; yet, *of* delivers a specificity to the first entity, *the city*, with the possession of a name, *Seoul*. Finally, in example (d), *of* ties the first entity, *discovery,* which implies an action, to the second entity, *America,* the object of the action.

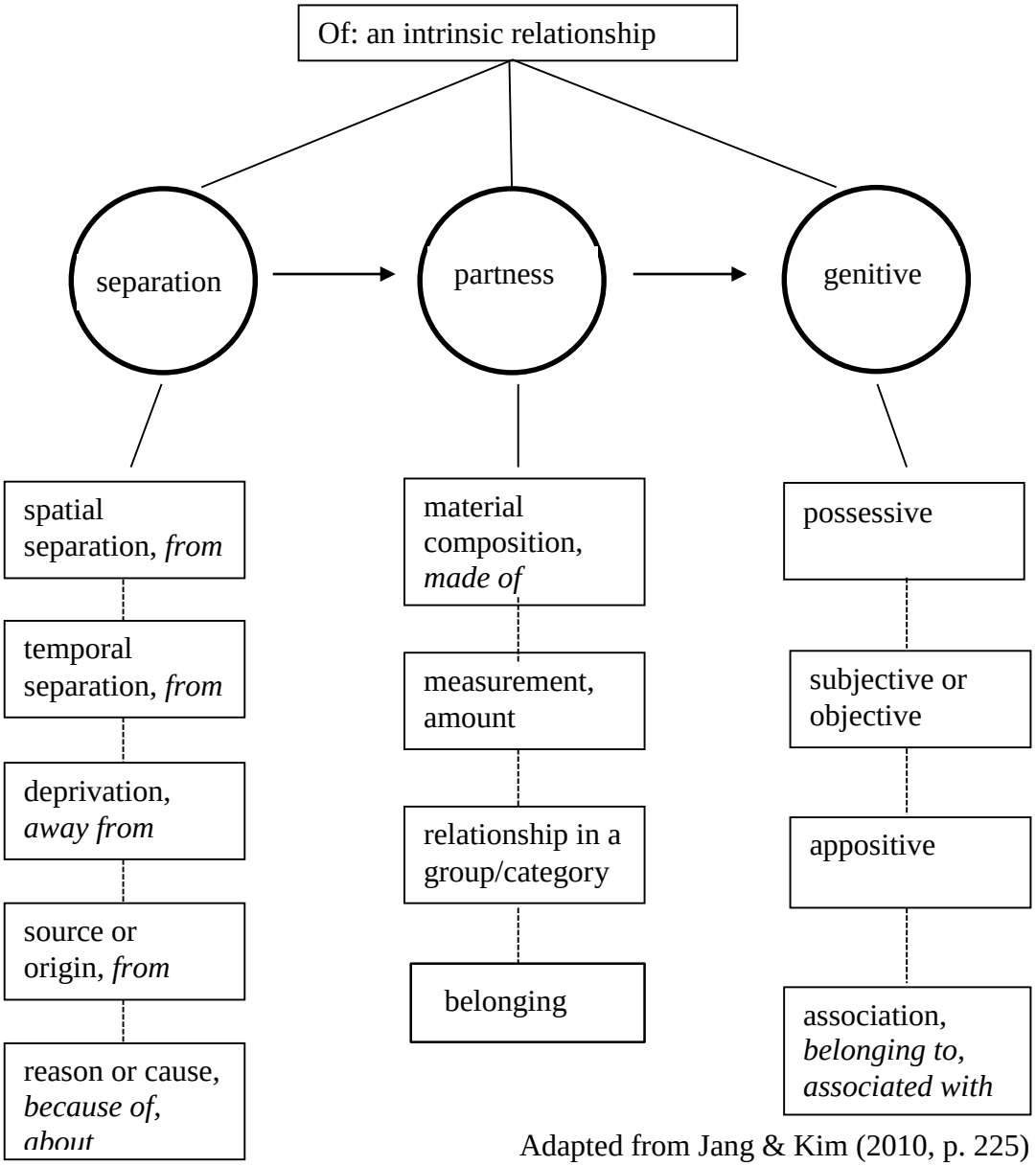
Sinclair (1991) labels many of these structures in Jang & Kim's (2010) genitive class as *double-headed* structures. For example, the appositive structure in (c), above, can be extended to include titles of people and places (such as *the President of Brazil* or *the Garden of the Gods)*—cases in which both nouns are obligatory and neither noun appears to be dominant. A much larger type of double-headed nominal structures in this class, however, are those illustrated in (b) and (d). Here, two nouns are in a verb-subject or an object-subject relationship, as they could easily be transformed into clauses with equivalent meaning in propositional relationships. In some cases, the structures of this class involve an adjective with a noun, which could easily be understood as a

complement relationship. For example, the structure *the intelligence of the young man* is related to the proposition *the young man is intelligent* in a complementary relationship. In addition, the genitive nature of this example, typical of this class of meanings, can be clearly shown in the alternate expression *the young man's intelligence.*

As Langacker (1992) notes, the prototypical value of the preposition *of*, "wherein *of* profiles an inherent-and-restricted-subpart relationship between its trajector and landmark, holds for only some of its uses" (p. 487). Each of the three classes of meanings exhibit an intrinsic character of association, even though this relationship is more cognitively salient in the part-whole relationship than it is in the other classes. These three classes are included in the semantic framework of the preposition *of* in Figure 2, adapted from Jang & Kim (2010), will be adopted as a key basis for the meaning based approach to the teaching and learning of the preposition *of* in this research.

The circles in Figure 2 represent categories of meaning of the preposition *of*, and the arrows between them, from left to right, represent a graduated continuum of meaning categories that are less prototypical and demonstrate less lexical content than the ones on the right. The boxes represent subcategories of meaning. Many of the boxes contain an alternate phrase or preposition (denoted by italics) to illustrate the specific meaning of the subcategory or class.

Figure 2. The Semantic Network of *Of*



Adapted from Jang & Kim (2010, p. 225)

The genitive meaning class deserves some general definition. First, I follow Jang & Kim (2010) to argue that the genitive theme of *possession* can be derived from the part-whole meaning category, especially in its context of *belonging to.* This is clearly evident in the genitive subcategory *possession* in an example such *a son of the congressman,* where the complement of the PP identifies the possessor of the head noun

of the full noun phrase. The second genitive meaning subcategory illustrates that an *of*-phrase can introduce both a subject or object to the verb. For example, in *the squealing of the pigs, pigs* are agentive subjects of the nominalized verb. In *the consumption of oil products, oil products* is the non-agentive object, an intrinsic subpart of the action implied by the head noun, *consumption.* The third genitive meaning category represents an equality between two entities, such as in *the state of Iowa* or *the city of Denver.* Here, the first entity is made more specific in the second entity; not only is there a modification of the head noun of the full noun phrase (new information), but there is an intrinsic relationship of complementation (which provides more precise detail) to the first noun.

The final genitive meaning subcategory, association, is the most general subcategory of all. The phrases *belonging to* or *associated with* may reflect the sematic value of *of* in this subcategory. It is important to recognize that the conception of an event is often a matter of perceiving *layers* of meaning which may vary in their degree of intrinsic association. Langacker (1992) argues that in an illustration such as the *beating of the drum,* the preposition *of* profiles the theme of the entire phrase—the intrinsic, conceptually autonomous core of the structure. This theme then works periphrastically to form a mental conception of the process or event as a whole.

The learning chart for the preposition *of* (the SCOBA) in this study is based on the framework of the research of Jang & Kim (2010). However, following their argument that the genitive category springs from the belonging meaning of the partness category, I have eliminated the belonging meaning from the SCOBA in this research.

Noting that many examples are problematic in regards to clear categorization, Sinclair (1991) observed that “one of the inescapable conclusions of studying real text is

that the categories of description are so intertwined in realization that very few actual instances are straightforward illustrations of just one of the factors that led to the particular choice" (p. 84). The experience of this researcher confirms the difficult task of separating the semantic meanings of some examples into precise categories. The task must assume some variability as some of the *of*-PPs can move between categories of meaning through the variation of a speaker's perspective. For example, *survivors of the fire* can indicate a partness category meaning if all potential victims are in view, but just as easily, the term can be used in a broader context to merely indicate a genitive meaning of association to a discrete event. Summarily, Sinclair argues that classifications of word uses and meanings can be made, but such analyses always wait for larger studies or "another way of organizing the evidence (that) may lead to a superior description" (p. 84).

The Research Design

The research for this dissertation was conducted in the Applied English Center at a major research university in the Midwest. To conduct this research, it was necessary to select advanced ESL students. The targeted group was advanced ESL students, as determined by the placement testing procedures of the Applied English Center. The placement testing procedure tests skill levels in a) reading and writing, b) grammar, and c) speaking and listening for all students with L1s other than English (with limited exceptions for high TOEFL scores or similar evidence of English proficiency) who enter the university. Five levels are used for instructional placement (level one is the lowest level, and level five is the most advanced level).

Convenience determined the classes and students who would be asked to participate in both the experimental class and the control class of the study—a factor which limits the random factor of a true experimental design. The researcher would serve as the instructor for the periods of instruction in both the experimental class and the control class. In addition, since the instructional and learning targets of this study involved grammatical elements, it was determined that the experiment would be conducted in ESL grammar sections—rather than reading and writing classes, for example—in order to control the experiment for equal grammatical levels of the research participants. As the instructor was not the primary instructor of either of the classes, the assignment of the classes for the study was determined by the coordinator of the grammar classes for the selected grammar proficiency level.

The Research Participants

Specifically, the targeted research participants were students in a Midwestern university who were enrolled in applied English classes that are designed to prepare students for academic study. From the five levels of proficiency in the applied English program at the university, it was determined that the students in this study would be in level four, one level below the final *exit level* in the program. The English proficiency level of the students in level four is intermediate to high-intermediate. Level four was selected for the research for several reasons. First, the design of the research requires that it be conducted in an upper level ESL class. Secondly, the researcher, possessing considerable experience in teaching level four students, has perceived an unmet need in the targeted area of the research. Thirdly, the researcher has been informed by multiple

students of this level of the difficulties encountered by the grammatical forms of this study.

The L1 of the majority of the research participants was Chinese, Portuguese, Arabic, or Japanese. The typical student in the program is a full-time F-1 student or short-term exchange student, either enrolled exclusively in applied English classes or taking a mixture of applied English classes along with two or three other courses in the university. The typical age range of the students is about 20-25. The male/female ratio was expected to be near equal, but no effort was made to control this factor.

The Research Question, Hypotheses, and Prediction

This section will revisit the research questions, establish the null hypotheses, and make predictions, based on the research reflected in the literature review.

The research question is: Is there a statistically significant difference in the comprehension and accurate isolated use of the prepositions *in, on,* and *of* between a control group that receives traditional, non-cognitive instruction in the use of prepositions and an experimental group that receives an instructional plan on the use of the prepositions *in, on,* and *of* based on cognitive linguistic and sociocultural theory?
The null hypothesis that corresponds to this question is: There is no statistically significant difference quantifiable difference in the comprehension and accurate use of the simple prepositions *in, on,* and *of* between a control group that receives traditional, non-cognitive instruction in the use of prepositions and an experimental group that receives an instructional plan on the use of the prepositions *in, on,* and *of* based on cognitive linguistics and sociocultural theory? The null hypothesis is: There is no statistically significant difference in the comprehension and accurate use of the simple

prepositions *in, on,* and *of* between a control group that receives traditional, non-cognitive instruction in the use of prepositions and an experimental group that receives an instructional plan on the use of the prepositions *in, on,* and *of* based on cognitive linguistics and sociocultural theory.

Based on the Tyler et al. (2011) study that reported significant gains between pretest and immediate posttest scores in an experimental class using a CL approach, I predict, with cautious optimism, that significant gains will occur between the control class and the experimental class of this study. However, the Tyler et al. study did not use a control group to validate gains that are specifically due to the use of a CL approach in the learning of selected prepositions. More caution would seem necessary from the research of Matula (2007)--a study that did use a control group to assess ESL gain in the learning of targeted prepositions from a CL perspective. Matula did not find a clear, overall significant advantage of the CL-instructed group over the traditional class, although there were some significant differences found between the groups. However, Matula did not incorporate the key steps of SCT in her study, which I predict will be pivotal in attaining significant gains in a similar study. Research from Negueruela (2003), Serrano-Lopez & Poehner (2008), and Lai (2012)—all studies that incorporated key elements of SCT in their classroom studies—also support my prediction that the cognitive and STI class will achieve significant gains in this research as compared to a traditional class of grammar instruction. While the current research design is not a qualitative design, I expect to see qualitative results similar to those of Lai (2012), who recognized that "learners who received STI were efficient in completing more tasks with fewer mistakes than those who received traditional instruction (p. 250).

The Assessment Instruments, Instructional Plan, and Class Materials

A pretest and a posttest will be given to all students in the control class (traditional instruction) and the experimental class (CL and SCT instruction). The two tests will be similar in length and design. The distributions of the targeted prepositions in the pretest and posttests, according to their meaning categories, are found in Appendix C). All students will take the same pretest and posttest. While this factor limits an evaluation of the two tests for equal difficulty, it does enable the researcher to establish a valid baseline for the initial proficiency with the targeted items for each student and each class. In order to validate the correct responses on the tests, a key for the tests will be formed by current ESL instructors who are native English speakers.

On Day one, the lesson plan will be identical in both classes. The researcher will briefly introduce the research, and present students with a permission form, the university IRB form, a required document for sharing the assessment results of the research study. A pretest will follow. The expected total time for these activities is 35 minutes.

After the pretest, the control (traditional) class will receive approximately 75 minutes of class time that is focused on the targeted prepositions *in, on,* and *of*. Class activities, typically, require students to dialectically make choices between the selected prepositions in oral or written contexts. After the curriculum is completed, a posttest will be administered to the control class.

The experimental class, after the pretest, will also receive 75 minutes of instruction and class activities on the targeted prepositions *in, on,* and *of*. The first day of 50 minutes will include a PowerPoint presentation to briefly introduce the students to the study, and then a SCOBA will be provided to all students. The SCOBA will be used as a

basis to organize the instruction and provide orientation to the students for the meaning categories of *in* and *on.* A paired-group clay modeling activity will follow. In groups, students will then construct the prototypes of the targeted prepositions with modeling clay (Davis, 1997; Serrano-Lopez & Poehner, 2008). Each pair of students will be provided a set of 40 cards for the dialectical activity. They will place the correct preposition choice on the clay models, and will be encouraged to verbalize their choices. The instructor will facilitate the discussion and the class activity with a few visual objects and chalkboard examples.

The second instructional day for the experimental class will include a similar approach to the instruction of the preposition *of.* Again, a SCOBA will introduce the cognitively-based meaning categories for the preposition *of,* followed by a paired-group clay-modeling exercise with dialectical choices among the various meaning categories of the preposition *of* (Jang & Kim,2010) from a 40-card set. The 25 minute instruction and activity session will be followed by the posttest.

The SCOBAs for *in* and *on*, constructed by the researcher, were designed to enable the student to quickly grasp the proto-scene and the categories of meaning of the targeted preposition in a learner-friendly fashion. The information is divided into a syntactic outline of the four of the common syntactical functions of the preposition where they occur in prepositional phrases—the focus of this research. Image schema support each of the meaning categories. The image schema also appear on the cards used in the dialectical exercise. For the preposition *of,* an additional SCOBA and an additional activity card set will be used. The organization of the SCOBA for *of* reflects the three categories of cognitive meaning identified in the research of Jang & Kim (2010). As 80%

of the uses of *of* occur as noun phrase modifiers (Sinclair, 1991), this syntactical category will be emphasized in the instruction and class activities. The image schema for this preposition—which also appear on the cards in the cart set activity for this dialectical classroom activity—is based on these three primary categories of meaning. The activity card sets were constructed by the researcher and the related artwork for the SCOBAs was created by the family of the researcher.

The Pilot Studies

In the 2014 summer term, the first pilot study of the research project was conducted to explore the viability of combining CL theory and SCT theory in the learning of targeted prepositions in the ESL classroom. Specifically, the short study included a pretest, about 50 minutes of instruction, and a posttest. A SCOBA was used with a pictorial proto-type representation of the targeted prepositions *in* and *on.* No image schema were used to identify meaning categories on the SCOBA, and the meaning categories of the prepositions were not organized alphabetically. A clay modeling project was used in the project, and—to the surprise of the researcher—was found to have a lot of appeal to the students! There was a gain in the class scores between the pretest and the posttest, but the gain was not significant. The pilot project helped the researcher identify the amount of time needed for the assessments as well as the instructional activities. Several changes were made to the instructional plan after the pilot study, including the elimination of one class activity (to keep the project within appropriate time limits), redesigning the paired-group activity to aid the learning process and verbalization, redesigning the pretest and the posttest, and adding image schema to the SCOBA. The assessments used in the pilot study provided an indication of the average skill levels of

the students and served as indicators of the difficulty the instructor-adapted assessments were for the students.

A second pilot project was conducted in the Fall 2014 semester. This time, the preposition *of* was added to the prepositions *in* and *on* as targets for the instruction and learning pilot study. This time, revised pretests, posttests, SCOBAS, and cards were all used, and times were again monitored to better reflect the design of the projected research study. Fifteen students were included in the study, and significant results were obtained in the class scores between the pretest and the posttest. With an alpha level of .05, the gain was statistically significant, $F(1, 28) = 5.358$, $p < .05$.

Conclusion

In this chapter, I presented the grammatical context of the targeted learning elements of this research in their syntactical functions within PPs. I have argued from the framework of cognitive linguistics that a semantic unity holds for all PP uses across their syntactical constraints. Next, I explained how these items have been materialized into an instructional plan based on cognitive linguistics and sociocultural theory. The research design is then presented, with details about the instructional plan, instruments of data collection, and classroom materials. Several changes in the experimental project resulted from the two pilot studies. These initial projects of the research validated the need, guided the procedures, and provided grounds to expect positive results from this research study.

Chapter Five

Data Collection and Analysis

The research project was conducted in the spring semester, 2015. An ESL grammar level 4 class was designated as the control class which would not receive CL and STI instruction, and a second section of grammar level 4 was chosen as the quasi-experimental class. The coordinator of grammar level 4 and the cooperating instructors of these classes were agreeable to the intervention by the researcher, as the subject of prepositions was an integral part of the class syllabus for all sections of the class.

The Procedures

Prior to the beginning of the instruction in each class, an institutional IRB permission form (Appendix A) was distributed, discussed, and returned. In the control class, 11 of 12 students agreed to participate in the study and allow their test scores to be used for research purposes, and in the instructional class, 12 of 12 students agreed to participate in the study. Ten students of the control class and 12 students of the experimental class completed the study and are included in the analysis of data. Day 1 concluded with the administration of the pretest (Appendix B).

On Day 2, the researcher, the guest instructor in both classes, presented the instructional elements of the classes in weeks two and three of the semester. For the traditional class, Day 2 began with a PowerPoint introduction to English prepositions including the difficulties they present to ESL learners, their frequency of use in English, and the primary syntactic roles.

From this point, the instruction in the traditional class and the experimental class began to diverge. In the control class, a brief one-page guide to frequent uses and

meanings of the targeted prepositions *in*, *on,* and *at* was provided to the students and discussed (see Appendix F). The guide included two of the targeted prepositions as well as a third non-targeted preposition, *at,* which is often presented in traditional ESL classrooms at the same time as *in* and *on* and included with them in dialectical exercises. General categories of application for the three prepositions were noted, such as time and space, as well as a few idiomatic uses. Thirdly, the class was assigned a paired-group fill-in activity of selecting between the three prepositions (Activity G). This activity was designed to be interactive, and a few problem areas were discussed. Next, the class was introduced to the third targeted preposition, *of,* with an additional guide to traditional categories of meaning was presented to each student (see Appendix H). The guide included many verbs that frequently collocate with the preposition *of,* and students participated in an oral activity to create sentences with the verb prompts of the collocations on the worksheet. This concluded the first Day 2 class session of the control group.

After a break, the control class met for an additional 25 minutes to complete the instructional time of a total of 75 minutes. The class was given an additional activity worksheet of fill-in exercises that required the selection of the preposition *in, on, at,* or *of* (Appendix I). This final activity—which was also an interactive, group activity—was the final activity of the instructional part of Day 2. The posttest (Appendix B) was administered immediately.

The experimental class, like the control class, also began on Day 2 with a PowerPoint, but with an extended PowerPoint that included a brief orientation to CL and an introduction to the SCOBA. The students were then each provided a SCOBA of the

prepositions *in* and *on* (Appendix D)—a tool for implementing *orientation* in the learning process (Gal'perin, 1989b). Only a brief amount of time was devoted to the SCOBA—an unfortunate situation, considering the amount of material that is displayed on the SCOBA in a compact form. Next, students were arranged in pairs for the clay modeling project, a tool of *materialization* in Gal'Perin's SCI theory, as supported by the research of Serrano-Lopez & Poehner (2008). Finally, a set of the 40-card activity card sets (see Appendix E) was distributed to each pair of students who were instructed to talk-through their decisions as they chose between the prepositions *in* and *on* to place on the correct clay model. The cards in each set consisted of sentences with one or two fill-in blanks and the SCOBA picture category of the correct preposition. The correct number of cards were checked for each group, and the errors were corrected and discussed as an interactive activity. This concluded the first 50 minute portion of the instruction for the experimental class.

After a short break, the experimental class was presented a SCOBA for the preposition *of*, and the unique syntactic uses of this preposition were introduced. This time, only one preposition would be involved in the exercises, and categories of meanings for a single preposition would be the focus of the learning activity. A second clay modeling was introduced to the student pairs, and an additional 40-card set was given to each student group. The clay models distinguished between three primary meaning categories of the preposition *of* (Jang & Kim, 2010), and the image schema that identified these categories of meaning were also included on the cards. Once again, students were asked to match the cards to the appropriate clay model in a group activity, identifying the decisions for their choices as much as possible. The purpose of these

activities was to operationalize the elements of orientation, materialization, and internalization in the learning process. At the conclusion of this 25 minute segment of the total 75 minutes of instruction, the posttest was administered immediately.

Results of the Study: The Test Scores

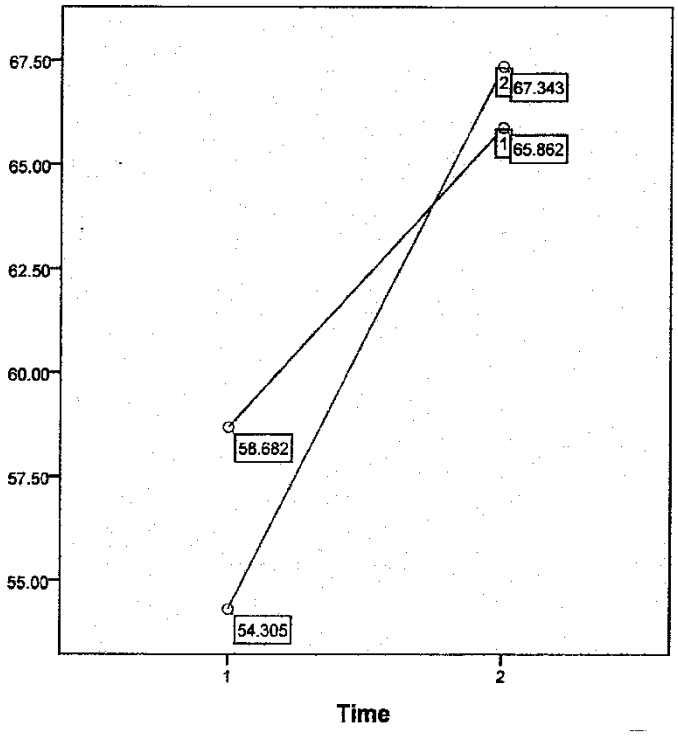
At the conclusion of the study, both the pretests and the posttests were scored to determine quantitative results. The pretest and the posttest were similar tests, and included two parts. The first part of each test was composed of sentences in a short essay form, and the students were asked to select the correct proposition among the choices of *in, on,* and *of.* The second part of each test was an additional essay that had the preposition *of* omitted. The student was asked to place a slash line or a ^ character to indicate the places in the essay where the preposition *of* was incorrectly omitted.

A key was established for the pretest and posttest with native speakers who are currently teaching ESL courses. Two graders were initially selected for this task, and in one instance of disagreement, the test was revised to increase clarity. The *of* omission test provided the most fertile ground for differences in the ESL teacher-graders. In a few places where differences occurred, additional graders—also native speakers who are currently teaching ESL courses—were used to form a majority opinion. On the pretest, two of five ESL instructors failed to place the preposition *of* in the sentences "She . . . had asked her assistant, Barbara, to make a copy it" and "Primo, feeling a lot shame, placed a piece of newspaper over his head" and three of five instructors failed to place the preposition *of* between "University" and "Kentucky" on the posttest in the sentence "The drama department of the University Kentucky invited the graduates . . . " The first two items were validated by three of five ESL instructors and included on the test, but the

example on the posttest (validated by only two of five ESL instructors) was ignored in the test scoring. In the *of* omission test, a "miss" included a missing *of* and an extra *of* that was incorrectly placed, but if an *of* was incorrectly placed only one or two words away from the correct place, only one "miss" was computed instead of two. All test answers were weighted equally.

All test scores were computed and analyzed as mixed-factorial repeated measures ANOVA. Fig. 3 provides a graphic display of the comparison of means between the control class (identified as "1" on the graph) and the experimental class (identified as "2" on the graph) between the pretest (the time 1 factor on the *x*-axis) and the posttest (time 2).

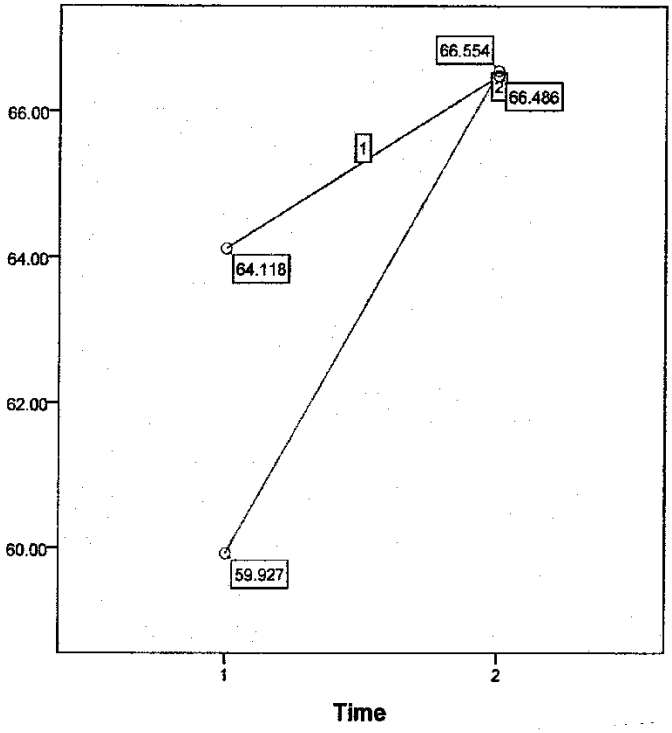
Figure 3. A Comparison of the Complete Pretest (Time 1) and Posttest (Time 2) Means of the Control Class (1) and the Experimental Class (2)



It may be immediately observed from Figure 10 that the means of the experimental class is lower than the control class on the pretest; yet, the experimental class exceeded the means of the control class on the posttest. This, of course, is in line with the research prediction. With the exceptions of two students in the control class, all students in both classes had gains on the posttest (see individual student scores for the pretest and posttest in Appendix J). The means of the experimental class moved 13% (M = 54.31 to M = 67.34) and the means of the control class moved 7% (M=58.68 to M = 65.86). Thus, it is not surprising that there was a high statistically significant difference in the gains of two classes (the *within-subject* effect), F (1, 21) = 32.55, $p < .01$.

Both the pretest and the posttest (Appendix B) were similar in length and design. Each included a fill-in section for the three targeted prepositions (Part 1) and an additional section that required the insertion of the preposition *of* in the appropriate places (Part 2). Figure 4 shows the means of the students for Part 1 of the test; again, the experimental class is identified as class "1," the control class as class "2," and the *x*-axis factor of time represents the pretest (1) and the posttest (2):

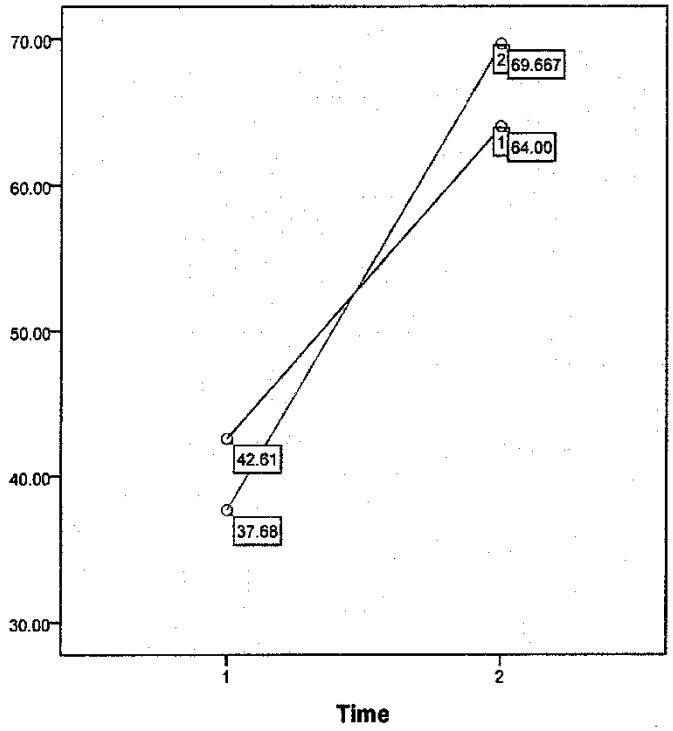
Figure 4. A Comparison of Part 1 of the Pretest (Time 1) and Posttest (Time 2) Means of the Control Class (1) and the Experimental Class (2)



The comparison of the means of Part 1 of the pretest and the posttest shows a narrower margin of difference between the control class and the experimental class than in the total test. Sixty percent of the students in the control class and 25% of the students in the experimental class actually dropped in their scores from the pretest to the posttest—demonstrating that the results of this part of the test had a great deal of variation. The experimental class (2) demonstrated a clear gain with a 6.62% change in the mean (M = 59.93 to M = 66.55), but the means of the control class (1) only moved 2.47% (M = 64.12 to M = 66.49). This result only *approaches* statistical significance, $F(1, 21) = 4.35$, $p < .06$.

Finally, Figure 12 shows the comparison of means of Part 2 of the test, the *of*-omission section of the test:

Figure 5. A Comparison of Part 2 of the Pretest (Time 1) and Posttest (Time 2) Means of the Control Class (1) and the Experimental Class (2)



Again, some difference clearly appears between the control group (1) and the experimental group (2). The means of the experimental class (2) rose 32% (M = 37.68 to M = 69.67) and the means of the control class (1) rose 21.4% (M = 42.61 to M = 64). The results of this *within-subjects* effect is statistically significant, F (1, 21) = 76.11, $p < .01$.

The pretest and posttest was analyzed as a mixed-factor ANOVA, with curriculum representing the *between*-subjects measure. Contrary to the prediction of the researcher, there was no significant effect of curriculum. While the experimental class clearly outperformed the control class on all parts of the test, no statistical significance was found as attributable to the curriculum effect, F (1, 21) = .321, $p < .6$, *ns*.

Results of the Study: The Targeted Prepositions

The gains on the individual prepositions *in, on,* and *of* were analyzed on Part 1 of the tests on Table 10. Part 2 of the test is not analyzed in these differences, as this part of the test was exclusively a test of the preposition *of.* In this analysis, gains were made by both the control class and the experimental class with the prepositions *in* and *of,* but neither the control class nor the experimental class posted a gain with the preposition *on.* Table 1 shows the gain or loss for each of the individual targeted prepositions, by percentage.

Table 1

Pretest/Posttest Scores and % Change for Targeted Prepositions

In	*On*	*Of*
Pretest Posttest % Change	*Pretest Posttest % Change*	*Pretest Posttest % Change*
Control class:	Control class:	Control class:
64.38 71.00 +6.62%	74.4 52.86 -21.54%	70.91 81.88 +10.97
Experimental class:	Experimental class:	Experimental class:
63.54 70.56 +7.02%	77.0 61.61 -15.39	58.33 67.71 +9.38

The drop in the scores of both the control class and the experimental class in regards to the preposition *on* is a surprising result of this analysis. The fact that the variation was so consistent between the classes could result in part from the differences between the pretest and the posttest. There was no validation in this experiment to show that the two tests are exactly equal, although they are similar in length and design. A second factor could be variation within the forms themselves, even though the prepositions *in,* and *on,* and *at* are often taught together as a group. For example, while the preposition *in* is frequently used to refer to spatial orientation from a personal (body

or mind) perspective, the preposition *on* often refers to *outside* spatial orientations such as the perspective of an outside force, such as gravity, or from multiple people, particularly in its role as a complementizer ("agree on, hard on, spent on, attack on," etc.). This difference alone could create a variant factor that could cause the preposition *in* to be an easiest preposition of the two to learn. More specifically, Tyler & Evans (2003) note that the preposition *in,* such as in the expression "in trouble," often refers to personal conditions from which one cannot easily escape; in contrast, *on*, as in "on the dodge" or "on chemo " often infers a more personal, escapable choice. Matula (2007), who researched ESL learning of the prepositions *in, on,* and *at*, also found wide variation in student accuracy between individual prepositions in her assessments. She conclusively suggested that "these prepositions might not be inherently as similar as has been assumed" (p. 523). It would seem that while the dialectic of choosing between prepositions is beneficial in the learning process, clear distinctions between the targeted prepositions in the orientation stage of learning must be emphasized.

One surprise to the researcher was the phenomenal gains of so many individual students as well as both classes on Part 2 of the test, the *of* omission test. Three students in the control class made gains that exceeded 30% in the assessment, and 9 students in the experimental class made these impressive gains. Some of the difference in the posttest could spring from a greater familiarity with the test type, as the posttest followed within a few days of the pretest. However, there is enough difference between the control class and the experimental class to encourage more research into the CL and SCT approach based on the recent work of Jang & Kim (2010) that was used to teach this important and singularly unusual preposition.

A general overview of the individual items that were missed on the posttest could provide insight for curriculum, instruction, or assessment tools. Some of the most frequently missed items on Part 1 of the test (the part that that included all of the targeted prepositions *in, on,* and *of)* will be examined. Since the large purpose of the pretest is to establish a baseline for instructional and curriculum assessment, our key interest here is identify and analyze the frequently missed items of Part 1 of the *posttest.* If consistent patterns can be identified, we can be hopeful that pedagogical solutions can be found. The individual test items on Part 1 of the pretest and the posttest are itemized by number in Appendix K. Additionally, collective scores of the control class and the experimental class for each individual test item on Part 1 of the pretest and posttest, grouped by each of the targeted prepositions, are provided in Appendix L.

First, on the control class posttest, nine of 74 items were missed by 80-100% of the students, and one item was missed by 70% of the students. The other 64 of the 74 total items on test were missed by no more than 60% of the students. For the control class, the ten frequently missed items are listed below by test item number with the correct proposition in parentheses:

14) . . . near the new resort (on) Lake Ocala.

16) . . . my cousins worked (on) a large, double-deck shrimp boat . . .

26) . . . I was (on) course for an exciting adventure!

27) (On) their advice, . .

28) . . . I purchased a book (on) how to fish.

33) . . . gear that would be needed (on) a fishing trip, . .

35) . . . nothing should stand (in) the way of having a good time!

39) . . . all neatly arranged (in) my fishing tackle box . . .

56) . . . we rowed away (in) the little rowboat . . .

74) . . . the experience would live . . . in my memory as a great day (in) my life!

Six of the frequent errors in this class involve the preposition *on* and three involve the preposition *in*.

On the experimental class posttest, no items were missed by more than 75% of the class, and only five items were in this group. Sixty-nine of the 74 total items on this test were missed by no more than 67% of the class. The five frequently missed items in the experimental class posttest are listed below, by test item number, with the correct preposition in parentheses:

14) . . . near the new resort (on) Lake Ocala.

28) . . . I purchased a book (on) how to fish.

35) . . . nothing should stand (in) the way of having a good time!

46) . . . inside the trunk (of) their car, . .

52) . . . just deprived (of) a little sleep!

Two of the frequently missed items involve the preposition *on,* one missed item is the preposition *in,* and two missed items are the preposition *of.*

The short list of the frequently missed items in the experimental class shows more diversity than the frequently missed items of the control class. It may also be observed that test items 14, 28, and 35 are found in both lists of frequently missed prepositions.

Item 14, judged by the native-speaker graders to be “the new resort (on) Lake Ocala” could be “the new resort (in) Lake Ocala” if Lake Ocala is a city, or an alternative correct choice could be “the new resort (of) Lake Ocala” if the speaker’s viewpoint is

"belonging to or association." Both concepts were taught in the CL approach to these prepositions.

The frequently missed item 28, "I purchased a book (on) how to fish" is a correct answer if *on* introduces a topic as a conjunct, but "I purchased a book (of) how to fish" would also seem to be a plausible choice when *of* carries the "association" meaning. Again, both of these concepts were introduced in the experimental class. A quick check with MICASE, a popular corpus of more than 152 transcripts and 1.8 million words, provides support for both possibilities. The words "on how" appear together 88 times, "of how" appears 174 times, and an alternate preposition "about how" appears 280 times (The University of Michigan English Language Institute, 2007).

The third frequently missed item in the experimental class, item 35, is "nothing could stand (in) the way of having fun." I see no accurate alternative choice here, but the *in* meaning of "blockage" could easily be confused with the *on* meaning of "activity—plan or type of trip." Item 46, "inside the trunk (of) the car," is very close to "inside the truck (in) the car" if the speaker views the trunk of being inside the body of the car.

Finally, the last frequently missed item, item 52, "just deprived (of) a little sleep," using the "separation" meaning of *of*, has similarity to the "time—seasons of life" meaning for *in*. For example, the expression "in the night" is found in MICASE, although not nearly as frequently as the alternate preposition "at night" (The University of Michigan English Language Institute, 2007). Summarily, it is necessary to recognize that the viewpoint of the speaker (as understood by the person who is taking the test) is a factor that will keep the fill-in type of preposition test limited in its validity as an assessment tool.

Summary of the Chapter

The research project related to this dissertation was conducted in advanced second language acquisition grammar classes in the spring of 2015. The factors of grammar level and instructional time allotted for instruction in the accurate use of the targeted prepositions (75 minutes) were controlled for both a traditional, control class and an experimental class that was taught with CL and SCT approaches. Both classes posted gains and showed high statistical significance between the pretest and the posttest *with-in subjects* factor (gains in accurate use of the targeted prepositions) on the complete test and Part 2 of the test. Yet, while the experimental class clearly outperformed the control class on Part 1 of the test, the *with-in subjects* factor failed to show significance. Likewise, the *between subjects* factor, the curriculum factor, failed to show statistical significance in this experiment. In separate analyses of the individual prepositions *in, on,* and *of* on Part 1 of the test, the experimental class performed better than the control class with *in* and *on,* but the control class performed slightly better than the experimental class in the analysis of the preposition *of*.

Chapter Five

Discussion and Conclusions

This chapter will present a discussion of the study results, limitations of the study and suggestions for future research, pedagogical implications of the study, and conclusions.

Discussion of the Results

First, overall results of the statistical tests show that the students in both the control and the experimental class made highly significant gains in their ability to accurately determine the correct preposition in the wide variety of contexts that were included in the assessments. *These gains came only after 75 minutes of class time!* The highest individual score on the pretest in both classes was 73.63% (the single one greater than 70%), so no student was eliminated from the experiment because of previous proficiency in the use of the targeted prepositions. On the posttest, two of 10 students in the control class and six of 12 students in the experimental class attained scores that exceeded 70%. Neither did any student achieve 100% on the posttest; the highest final score was 76.77%. These results inform us that the grammatical targets of the study are relevant to this particular level of ESL student.

The researcher posits that the collocational knowledge of both the native-speaker ESL instructor test graders as well as of the non-native speaker learners is a limiting factor in use of the fill-in test as a valid assessment tool. Mueller (2011) found that ESL learners had significantly higher scores when tested with high frequency preposition collocations as opposed to low frequency collocations. This not only validates the value of using frequency-based preposition collocations as exemplars in the ESL classroom, but

it also leads us to conclude that the native-speaker ESL instructors who were used to establish the grading key for the assessments of this experiment were also highly likely to have been influenced by their collocational knowledge—and thus unaware that they may have overlooked the possibility of multiple preposition choices in some cases.

An additional factor that likely limited the gains in this study was the decision not to allow the students in the experimental class to use the SCOBA on the posttest. Some researchers, as Lee (2012) and Lai (2012), allowed the use of a SCOBA on the posttest. SCOBAs are designed to provide both orientation to uses in varying contexts and to serve as quick guides to these uses. The posttest results in this experiment only reflect the orientations and various uses that the students could retain in memory, but the short duration of the experiment prevented a high familiarity with these tools. Of course, the SCOBA is always intended to have a temporary orientation purpose that can be eliminated when the concepts become internalized, but the gains of this study, in the short run, could possibly have increased in the experimental class with the use of this important learning tool.

The Hypothesis of the Study is Rejected

The research question is: Is there a statistically significant difference in the comprehension and accurate isolated use of the prepositions *in, on,* and *of* between a control group that receives traditional, non-cognitive instruction in the use of prepositions and an experimental group that receives an instructional plan on the use of the prepositions *in, on,* and *of* based on cognitive linguistic and sociocultural theory? As statistically significant difference was not found in the between-subject curriculum factor in this study, the hypothesis, therefore, is rejected.

The null hypothesis that corresponds to this question is: There is no statistically significant difference quantifiable difference in the comprehension and accurate use of the simple prepositions *in, on,* and *of* between a control group that receives traditional, non-cognitive instruction in the use of prepositions and an experimental group that receives an instructional plan on the use of the prepositions *in, on,* and *of* based on cognitive linguistics and sociocultural theory? The current study accepts the null hypothesis.

Limitations of the Study and Suggestions for Further Research

The within subject gains of this study are indeed impressive, but caution is necessary in light of certain limitations in the study. The data that was collected in this research reflects two particular classrooms of one ESL program in one particular university setting. Generalizability of these results is necessarily limited.

First, using a preposition fill-in element as the major part of the assessment of this experiment was a concern of the researcher from the beginning. Part of the concern is that students may apply collocational knowledge in this type of test without a corresponding increase in their understanding of the prefabricated, unanalyzed chunks. Another concern is that fill-in assessments, though quite traditional, carry risk factors of culturally problematic contexts or they may fail to reflect authentic speech or academic genres. Matula (2007) questions the validity of the fill-in assessment. From her study which involved the teaching and learning of the prepositions *in* and *on* with both a traditional class and a CL class, Matula reported that both groups demonstrated significant improvement in a picture assessment (students were to select one of three pictures in response to a sentence prompt) and a preposition production assessment (students were to

create sentences from a picture or calendar prompt), but neither class showed significant improvement between the pretest and the posttest on the fill-in assessment. Her qualitative recall data revealed that students had a tendency to misunderstand the context of the fill-in test when they understood the preposition itself. Matula concludes that the fill-in test, which is so frequently used to assess preposition knowledge and accuracy in ESL classrooms, requires high metalinguistic knowledge and often uses language in such a constrained, artificial way that it could mask true language gains. Some of this problem could possibly be avoided with careful pilot testing of the assessments, or using a greater range of testing materials. For the current research, pilot testing was used to predict gains between the pretest and the posttest. Yet, the limitations of the fill-in test are suspect—especially if this type of assessment is used as the sole or primary measure of student learning.

As with any classroom study, any conclusions that may be drawn are limited by the small number of participants. A larger group of students—with broader ranges of language level, education, age, and cultural background—would help to increase the validity of these results.

A further limitation of this research is that there is no assessment of gains that are maintained or will actually be increased by the experimental factors over a longer period of time. A delayed posttest would more fully assess the brief learning experience of this experiment and the introduction of approaches that, hopefully, will become tools for more effective learning efficiency in the future. Longitudinal studies would trace a much fuller picture of student conceptual development that a study of immediate effects on learning, such as this dissertation, cannot provide.

More research is needed on the construction and design of SCOBAs. The students of the experimental class appeared to be quite happy to have the use of such tools, and virtually all of them requested to receive these materials for their own use after the study was concluded. Yet, there is no perfect SCOBA for all levels of students or all teaching purposes, and SCOBAs must be modified when necessary. Did the SCOBA overemphasize some concepts, making them appear too complex? No qualitative data was received in this experiment regarding the usefulness or user friendly qualities of the SCOBAs other than the desires of the students to own them.

The important verbalization stage of the learning process received only scant attention in this study. Nequeruela (2003) assigned verbalization exercises as homework in his SCT study, finding that verbalization exercises assigned for the classroom were not especially effective. In the current study, the verbalization task was left up to the students in the paired group activity, but the practice of this key tool of language learning was likely very limited, due to classroom time constraints and the lack of a good method of monitoring the exercise. Succinctly, the implementation of verbalization seemed to be poorly designed in this experiment. A longer experiment could incorporate self-recorded verbalization assignments. Essentially, no validation was made in this experiment that student learning moved from the orientation stage and covert speech to internalization and transformation of conceptual development. However, this is not to deny that some internalization of conceptual understanding occurred.

In addition, the targeted prepositions of the study, *in, on,* and *of,* reflect a narrow scope of study, even from the small class of English prepositions. Extending the study to

other prepositions and comparing their networks of polysemy to the targeted prepositions this research would be a valuable extension of this study.

Pedagogical Implications of the Study

It is often lamented that *empty formalism* has resulted from student learning in traditional classrooms which typically focus on the development of grammatical forms. When the L2 grammatical forms emerge with incomplete conceptual understanding, the ESL student is left to create and recreate conceptual meanings on an ad hoc basis as they are encountered. The L2 development of meaning, then, often becomes a frustrating, slow process since these conceptual meanings are not presented as initial learning tasks. Introducing conceptual meaning *before* introducing the related complex grammar forms connects grammar to the processes of conceptual thought. The conceptual development *pulls up* the development of form, for thought then emerges into communication performance. This is the critical issue of the task that the study attempted to address.

The hypothesis of the study was based on the theoretical framework of CL and SCT. As H. Lee (2012) aptly put it, CL provides the answer of *what* to teach, and SCI principles offer guidance in regard to *how* to teach. Cognitive linguistics provides powerful resources for the materialization of concepts, and the results of this research strongly argue that the use of images—inspired from CL theory and materialized on the SCOBAs in this study—were contributing factors to the gains that the experimental class achieved over the control class. Additionally, SCT holds that learning is mediated through social interaction and that learning is an activity of participation rather than mere passive "acquisition." The clay-modeling activities and the group verbalization activities of this study are models of teaching and curriculum that can be adapted to an infinite

number of learning targets in second language learning. As SCT maintains that no single learning strategy will be generally optimal for all students in a classroom at a given time, a variety of learning strategies are necessary to match the "zones of proximal development' that are currently active. Group verbalization of curriculum learning targets is absolutely essential—not merely as corrective feedback on a peer level, but for its value as a social mechanism of concept internalization. Summarily, second language acquisition instructors can little afford to ignore the use of such tools as image schema, SCOBAs of meaning categories for targeted grammatical items, clear classifications of the common syntactic functions of targeted items—such as the prepositional phrases of this study, and materialization strategies to enhance learning through social interaction.

Conclusions

The study compared the teaching and learning of the targeted prepositions *in, on,* and *of* between a class that was taught with traditional methods and an experimental class that was taught with CL and SCT approaches. The purpose of the experiment in both of classes was to increase accuracy and understanding of the multiple uses of common English prepositions that are difficult for ESL students to learn. Both classes made significant gains in the learning process, allowing the conclusion that this goal was attained.

The curriculum factor was not significant between the two groups, so no claim can be made that one form of instruction provides more instructional benefit to students in regards to accurate use of the targeted prepositions. However, as the experimental class clearly outperformed the control class, the result clearly signals a need for more related

research. The results of the experimental class, at any rate, were no worse than the results of the control class, but must be verified in additional studies.

The strengths of this study, summarily, are three-fold. First, this research has carefully examined and validated the need for additional research in the teaching and learning of prepositions in advanced ESL classes. Secondly, the SCOBAs, card-set activities, and clay-modeling projects that were used in the experimental class in this study provide substantial groundwork for additional research in CL and SCT approaches in the ESL classroom. Additional related research can build upon the approaches used in this study to make even greater gains in preposition accuracy than the experimental class had over the control class in the current study and, hopefully, find statistical significance that this study failed to find. Thirdly, this research is the first—to my knowledge—to apply the recent cognitively-based research on the preposition *of* from Jang & Kim (2010) to ESL classroom research. From this foundation, I have little doubt that additional research with this important preposition in ESL contexts will soon be forthcoming.

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APPENDIX A

Student Informed Consent Form

Adult Informed Consent Statement

Teaching and learning selected prepositions in the advanced ESL grammar classroom

INTRODUCTION
The Department of Education at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.
PURPOSE OF THE STUDY
Students will follow a curriculum of instruction toward the learning of prepositions in an advanced ESL grammar classroom. The purpose of the study is to investigate curriculum approaches in this subject area.
PROCEDURES
You will be asked to complete a short (approximately 25 minute) pretest, follow a curriculum toward the learning of prepositions, and then take a posttest (approximately 25 minutes).
RISKS
According to the course syllabus in AEC grammar level 4, prepositions are covered in week 2. You will be receiving a curriculum involving prepositions during week 2. No risks or discomfort is anticipated as a result of this study.
BENEFITS
The learning of English prepositions is a challenge for most ESL learners. This research is expected to contribute to research in the field with the goal of enhancing curriculum design. All students in the study will participate in classroom activities that are designed to enhance learning. Direct benefits to students in the study will vary, but all students are expected to gain in their knowledge and use of prepositions through the duration and/or as a result of the study.

PAYMENT TO PARTICIPANTS
No financial payment will be made to the participants of this study.
PARTICIPANT CONFIDENTIALITY
Your name will not be associated in any publication or presentation with the information collected about you or with the research findings from this study. Instead, the researcher(s) will use a study number or a pseudonym rather than your name. Your identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission.

Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form you give permission for the use and disclosure of your information for purposes of this study at any time in the future.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, you cannot participate in this study.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to participate in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about you, in writing, at any time, by sending your written request to: Don Englund, 204 Lippincott, University of Kansas, Lawrence, KS, 66045.

If you cancel permission to use your information, the researchers will stop collecting additional information about you. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to the researcher(s) listed at the end of this consent form.

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my rights as a research participant, I may call (785) 864-7429 or (785) 864-7385, write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.

I agree to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

_____ _____

Type/Print Participant's Name Date

_____

Participant's Signature

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APPENDIX B

Pretest and Posttest

Pretest **Name: _____**

Part 1: Choose the preposition *in*, *on*, or *of* for each of the blanks below.

Pizza Delivery: Barrow, Alaska[1]

_____ Barrow, Alaska, a city located _____ the northern border _____ AK., there are three pizzerias _____ town, but PoGo's Pizza, focuses _____ delivery. The busiest time for PoGo's—which is located _____ South Glacier St.—is _____ the winter when it is dark and no sun appears _____ the sky for days at a time. Snow is _____ the ground, and the temperatures are often _____ the range of -40 degrees F. Depending _____ the time _____ day, it is not uncommon to see a polar bear _____ the middle _____ a street, engaged _____ a bit _____ exploring or hunting for food. Snow is piled high _____ the edges _____ the roadways, of course, and sometimes, snow drifts are _____ the way _____ the vehicles, pedestrians, and animals that try to move through the narrow streets _____ the small town.

Justin is a deliveryman at PoGo's. He has been involved _____ retail sales and customer service since he was _____ college where he delivered pizza _____ foot to students who lived _____ the residence halls. Later, wanting to wanting to profit from his interest _____ fishing, he moved to Barrow, AK., a city _____ the Arctic Ocean, to work _____ the fishing and hunting guide business. _____ his small plane, he enjoys flying fishermen and hunters to remote camps—a job that keeps him busy _____ the short summer season. _____ the long, cold winter, however, Justin survives by delivering

[1] Adapted from Baime & Joksic (2014).

pizzas and living _____ a careful budget, refusing to rely _____ food stamps and other government programs.

A pizza that is placed _____ order at PoGo's gains high priority status long before the pizza is placed _____ Justin's hands for delivery. From the time the order is received _____ the phone or from the Internet until the pizza is delivered and received by the customer, the restaurant staff is _____ high alert. Small town businesses are dependent _____ repeat customers and they only remain _____ business by focusing _____ customer care. All employees are asked to keep this fact _____ view, for employment opportunities are scare in the Far North, and their company will not succeed _____ the pizza business if it does not keep making improvements _____ customer service. _____ other words, customers are #1!

_____ a typical day, Justin first unplugs the electricity to his car which keeps the engine and fluids from freezing _____ the deep cold _____ the night. He starts the car and must wait an hour before beginning _____ his daily delivery schedule, for it takes that long for his car to warm up to operating temperature. During this wait time, Justin dresses _____ warm clothing, depending _____ his three pairs _____ specially-made socks and huge boots to keep his feet from freezing. _____ addition, he also uses two pairs of pants, three hoodies, and a large jacket that is full _____ insulation.

When Justin arrives at PoGo's, he parks his car _____ the south side _____ the restaurant, and keeps his car heater turned _____ high the entire day so the temperature _____ the car is tolerable and the glass won't break. After getting _____ the road with his pizzas, Justin gets stuck somewhere almost everyday-- _____ the deep snow, _____ a bit of ice, or even _____ low spots where the pavement is missing.

_____ the whole, Justin likes his job. "I'm young," he says, "and I'm keen _____ adventure. People depend _____ the service we provide, and this puts me _____ demand, especially _____ the dark winter season when people are not always _____ a good mood."

Part 2: In the following essay, the preposition *of* has been omitted in several places. Carefully read the essay, and draw a short line, as /, or use an insertion symbol, as ^, to show each place where the omitted preposition *of* should be inserted.

Primo[2]

Dr. Jean Taline's face wore a smile contentment. She had just written a report her team's research work and had asked her assistant, Barbara, to copy it. Now she was enjoying the feeling satisfaction for a good year.

Suddenly a cry alarm came from the area the animal cages. A squeal protest soon followed. Dr. Taline hurried to check on the source the noise, and she soon found the cause the problem.

Primo, the chimp Africa, and Barbara, the research assistant from the University Kansas, were having a tug-of-war, with Dr. Taline's report as the prize! With grunts effort, Primo tugged at one end the report, and Barbara tugged at the other.

One word command and a frown disapproval from the boss stopped the contest. Dr. Taline retrieved the pages the tattered report. It was still readable and, though full rips and tears, could be copied.

[2] Wahlen, G. (1995). *Prepositions illustrated.* Ann Arbor, MI: The University of Michigan Press, p. 257-258.

Primo uttered a squeak embarrassment, and Barbara gave a speech apology. She had stopped to feed the chimp a snack, holding the report in one hand and the cracker in the other. Primo had preferred the report and grabbed it.

The stress the moment was replaced by a laugh amusement as Primo, feeling a lot shame, placed a piece newspaper over his head. All was forgiven.

Posttest Name: _____

Part 1: Choose the preposition *in, on.* or *of* for each of the blanks below.

A Fishing Trip to Remember[3]

I was relaxing _____ the cool shade _____ a large tree _____ our backyard, a little bored and about half-asleep _____ that summer day, when an idea suddenly popped into my mind. I had two older cousins who were both _____ vacation for a week. Since both of these guys lived close to me—just _____ the other side _____ town, I thought I might be able to convince them to take me _____ a fishing trip! I contacted them both _____ my computer, since both _____ them are hard to reach _____ the phone. I suggested that _____ Friday, they could meet me _____ town for a quick breakfast, and then we could go fishing together Big Catch Resort _____ Lake Ocala.

One _____ my cousins worked _____ a large shrimp boat _____ weekends and the other cousin worked _____ town at Walmart. They both loved to fish, were up _____ the fishing news, and had told me that they were interested _____ taking me fishing as soon as I was not quite so busy _____ school. I knew I could count _____ them to give me a good time. _____ fact, I felt lucky to be _____ their family!

My cousins quickly agreed _____ the plan, and I was _____ course for an exciting adventure! _____ their advice, I purchased a book _____ how to fish. The book was based _____ the experiences _____ a fishing guide who lived _____ our area, Hal Braddock. Mr. Braddock suggested items _____ gear that would be needed _____ a fishing trip and places where we could expect the most success. Most of all, Braddock

[3] Adapted from Wahlen (1995).

believed _____ having fun and that nothing should stand _____ the way _____ having a good time! And my mind usually moved _____ the direction _____ having fun!

Friday soon arrived. My gear was ready—all nearly arranged _____ my fishing tackle box and _____ my backpack. _____ the early morning darkness, my dad drove me _____ his car to Wendy's, the only fast-food restaurant _____ our town. After parking the car _____ the parking lot _____ the south side of the restaurant, Dad and I hopped out of the car to greet my two cousins. One cousin told me to put my gear inside the trunk _____ their car, but my long fishing rod would be tied _____ the top _____ the car. Then, we ate a huge breakfast, because we knew that if the fishing was good, we would be so engaged _____ fishing that we would not want to eat! Before long, breakfast was over, we were _____ our way, and I was _____ a good mood—just deprived _____ a little sleep!

When we arrived at the resort, we saw a few sailboats _____ the lake, all lined up _____ a row for a race. There appeared to be a few clouds _____ the eastern sky, but as we rowed away _____ the little rowboat with our gear safely tucked _____ the rear part _____ the little craft, I wasn't worried. I was so interested _____ spending the day with my cousins and getting my fishing line _____ the water that even if it rained _____ us a little, it wouldn't ruin my day!

First, we fished a couple _____ hours _____ the north side _____ the lake, where I caught the first fish! My float went down, I jerked my rod, and knew I had a fish _____ the line. Soon we had the 12-inch fish safely _____ the boat.

_____ the middle _____ the afternoon, we decided _____ going to the opposite end _____ the lake to fish. A little rain began to fall _____ us, but later, the sun came out again. All too soon, the sun was _____ the western horizon, and it was getting dark.

When we pulled the boat up out of the water, I knew the experience would long live a long time _____ my memory as a great day _____ my life!

Part 2: In the following essay, the preposition *of* has been omitted in several places. Carefully read the essay, and draw a short line, as /, or use an insertion symbol, as ^, to show each place where the omitted preposition *of* should be inserted.

A Night at the University Theater[4]

The drama department the University Kentucky invited the graduates our school to attend a play. We were told that we would see one the historical plays Shakespeare, but we didn't. The title the play was "Puzzles," and it was written by an unknown author.

In a description the play in the program, the background the playwright seemed hazy. The list characters was exceedingly long, and the members the cast numbered more than one hundred.

The designer the drama sets was a genius. The lighting the stage was brilliant. The star actor the evening was talented. The director the production had done his best. However, the meaning the play was unclear, and the words the actors made no sense. All the problems, the biggest was the number scenes in the play; there were six acts three scenes each, for a total eighteen scenes! As the evening dragged on, our sighs boredom and loud yawns weariness were noisier than the voices the drama cast.

[4] Wahlen, G. (1995). *Prepositions illustrated.* Ann Arbor, MI: The University of Michigan Press, p. 257.

When the play finally ended, it was nearly a quarter eleven. Members the audience were suddenly awakened by the bright lights the theater, which came on after the curtain closed. There was no loud clapping—just a polite applause from a few members the audience.

There was one thing we were sure about; this was not a play Shakespeare's!

Appendix C

Distribution of *IN/ON/OF* in Pretest and Posttest

Pretest: "Barrow, AK, Pizza Delivery", "Primo"

IN = 28 ADJUNCTS/POSTMODIFIERS

Activity	6
Arrangement/group	0
Atmosphere	2
Behavior	0
Blockage	1
Clothing	0
Contained area	10
Direction	0
Means/measures	0
Membership	0
Purpose	0
Quantity	0
Relationship/state	2
Time	4
Transportation	1
Vantage point	2

OF in "Barrow, AK, Pizza Delivery" = 11
- S (source) = 0
- P (partness) = 7
- G (genitive) = 4

OF in "Primo" = 23
- S = 0
- P = 7
- G = 16

CONJUNCTS:	2 *(in addition, in other words)*
COMPLEMENTS:	2 *(engaged in, interest in)*

ON = 15 ADJUNCTS/POSTMODIFIERS

Activity/type of trip	2
Belongs to/works for	0
Closeness/facing	3
Direction	1
Means	2
Part of an area	1
Phys. support/attach	0
Possession	0
State	3
Time	1
Top Surfaces	2
Transportation	0

CONJUNCTS:	1 *(on the whole)*
COMPLEMENTS:	9 *(depend on, dependent on, depending on (2), focuses on, focusing on, keen on, living on, rely on)*

Posttest: "A Fishing Trip to Remember", "A Night at the University Theatre"

IN = 25 ADJUNCTS/POSTMODIFIERS

Activity	1
Arrangement/group	1
Atmosphere	2
Behavior	0
Blockage	1
Clothing	0
Contained area	14
Direction	1
Means/measures	0
Membership	1
Purpose	0
Quantity	0
Relationship/state	1
Time	2
Transportation	1
Vantage point	0

OF in "A Fishing Trip to Remember" = 16
- S (source) = 1
- P (partness) = 11
- G (genitive) = 4

OF in "A Night. . ." = 25
- S = 1
- P = 7
- G = 17

CONJUNCTS: 1 *(in fact)*
COMPLEMENTS: 4 *(believed in, engaged in, interested in (2))*

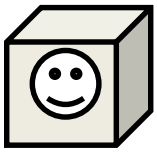
ON = 20 ADJUNCTS/POSTMODIFIERS

Activity/type of trip	6
Belongs to/works for	0
Closeness/facing	1
Direction	3
Means	2
Part of an area	1
Phys. support/attach	1
Possession	0
State	0
Time	3
Top Surfaces	2
Transportation	1

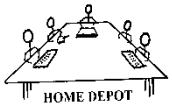
CONJUNCTS: 1 (*on their advice)*
COMPLEMENTS: 7 *(agreed on, based on, count on, decided on, fall on, rained on, up on)*

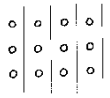
Appendix D

SCOBAS for the Experimental Class: *In, On,* and *Of*

IN  ADJUNCTS NP MODIFIERS

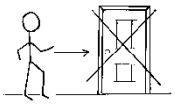
THE PROTO-SCENE
3-Dimenional
CONTAINMENT: Location of *Surrounded* Areas

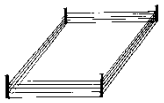




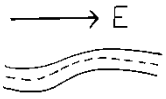
Activity (involvement): in computers/business/education/college
Arrangement/group: in a circle/piles/rows/small groups



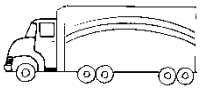




Atmospheric conditions: in the heat/the rain/the clouds/the sunshine
Behavior: in earnest/a loud voice/anger
Blockage: in the road/my way
Clothing: in a suit/uniform/silk/warm clothing
Contained area: in my purse/town/Iraq/water/bed/memory/my leg
her office/prison/the South

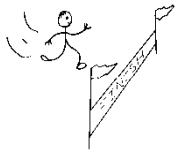






Direction: in that direction/the other direction
Means/measures: in cash/ounces/centimeters
Membership: in the family/the choir/the class
Purpose: in memory/honor/appreciation
Quantity: in truckloads/thousands



Relationship/State: in common/in combination/in step *(metaphor)*/in love
in love/a good mood/favor/awe/charge/power/demand/a corner *(metaphor)*
Style: in English/fashion/ink
Time (as a contained period): *seasons:* in retirement/season/the Summer
periods: in a few days/the last 10 yrs./a moment/no time/2009/no time/10 minutes
parts of the day: in the evening/the morning
Transportation (seated): in canoe/a car/a helicopter/a rowboat/small plane
Vantage point: in back/front/private/range/sight/view

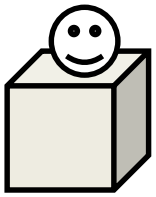
CONJUNCTS: In addition/any case/conclusion/fact/my opinion/particular

COMPLEMENTIZERS ***(Links Confidence/Involvement/Results):***

After Verbs: believe in, confide in, deals in, engage in, interest in, results in, succeed in

After Adjectives: (dangers) inherent in, interested in

After Nouns: confidence in, dealer in, interest in

ON 

THE PROTO-SCENE
2-Dimensional
CONTACT, SUPPORT:
Location of *Surface* areas

ADJUNCTS
NP MODIFIERS

Activity (plan or type of trip): on a budget/business/course/a cruise
a field trip/a journey/the plan/the road/a roll/target/vacation
the way

Belonging to/works for: the assembly line/the committee/the debate team
the faculty/the honor roll





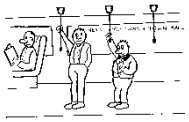
Closeness/facing: on the Kansas River/the border/the street/your side/your team
Direction: on the horizon/my left/the north side/the other side

Means (non-physical support): on diesel/the computer/credit/foot
the Internet/junk food/online/the phone/T.V./unemployment
Part of an area: on the bottom/the edge/the left side

Physical support/attachment: on the ceiling/the door/the line







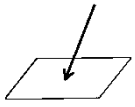
Possession: on me/you
State: on alert/delivery/edge *(metaphor)*/fire/high *(a control)*/hold/request

Time (as a calendar date/occasion): *days of the week:* on Monday/Saturday
scheduled seasons: on Christmas Day/May 4/my birthday
Spring Break
Top surfaces: on the desk/grass *(short)*/ice/the lake/the shelf

Transportation (not seated): on a bike/the bus/Delta Airlines/a train
a sailboat/the subway

CONJUNCTS: On their advice/on that basis/on the other hand/the whole cats *(formal topics)*

COMPLEMENTIZERS *(Links Vantage Pts., External Entities):*



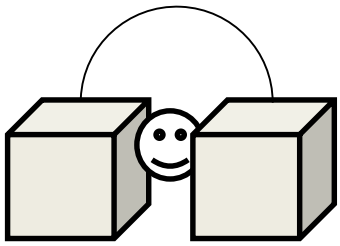
After Verbs: agree on, based on, count on, decide on, depend on, doted on, focus on, heaped on, improve on, look on, rely on, spent on, tell on heaped on

After Adjectives: dependent on, hard on, intent on, keen on, up on

After Nouns: attack on, ban on, expenditure on, improvement on, pity on, reliance on, war on, pity on

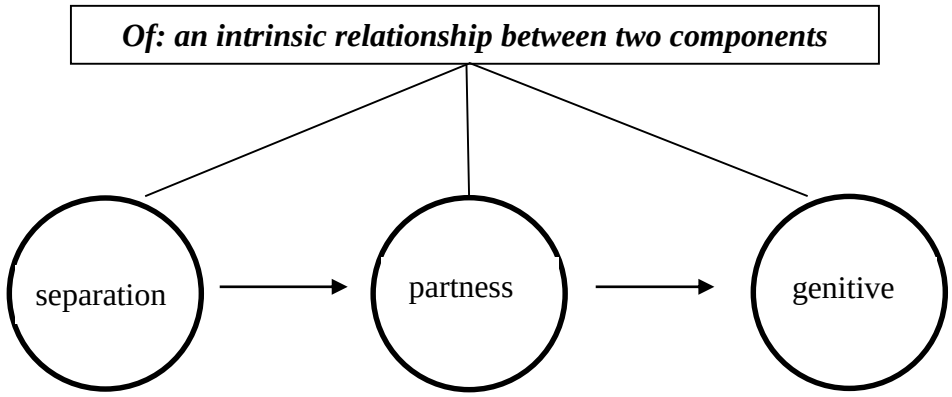
After Bad News: died on me, fire on the troops, march on the city, pull a gun on me, rain on us, sick on us

OF



THE PROTO-SCENE:
SEPARATION

The Semantic Network of *Of*[1]



More prototypical
Concrete
More lexical meaning

Less prototypical
Abstract
More functional meaning

[1]Adapted from Jang & Kim (2010, p. 225)

OF: Separation 

Deprivation *(away from):* cured ***of*** pneumonia /deprived ***of*** sleep/works independently ***of*** her boss /relieved ***of*** duties /rid ***of*** a nuisance /robbed ***of*** his money

Reason/cause *(because of, about):* afraid ***of*** snakes /aware ***of*** a change of temperature /capable ***of*** . . . /convinced ***of*** his innocence /fear ***of*** snakes /frustration ***of*** learning English /in favor ***of*** it

Source/origin *(from):* animals ***of*** the jungle /graduates ***of*** KU /Indians ***of*** the SW /music ***of*** Bach /natives ***of*** Alaska /paintings ***of*** Picasso /works ***of*** da Vinci

Spatial separation *(from):* north ***of*** here /west ***of*** Nashville /within a mile ***of*** here

Temporal separation *(before):* at five minutes ***of*** six/ a quarter ***of*** twelve

OF: Partness 

Material composition *(made from)*: boats ***of*** leather /crown ***of*** gold /dolls ***of*** clay /it is ***of*** stainless steel /salad ***of*** avocadoes and tomatoes

Measurement/amount/part of a whole/a whole: all ***of***. . . /the area ***of***. . . /a bit ***of***. . . /bottom ***of*** the barrel *(figurative)* /both ***of*** which /box ***of*** tissues /a can ***of*** paint /front ***of*** the house /full ***of*** joy /glass ***of*** water /gust ***of*** wind /half ***of*** the class /handle ***of*** the door /the heat ***of*** the day /the last day ***of*** March /a lot ***of***. . . /margin ***of*** the page /middle ***of*** the road /most ***of*** the windows /the north side ***of***. . . /a piece ***of*** cake /the other ***of*** the two /part ***of*** the responsibility /planeload ***of*** passengers /tip ***of*** the iceberg *(figurative)* /two ***of*** his brothers

Relationship in a group/category: head ***of*** the house /member ***of*** Congress /star ***of*** the show /survivors ***of*** the fire /winners ***of*** the lottery

OF: Genitive (belonging to)

Appositive: Chamber ***of*** Commerce /Museum ***of*** Natural History /Sea ***of*** Galilee

Association (belonging to, associated with): bark ***of*** an Oak tree /border ***of*** Mexico /colors ***of*** the flag /delight ***of*** the audience /history ***of*** the American West /items of gear /laughter ***of*** the children /love ***of*** learning /mayor ***of*** Houston /outcome ***of*** the game /patients ***of*** the Dr. /pages ***of*** the book /people ***of*** faith /period ***of*** mourning /Prince ***of*** Egypt /range ***of*** temperatures /record ***of*** oil changes /respectful ***of*** the environment /smell ***of*** the fish /stress ***of*** the schedule /tears ***of*** joy /tired ***of*** waiting *(impatience associated with a discrete act)*

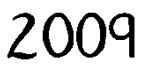
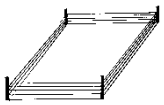
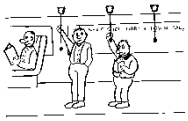
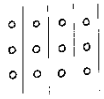
Possessive *(belonging to):* children of the family /daughter of a king

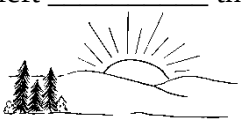
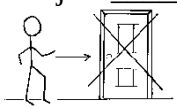
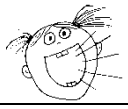
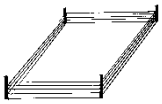
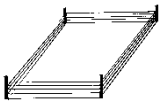
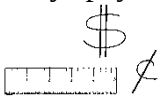
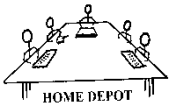
Subjective/objective: the creation ***of*** wealth /destruction ***of*** the hurricane /the discovery ***of*** America /howls ***of*** the wolves /hum ***of*** the machinery /movement ***of*** the car

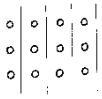
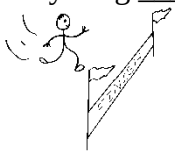
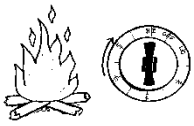
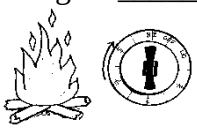
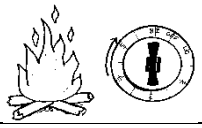
Appendix E

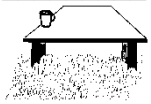
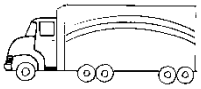
Activity Card Sets for the Experimental Class

_IN/ON_ Card Set Activity

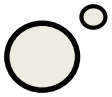
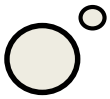
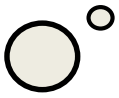
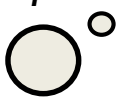
1. He relies _____ me to pay the rent because he is not _____ a budget.  COMPLEMENTIZER	2. Please install that light _____ the ceiling. 
3. He'll be here _____ 5 minutes, _____ my opinion.   CONJUNCT	4. The sun was high _____ the sky before I woke up. I had been _____ bed for 14 hours!  
5. Depending _____ her progress, she may leave the hospital soon. COMPLEMENTIZER	6. Please fold the cardboard _____ the edge of the table. 
7. Don't use pencil; write it _____ ink. 	8. Rick travelled _____ the bus because he had little money. 
9. Sherry placed the chairs neatly _____ rows. 	10. I always sleep late _____ Saturdays. 

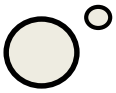
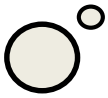
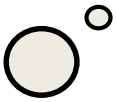
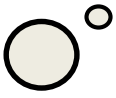
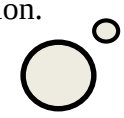
11. She's travels a lot _____ business. 	12. There is a most beautiful sunset to your left _____ the horizon. 
13. I'm going to move the boxes that are just _____ my way! 	14. He lives _____ Broadway Avenue, _____the north side of town.  
15. He seems engaged _____ some serious business. He seems to be quite _____ earnest to complete this job. COMPLEMENTIZER 	16. I was so mad! He punched me right _____ the stomach. 
17. Based _____ his story, it must have been pretty serious. COMPLEMENTIZER	18. He always comes _____ foot, and seems to live _____ junk food. 
19. Be sure to dress _____ warm clothing before going out _____ in the cold.  	20. He lives _____ the border, and has to stay _____ high alert for thieves.   
21. I like to do business with her. She always pays _____ cash. 	22. She has lost a lot of weight since she has been _____ college. 

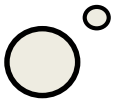
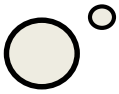
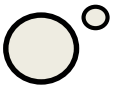
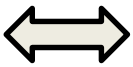
23. _____ the whole, I eat healthy foods. That's why I'm _____ course to lose 40 pounds! CONJUNCT 	24. Stacks of paper lay _____ piles that nearly covered his desk. He says he wants to keep everything _____ sight.  
25. Depending _____ her progress, she may leave the hospital soon. COMPLEMENTIZER	26. I know that we have a lot to do in the yard, but surely, you don't want to work _____ this heat! 
27. I plan to travel to Los Angeles _____ Spring break next year. 	28. Susan travelled _____ a small plane for the first time. 
29. The heater has been running _____ high all day, but I'm still cold! 	30. Don't put gasoline in that tank! The truck runs _____ diesel. Gasoline might set this engine _____ fire!  
31. My professor is _____ demand as a conference speaker. 	32. We only print these books _____ request, but we'll be happy to take your order. 
33. I'll be ready to go _____ 10 minutes! I'll meet you _____ back of the house. 	34. Whether or not I can go to the game depends _____ my work schedule. COMPLEMENTIZER

35. We work hard to keep the lawn cut and trimmed, so please don't walk _____ the grass! 	36. We are currently _____ target toward reaching our United Way goal this year. 
37. You're out of luck! I have absolutely no money _____ me right now. 	38. Mr. Peters has served _____ the school board for 20 years. 
39. The lesson will focus _____ the principles of trigonometry. COMPLEMENTIZER	40. The graph displays all data _____ millions of dollars. 

_OF_ Card Set Activity for the Experimental Class

1. Three governors attended the conference, including Nixon ***of*** Missouri and Brownback ***of*** Kansas. 	2. The moral responsibility ***of*** going to war cannot be taken lightly. 
3. The coach puts a lot ***of*** importance on surrounding ourselves with people who have a tough mind-set. 	4. The student is capable ***of*** doing much better work. 
5. I have learned a lot from some ***of*** the best coaches in the world. 	6. Don't be so fearful ***of*** making a mistake that you fail to put out your best effort. 
7. Set a goal to be the best ***of*** the best in your career field. 	8. The growth ***of*** the national economic has been very slow this year. 
9. I had never heard of Naismith, the inventor ***of*** basketball, until I came to KU. 	10. Negative thoughts can rob anyone ***of*** their best performance. 
11. Most ***of*** the doctors in our state are KU graduates. 	12. Each year on this date, the small community hears a bell ringing at a quarter ***of*** ten. 

13. After several defeats, our team recognized that the teamwork ***of*** our team was poor. 	14. I've never been ashamed ***of*** the poverty in my early life, because I learned so many valuable lessons at that time. 
15. I dream ***of*** you every night! 	16. The Country Music Hall ***of*** Fame is located in Nashville, TN. 
17. When I went to the tryouts, I found that I was one ***of*** more than a hundred participants from my local area. 	18. The employee died ***of*** a sudden and massive heart attack. 
19. A feeling ***of*** sadness began to fall upon me. 	20. A military experience can reveal the internal qualities that a person is made ***of.*** 
21. There were many patients in this hospital who were cured ***of*** Ebola. 	22. The clenched jaw and deep frown ***of*** his face clearly showed his anger. 
23. The basic living necessities ***of*** life are enjoyed by more people in this generation than in any generation before. 	24. Many economic problems are solved through specialization ***of*** labor. 
25. I cannot give details ***of*** this issue. 	26. My roommate would soon face the certain consequences ***of*** his bad decision. 

27. How many industries are affected by each major change in the design ***of*** an automobile? 	28. My friend was devastated by the news ***of*** her mother's cancer. 
29. A team that has a trailing score in the fourth quarter ***of*** the game must focus on teamwork. 	30. The wood smoke ***of*** a fire can affect a bad cough. 
31. A head coach needs the support ***of*** players, assistant coaches, and fans. 	32. DNA testing has resulted in the identification ***of*** true criminals and the release ***of*** innocent Americans. 
33. Every year at this time, I wake up in the middle ***of*** the night, remembering our narrow escape. 	34. The economic growth ***of*** China has brought more wealth to the middle class. 
35. I quickly told him my story ***of*** growing up in Alberta, Canada. 	36. Life expectancy continues to grow at a steady rate ***of*** change. 
37. Because the physical challenges ***of*** the game are immense, mental toughness is vital. 	38. He had to perform a heart surgery in the morning ***of*** the next day. 

39. I hit the door so hard, a chip ***of*** wood was knocked into my mouth. 	40. An analysis ***of*** toughness includes several ingredients such as courage and self-evaluation. 

Appendix F

Traditional Class Handout for Prepositions *In, On,* and *At*

Prepositions *at, in,* and *on* in various uses

At	Space	*Near to a point/intersect:* Meet me at the top.
		Target: Look at the teacher.
		General area: I'll meet you at the union.
		Before street numbers: It's located at 1045 Jayhawk Blvd.
	Time	*Before exact times:* We'll start at 1:00.
	Degree	*Before exact temperatures:* Water boils at 100^{o} C.
	Others	*Before specific skills:* He's great at soccer.
In	Space	*Enclosure:* The class will meet in 223 Fraser.
		Before countries, states, cites: I used to live in New York.
	Time	*Before a period of time (centuries, years, seasons):* He started in 2008.
		Before a future appt.: I'll be ready in 5 minutes.
	Others	*(currency):* He always pays in cash.
		(language): Be sure to write this letter in English.
On	Space	*Top surface:* Please put it on the desk.
		Contact: The picture on the wall is not straight.
		Along streets, borders: I live on the Canadian border.
	Time	*Before days, holidays, dates with numbers:* My birthday is on March 10.
	Others	*(communication):* I heard it on the radio.
		(before general topics): General Hooker will speak on military strategy

Appendix G

Traditional Class Activity for Prepositions *In, On,* and *At*

Circle the correct preposition of SPACE (place, position, or direction).

1. Do you live (at, on) Lundy Street (in, on) Lawrence?
2. She came into the kitchen and placed her packages (at, on) the table.
3. Did you find Ignacio (at, in) home? He might be (on, at, in) the library.
4. Yuri is sitting (at, in, on) the sofa (at, in, on) the living room.
5. As an artist, Yingte spends many hours (in, on) his studio (on, at) 219 Bourbon Street.
6. Christy found a note pinned (on, in, at) her door, which said, "Meet me (at, in) the corner of Main and Spring Street.
7. Be sure to put your return address (at, in, on) the envelope.
8. Someone dropped a cigarette (at, in, on) this rug, and it burned a hole (at, in, on) it.

Circle the correct preposition of TIME.

9. Does the movie begin (at, on, in) 5:30?
10. The stores will stay open (in, on, at) Saturdays, but will close (at, on, in) noon.
11. The plane is late, but will arrive (at, in, on) 30 minutes.
12. School starts (at, in, on) August, and I believe it starts (at, in, on) August 22.
13. I always like to go to Florida (at, in, on) Spring Break.
14. Columbus arrived (at, in) America (at, in, on) 1492.
15. The bill for my new phone arrived (at, in, on) the first day of the month.
16. He got to school (at, in, on) time for new student orientation.

Circle the correct proposition (miscellaneous categories)

17. There is a good lecture today (in, on, at) global warming.
18. She talked (at, in, on) the phone for 2 hours.
19. Marina is good (at, in, on) playing Monopoly.
20. The furnace starts when the temperature is (at, in, on) 68^{o} F.

Appendix H

Traditional Class Handout for Preposition *Of*

The Preposition *of*

Of	Space	*Geographical locations:* He lives in the state of California.
	Time	*(before):* We'll start at 10 minutes of six.
	Others	*(fraction, part of a whole, amount):* Two of the boys ate 3 slices of pizza.
	Others	*(about):* My brother has always been afraid of snakes.
		(belonging to): The governor of Missouri arrived late.
		(associated with): The University of Kansas received the top award.

Of performs a linking role between two nouns (80% of the time), but also has other uses, such as the role of complementizer with **adjectives** and **verbs**—just as *in* an *on.*

Preposition combinations that use *in, on,* or *of* in complementizer roles.

Can you create sentences with the following preposition combinations?

A	1. accused of	F	15. fond of
	2. afraid of	G	16. guilty of
	3. angry at	I	17. innocent of
	4. approve of		18. interest in
B	5. believe in		19. involved in
C	6. capable of	J	20. jealous of
	7. care of	K	21. kind of
	8. convinced of	L	22. located in
	9. count on	M	23. made of
D	10. decide on	P	24. proud of
	11. depend on	R	25. rely on
	12. disappointed in	S	26. scared of
E	13. engaged in		27. stared at
		T	28. talk of, think of, tired of

Appendix I

Traditional Class Activity for Prepositions *At, In, On,* and *Of*

Select the correct preposition *(at, in, of,* or *on)* for each blank. (Sometimes, there is more than one preposition that can be used.)

1. I believe I have $5.00 _____ in my pocket.
2. I rarely see my best friend from high school, but I think _____ her often.
3. My family told me that I was born _____ a Sunday, _____ 11:00 _____ the evening _____ the 14th of May.
4. I'm proud _____ my son's success!
5. The supervisor is aware _____ the problem _____ our office. He's going to talk about it _____ Monday.
6. My grandparents live _____ the largest island _____ the state _____ Hawaii.
7. _____ Spring break, I plan to travel to San Francisco. We'll swim _____ the morning, play tennis _____ the afternoon, and watch movies _____ night.
8. I feel a little jealous _____ your high grades.
9. I tried to avoid the accident, but the driver just pulled _____ front _____ my car!
10. After a long day _____ work _____ the hot sun, I can't wait to take a hot shower. Then I collapse _____ the sofa _____ the living room.
11. Based _____ your analysis _____ the costs involved, I think we can build it.
12. Meet me _____ Anschutz Library _____ 6:00. I'll be _____ the 3rd floor _____ the corner next to the front desk.
13. I think I have a cavity _____ the last tooth that is _____ the upper left side _____ my mouth.
14. Before I came to the University _____ Kansas, I attended the Kansas City campus _____ Baker University
15. I will be _____ California to attend a conference _____ international student recruitment. The conference will be held _____ the University of California.,
16. Jerry was sitting _____ his desk _____ his office when Bridget called; Bridget was _____ Asia _____ company business.

17. When I lived _____ Dodge City, I used to sit _____ my deck to watch the sun as it set _____ the western horizon.

18. Most _____ the time, I have very little cash _____ me.

Appendix J

Individual Student Scores: The Complete Test, Part 1, and Part 2

Pretest and Posttest Scores: The Complete Test

Student number	Pretest	Posttest	Curriculum
1	53.85	68.69	Traditional
2	51.65	53.54	Traditional
3	58.24	66.67	Traditional
4	54.95	71.72	Traditional
5	67.03	62.63	Traditional
6	42.86	72.73	Traditional
7	57.14	59.60	Traditional
8	73.63	76.77	Traditional
9	60.44	57.58	Traditional
10	67.03	68.69	Traditional
11	64.84	71.72	Experimental
12	51.65	58.59	Experimental
13	45.05	61.62	Experimental
14	54.95	60.61	Experimental
15	50.55	72.73	Experimental
16	59.34	73.74	Experimental
17	49.45	70.71	Experimental
18	49.45	64.65	Experimental
19	64.84	73.74	Experimental
20	48.35	64.65	Experimental
21	60.44	75.76	Experimental
22	52.75	59.60	Experimental

Pretest and Posttest Scores: Part 1

Student number	Pretest	Posttest	Curriculum
1	63.24	68.92	Traditional
2	60.29	56.76	Traditional
3	63.24	72.97	Traditional
4	61.76	70.27	Traditional
5	72.06	60.81	Traditional
6	41.18	70.27	Traditional
7	60.29	56.76	Traditional
8	75.00	72.97	Traditional
9	70.59	63.51	Traditional
10	73.53	71.62	Traditional
11	69.12	66.22	Experimental
12	55.88	67.57	Experimental
13	54.41	64.86	Experimental
14	66.18	58.11	Experimental
15	55.88	77.03	Experimental
16	64.71	70.27	Experimental
17	51.47	68.92	Experimental
18	55.88	59.46	Experimental
19	66.18	72.97	Experimental
20	54.41	63.51	Experimental
21	64.71	74.32	Experimental
22	60.29	55.41	Experimental

Pretest and Posttest Scores: Part 2, the *Of* Omission Test

Student number	Pretest	Posttest	Curriculum
1	26.09	68.00	Traditional
2	26.09	44.00	Traditional
3	43.48	48.00	Traditional
4	34.78	76.00	Traditional
5	52.17	68.00	Traditional
6	47.83	80.00	Traditional
7	47.83	68.00	Traditional
8	60.57	88.00	Traditional
9	30.43	40.00	Traditional
10	47.83	60.00	Traditional
11	52.17	88.00	Experimental
12	39.13	32.00	Experimental
13	17.39	52.00	Experimental
14	21.74	68.00	Experimental
15	34.78	60.00	Experimental
16	43.48	84.00	Experimental
17	43.48	76.00	Experimental
18	30.43	80.00	Experimental
19	60.87	76.00	Experimental
20	30.43	68.00	Experimental
21	47.83	80.00	Experimental
22	30.43	72.00	Experimental

Appendix K

Test Item Numbering for Part 1 of the Pretest and Posttest

Pretest **Name: _____**

Part 1: Choose the preposition *in*, *on*, or *of* for each of the blanks below.

Pizza Delivery: Barrow, Alaska[5]

(1) Barrow, Alaska, a city located (2) the northern border (3) AK., there are three pizzerias (4) town, but PoGo's Pizza, focuses (5) delivery. The busiest time for PoGo's—which is located (6) South Glacier St.—is (7) the winter when it is dark and no sun appears (8) the sky for days at a time. Snow is (9) the ground, and the temperatures are often (10) the range of -40 degrees F. Depending (11) the time (12) day, it is not uncommon to see a polar bear (13) the middle (14) a street, engaged (15) a bit (16) exploring or hunting for food. Snow is piled high (17) the edges (18) the roadways, of course, and sometimes, snow drifts are (19) the way (20) the vehicles, pedestrians, and animals that try to move through the narrow streets (21) the small town.

Justin is a deliveryman at PoGo's. He has been involved (22) retail sales and customer service since he was (23) college where he delivered pizza (24) foot to students who lived (25) the residence halls. Later, wanting to wanting to profit from his interest (26) fishing, he moved to Barrow, AK., a city (27) the Arctic Ocean, to work (28) the fishing and hunting guide business. (29) his small plane, he enjoys flying fishermen and hunters to remote camps—a job that keeps him busy (30) the short summer season. (31) the long, cold winter, however, Justin survives by delivering pizzas and living (32) a careful budget, refusing to rely (33) food stamps and other government programs.

[5] Adapted from Baime & Joksic (2014).

A pizza that is placed (34) order at PoGo's gains high priority status long before the pizza is placed (35) Justin's hands for delivery. From the time the order is received (36) the phone or from the Internet until the pizza is delivered and received by the customer, the restaurant staff is (37) high alert. Small town businesses are dependent (38) repeat customers and they only remain (38) business by focusing (39) customer care. All employees who work (40) each 8-hour shift are asked to keep this fact (41) view, for employment opportunities are scare (42) the Far North, and their company will not succeed (43) the pizza business if it does not keep making improvements (44) customer service. (45) other words, customers are #1!

(46) a typical day, Justin first unplugs the electricity to his car which keeps the engine and fluids from freezing (47) the deep cold (48) the night. He starts the car and must wait an hour before beginning (49) his daily delivery schedule, for it takes that long for his car to warm up to operating temperature. During this wait time, Justin dresses (50) warm clothing, depending (51) his three pairs (52) specially-made socks and huge boots to keep his feet from freezing. (53) addition, he also uses two pairs of pants, three hoodies, and a large jacket that is full (54) insulation.

When Justin arrives at PoGo's, he parks his car (55) the south side (56) the restaurant, and keeps his car heater turned (57) high the entire day so the temperature (58) the car is tolerable and the glass won't break. After getting (59) the road with his pizzas, Justin gets stuck somewhere almost everyday—(60) the deep snow, (61) a bit of ice, or even (62) low spots where the pavement is missing.

(63) the whole, Justin likes his job. “I’m young,” he says, “and I’m keen (64) adventure. People depend (65) the service we provide, and this puts me (66) demand, especially (67) the dark winter season when people are not always (68) a good mood.”

Posttest **Name: _____**

Part 1: Choose the preposition *in, on.* or *of* for each of the blanks below.

A Fishing Trip to Remember[6]

I was relaxing (1) the cool shade (2) a large tree (3) our backyard, a little bored and about half-asleep (4) that summer day, when an idea suddenly popped into my mind. I had two older cousins who were both (5) vacation for a week. Since both of these guys lived close to me—just (6) the other side (7) town, I thought I might be able to convince them to take me (8) a fishing trip! I contacted them both (9) my computer, since both (10) them are hard to reach (11) the phone. I suggested that (12) Friday, they could meet me (13) town for a quick breakfast, and then we could go fishing together Big Catch Resort (14) Lake Ocala.

One (15) my cousins worked (16) a large shrimp boat (17) weekends and the other cousin worked (18) town at Walmart. They both loved to fish, were up (19) the fishing news, and had told me that they were interested (20) taking me fishing as soon as I was not quite so busy (21) school. I knew I could count (22) them to give me a good time. (23) fact, I felt lucky to be (24) their family!

My cousins quickly agreed (25) the plan, and I was (26) course for an exciting adventure! (27) their advice, I purchased a book (28) fishing. The book was based (29) the experiences (30) a fishing guide who lived (31) our area, Hal Braddock. Mr. Braddock suggested items (32) gear that would be needed (33) a fishing trip and places where we could expect the most success. Most of all, Braddock believed (34) having fun

[6] Adapted from Wahlen (1995).

and that nothing should stand (35) the way (36) having a good time! And my mind usually moved (37) the direction (38) having fun!

Friday soon arrived. My gear was ready—all nearly arranged (39) my fishing tackle box and (40) my backpack. (41) the early morning darkness, my dad drove me (42) his car to Wendy's, the only fast-food restaurant (43) our town. After parking the car (44) the parking lot (45) the south side of the restaurant, Dad and I hopped out of the car to greet my two cousins. One cousin told me to put my gear inside the trunk (46) their car, but my long fishing rod would be tied (47) the top (48) the car. Then, we ate a huge breakfast, because we knew that if the fishing was good, we would be so engaged (49) fishing that we would not want to eat! Before long, breakfast was over, we were (50) our way, and I was (51) a good mood—just deprived (52) a little sleep!

When we arrived at the resort, we saw a few sailboats (53) the lake, all lined up (54) a row for a race. There appeared to be a few clouds (55) the eastern sky, but as we rowed away (56) the little rowboat with our gear safely tucked (57) the rear part (58) the little craft, I wasn't worried. I was so interested (59) spending the day with my cousins and getting my fishing line (60) the water that even if it rained (61) us a little, it wouldn't ruin my day!

First, we fished a couple (62) hours (63) the north side (64) the lake, where I caught the first fish! My float went down, I jerked my rod, and knew I had a fish (65) the line. After an exciting few seconds, we had the 12-inch fish safely (66) the boat.

(67) the middle (68) the afternoon, we decided (69) going to the opposite end (70) the lake to fish. Some dark clouds appeared and a few drops of rain began to fall (71) us,

but the sun came out again. All too soon, the sun was (72) the western horizon and it was getting dark.

When we pulled the boat up out of the water, I knew the experience would long live a long time (73) my memory as a great day (74) my life!

Appendix L

A Comparison of the Accuracy of Individual Test Items on the Pretest and Posttest: The Control Class and the Experimental Class Compared

Pretest Items for the Targeted Preposition *IN*

		Control Class (10 students)		**Experimental Class (12 students)**	
The targeted preposition in context		*Total correct*	*%*	*Total correct*	*%*
1.	(In) Barrow, Alaska, . . .	7	70	9	75
4.	. . . there are three pizzerias (in) town, . . .	9	90	9	75
7.	. . . (in) the winter . . .	9	90	9	75
8.	. . . no sun appears (in) the sky for days . . .	6	60	7	58.3
10.	. . . temperatures are . . . (in) the range of . . .	7	70	8	66.7
13.	. . . a polar bear (in) the middle of a street . . .	7	70	10	83.3
15.	. . . engaged (in) a bit of exploring . . .	6	60	4	33.3
19.	. . . snow drifts are (in) the way of . . .	2	20	3	25
22.	He has been involved (in) retail sales . . .	6	60	10	83.3
23.	. . . since he was (in) college . . .	10	100	12	100
25.	. . . students who lived (in) the residence halls . . .	10	100	12	100
26.	. . . his interest (in) fishing, . . .	7	70	10	83.3
28.	. . . to work (in) the fishing and hunting . . .	2	20	3	25
29.	(In) his small plane, . . .	8	80	9	75
30.	. . . busy (in) the short summer season.	8	80	8	66.7
31.	(In) the long, cold winter, . . .	10	100	8	66.7
35.	. . . the pizza is placed (in) Justin's hands . . .	1	10	7	58.3
39.	. . . they only remain (in) business . . .	5	50	8	66.7
41.	. . . keep this fact (in) view, . . .	2	20	5	41.7
42.	. . . opportunities . . .(in) the Far North, . . .	6	60	7	58.3
43.	. . . will not succeed (in) the pizza business . .	8	80	6	50
44.	. . . improvements (in) customer service.	1	10	0	0
45.	(In) other words, . . .	8	80	8	66.7
47.	. . . freezing (in) the deep cold . . .	4	40	10	83.3
50.	Justin dresses (in) warm clothing . . .	4	40	4	33.3
53.	(In) addition, . . .	10	100	12	100
58.	. . . the temperature (in) the car . . .	6	60	6	50
60.	. . . stuck . . . (in) the deep snow, . . .	8	80	10	83.3
62.	. . . even (in) low spots . . .	7	70	5	41.7
66.	. . . this puts me (in) demand . . .	5	50	5	41.7
67.	. . . especially (in) the dark winter season . . .	10	100	9	75
68.	. . . not always (in) a good mood.	7	70	11	91.7

Pretest Items for the Targeted Preposition *ON*

		Control Class (10 students)		**Experimental Class (12 students)**	
The targeted preposition in context		*Total correct*	*%*	*Total correct*	*%*
2.	. . . a city located (on) the northern border . . .	2	20	4	33.3
5.	. . . PoGo's Pizza, focuses (on) delivery.	8	80	11	91.7
6.	. . . located (on) South Glacier St. . . .	3	30	3	25
9.	Snow is (on) the ground, . . .	10	100	11	91.7
11.	Depending (on) the time of day, . . .	9	90	10	83.3
17.	Snow is piled high (on) the edges of . . .	6	60	8	66.7
24.	. . . he delivered pizza (on) foot . . .	8	80	8	66.7
27.	. . . a city (on) the Arctic Ocean, . . .	2	20	1	8.3
32.	. . . living (on) a careful budget, . . .	1	10	1	8.3
33.	. . . refusing to rely (on) food stamps . . .	8	80	10	83.3
34.	A pizza that is placed (on) order . . .	4	40	2	16.7
36.	. . . the order is received (on) the phone . . .	6	60	9	75
37.	. . . the restaurant staff is (on) high alert.	4	40	4	33.3
38.	. . . dependent (on) repeat customers . . .	9	90	9	75
40.	. . . focusing (on) customer care.	9	90	11	91.7
46.	(On) a typical day, . . .	3	30	5	41.7
49.	. . . starting (on) his daily schedule, . . .	7	70	4	33.3
51.	. . . depending (on) his three pairs of . . .	10	100	11	91.7
55.	. . . he parks his car (on) the south side of . . .	7	70	6	50
57.	. . . car heater turned (on) high . . .	7	70	9	75
59.	After getting (on) the road . . .	8	80	10	83.3
61.	. . . (on) a bit of ice, . . .	3	30	3	25
63.	(On) the whole, . . .	3	30	2	16.7
64.	. . . I'm keen (on) adventure.	5	50	4	33.3
65.	People depend (on) the service we provide, . . .	10	100	12	100

Pretest Items for the Targeted Preposition *OF*

		Control Class (10 students)		**Experimental Class (12 students)**	
The targeted preposition in context		*Total correct*	*%*	*Total correct*	*%*
3.	. . . the northern border (of) AK., . . .	6	60	8	66.7
12.	. . . the time (of) day, . . .	8	80	11	91.7
14.	. . . in the middle (of) a street, . . .	9	90	9	75
16.	. . . engaged in a bit (of) exploring . . .	8	80	8	66.7
18.	. . . the edges (of) the roadways, . . .	6	60	6	50
20.	. . . in the way (of) the vehicles, . . .	9	90	8	66.7
21.	. . . the narrow streets (of) the small town.	3	30	0	0
48.	. . . in the deep cold (of) the night.	3	30	5	41.7
52.	. . . three pairs (of) specially-made socks	9	90	6	50
54.	. . . full (of) insulation.	9	90	9	75
56.	. . . the south side (of) the restaurant.	8	80	7	58.3

Posttest Items for the Targeted Preposition *IN*

		Control Class (10 students)		**Experimental Class (12 students)**	
The targeted preposition in context		*Total correct*	*%*	*Total correct*	*%*
1.	. . . relaxing (in) the cool shade . . .	8	80	8	66.7
3.	. . . a large tree (in) our backyard, . . .	7	70	5	41.7
13.	. . . they could meet me (in) town . . .	9	90	10	83.3
18.	. . . the other cousin worked (in) town . . .	8	80	11	91.7
20.	. . . they were interested (in) taking me . . .	10	100	10	83.3
21.	. . . busy (in) school.	6	60	11	91.7
23.	(In) fact, . . .	10	100	12	100
24.	. . . lucky to be (in) their family!	10	100	11	91.7
31.	. . . fishing guide who lived (in) our area, . . .	9	90	12	100
34.	. . . Braddock believed (in) having fun . . .	8	80	10	83.3
35.	. . . nothing should stand (in) the way of . . .	2	20	3	25
37.	. . . moved (in) the direction of . . .	7	70	8	66.7
39.	. . . arranged (in) my fishing tackle box . . .	2	20	8	66.7
40.	. . . and (in) my backpack.	8	80	9	75
41.	(In) the early morning darkness, . . .	9	90	4	33.3
42.	. . . my dad drove me (in) his car . . .	8	80	8	66.7
43.	. . . restaurant (in) our town.	9	90	12	100
44.	. . . parking the car (in) the parking lot . . .	8	80	4	33.3
49.	. . . engaged (in) fishing . . .	5	50	8	66.7
51.	. . . I was (in) a good mood . . .	7	70	11	91.7
54.	. . . sailboats . . . lined up (in) a row . . .	6	60	6	50
55.	. . . a few clouds (in) the eastern sky, . . .	6	60	6	50
56.	. . . we rowed away (in) the little rowboat . . .	3	30	9	75
57.	. . . gear safely tucked (in) the rear part . . .	5	50	6	50
59.	. . . interested (in) spending the day . . .	10	100	11	91.7
60.	. . . my fishing line (in) the water . . .	9	90	6	50
66.	. . . the 12-inch fish safely (in) the boat . . .	4	40	8	66.7
67.	(In) the middle of the afternoon, . . .	9	90	11	91.7
73.	. . . a long time (in) my memory . . .	10	100	10	83.3
74.	. . . a great day (in) my life!	1	10	6	50

Posttest Items for the Targeted Preposition *ON*

		Control Class (10 students)		**Experimental Class (12 students)**	
The targeted preposition in context		*Total correct*	*%*	*Total correct*	*%*
4.	. . . half-asleep (on) that summer day, . . .	4	40	7	58.3
5.	. . . both (on) vacation . . .	7	70	8	66.7
6.	. . . just (on) the other side of town, . . .	5	50	8	66.7
8.	. . . take me (on) a fishing trip!	4	40	9	75
9.	. . . contacted them both (on) my computer . . .	6	60	5	41.7
11.	. . . hard to reach (on) the phone.	8	80	10	83.3
12.	I suggested that (on) Friday, . . .	10	100	11	91.7
14.	. . . the new resort (on) Lake Ocala.	2	20	3	25
16.	. . . (on) a large, double-deck shrimp boat	2	20	6	50
17.	. . . (on) weekends . . .	7	70	11	91.7
19.	. . . up (on) the fishing news, . . .	4	40	7	58.3
22.	. . . I could count (on) them . . .	9	90	7	58.3
25.	. . . agreed (on) the plan, . . .	5	50	10	83.3
26.	. . . I was (on) course for an . . . adventure!	0	0	5	41.7
27.	(On) their advice, . . .	2	20	4	33.3
28.	. . . a book (on) how to fish.	0	0	3	25
29.	. . . based (on) the experiences of . . .	10	100	11	91.7
33.	. . . gear . . . needed (on) a fishing trip, . . .	2	20	4	33.3
45.	. . . parking lot (on) the south side of . . .	6	60	5	41.7
47.	. . . tied (on) the top of the car.	8	80	11	91.7
50.	. . . we were (on) our way, . . .	4	40	10	83.3
53.	. . . a few sailboats (on) the lake, . . .	5	50	10	83.3
61.	. . . if it rained (on) us a little, . . .	7	70	8	66.7
63.	. . . a couple of hours (on) the north side of . . .	6	60	6	50
65.	. . . I had a fish (on) the line.	7	70	7	58.3
69.	. . . we decided (on) going to . . .	8	80	9	75
71.	. . . rain began to fall (on) us, . . .	6	60	5	41.7
72.	. . . the sun was (on) the western horizon . . .	4	40	7	58.3

Posttest Items for the Targeted Preposition *OF*

		Control Class (10 students)		**Experimental Class (12 students)**	
The targeted preposition in context		*Total correct*	*%*	*Total correct*	*%*
2.	. . . the cool shade (of) a large tree . . .	7	70	9	75
7.	. . . the other side (of) town, . . .	10	100	6	50
10.	. . . both (of) them are hard to reach . . .	10	100	11	91.7
15.	One (of) my cousins . . .	10	100	10	83.3
30.	. . . the experiences (of) a fishing guide . . .	8	80	8	66.7
32.	. . . items (of) gear . . .	6	60	6	50
36.	. . . stand in the way (of) having a good time!	10	100	12	100
38.	. . . in the direction (of) having fun!	9	90	11	91.7
46.	. . . the trunk (of) their car, . . .	4	40	3	25
48.	. . . the top (of) their car.	8	80	6	50
52.	. . . deprived (of) a little sleep!	5	50	3	25
58.	. . . rear part (of) the little craft, . . .	10	100	9	75
62.	. . . a couple (of) hours . . .	9	90	10	83.3
64.	. . . the north side (of) the lake, . . .	8	80	8	66.7
68.	. . . In the middle (of) the afternoon, . . .	10	100	10	83.3
70.	. . . the opposite end (of) the lake to fish.	7	70	8	66.7