This and these as pronouns and determiners: a corpus-based study of published academic research articles

Bethany Dianne Ekle Gray

Iowa State University

Follow this and additional works at: https://lib.dr.iastate.edu/rtd

Part of the Bilingual, Multilingual, and Multicultural Education Commons, English Language and Literature Commons, First and Second Language Acquisition Commons, and the Instructional Media Design Commons

Recommended Citation

Gray, Bethany Dianne Ekle, "This and these as pronouns and determiners: a corpus-based study of published academic research articles" (2006). Retrospective Theses and Dissertations. 14456.

https://lib.dr.iastate.edu/rtd/14456
This and these as pronouns and determiners: A corpus-based study of published academic research articles

by

Bethany Dianne Ekle Gray

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

Major: Teaching English as a Second Language/Applied Linguistics
(Computer Assisted Language Learning) and (English for Specific Purposes)

Program of Study Committee:
Viviana Cortes, Major Professor
John Levis
David Russell

Iowa State University
Ames, Iowa
2006

Copyright © Bethany Dianne Ekle Gray, 2006. All rights reserved.
Graduate College
Iowa State University

This is to certify that the master's thesis of

Bethany Dianne Ekle Gray

has met the requirements of Iowa State University

Signatures have been redacted for privacy
# TABLE OF CONTENTS

LIST OF FIGURES ........................................................................................................ v

LIST OF TABLES ........................................................................................................ vi

ABSTRACT ...................................................................................................................... vii

CHAPTER 1. INTRODUCTION .................................................................................. 1
  1.1 Purpose of the Study ....................................................................................... 3
  1.2 Research Questions ....................................................................................... 3
  1.3 Organization of the Study ............................................................................. 4

CHAPTER 2. LITERATURE REVIEW ....................................................................... 5
  2.1 This and These as Demonstrative Determiners and Pronouns ....................... 5
      2.1.1 Grammatical Approaches to Demonstrative This and These ............... 5
      2.1.2 Demonstratives and Cohesion ............................................................ 6
      2.1.3 A Focus on Demonstrative This and These ....................................... 7
  2.2 Investigations into Demonstrative Use .......................................................... 8
  2.3 Corpus-based Investigations of Language Use .............................................. 11

CHAPTER 3. METHODOLOGY .............................................................................. 13
  3.1 The Iowa State University Research Article Corpus (ISURAC) ................. 13
  3.2 Data Analysis ................................................................................................ 15
      3.2.1 Determine Frequency of Use as a Pronoun versus a Determiner ......... 19
      3.2.2 Analysis of Pronominal Uses ............................................................. 20
      3.2.3 Analysis of Use as A Determiner ....................................................... 21

CHAPTER 4. ANALYSIS AND DISCUSSION ....................................................... 26
  4.1 Frequency of This and These as Determiners and Pronouns ...................... 26
  4.2 Pronominal Uses ........................................................................................... 28
      4.2.1 The Linguistic Environment of Pronominal This/These ..................... 29
      4.2.2 Functional Analysis of Linguistic Environment ................................. 31
      4.2.3 Antecedents in Pronominal This/These ............................................. 34
  4.3 Demonstrative This and These as Determiners ........................................... 36
      4.3.1 Concrete Nouns Following Demonstrative This and These ............... 37
      4.3.2 Deictic Nouns .................................................................................... 38
      4.3.3 Adverbial Head Nouns ....................................................................... 40
      4.3.4 Other Abstract Nouns ....................................................................... 41
      4.3.5 Shell Nouns ....................................................................................... 45

CHAPTER 5. CONCLUSION ................................................................................... 48
  5.1 Summary of Results ..................................................................................... 48
  5.2 Implications ................................................................................................... 50
  5.3 Limitations ..................................................................................................... 51
| Figure 3.1 | Image of KWIC Display in MonoConc Pro (Barlow, 2004) | 15 |
| Figure 3.2 | View of Data in Excel File | 16 |
| Figure 3.3 | View of Data in Excel File Marked for Analysis | 17 |
| Figure 3.4 | Noun Taxonomy | 22 |
| Figure 4.1 | Frequency of *This/These* as Determiners and Pronouns | 26 |
| Figure 4.2 | Demonstrative Form by Discipline | 27 |
| Figure 4.3 | Sentence Position Distribution | 27 |
| Figure 4.4 | Distribution of Form and Sentence Position of Demonstratives | 28 |
| Figure 4.5 | Distribution of Verb Types Following Pronominal *This/These* | 29 |
| Figure 4.6 | Distribution of Noun Types | 36 |
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2.1</td>
<td>Distinctions Among Demonstratives</td>
<td>5</td>
</tr>
<tr>
<td>Table 3.1</td>
<td>Composition of the ISURAC</td>
<td>13</td>
</tr>
<tr>
<td>Table 3.2</td>
<td>Preliminary Findings Used to Choose Sub-Corpora</td>
<td>14</td>
</tr>
<tr>
<td>Table 3.3</td>
<td>Composition of Sub-Corpora for Analysis</td>
<td>14</td>
</tr>
<tr>
<td>Table 3.4</td>
<td>Overview of Data Analysis Methodology</td>
<td>18</td>
</tr>
<tr>
<td>Table 3.5</td>
<td>Schmid's (2000) Functions of Shell Nouns</td>
<td>23</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Frequency of Non-Copular Verbs Appearing More than Once</td>
<td>30</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>Other Verbs Appearing in Only One Discipline</td>
<td>31</td>
</tr>
<tr>
<td>Table 4.3</td>
<td>Concrete Noun Occurring in Applied Linguistics and Engineering</td>
<td>37</td>
</tr>
<tr>
<td>Table 4.4</td>
<td>Deictic Nouns in Applied Linguistics and Engineering</td>
<td>39</td>
</tr>
<tr>
<td>Table 4.5</td>
<td>Adverbial Head Nouns in Applied Linguistics and Engineering</td>
<td>41</td>
</tr>
<tr>
<td>Table 4.6</td>
<td>Abstract Other Nouns Occurring in Both Disciplines</td>
<td>42</td>
</tr>
<tr>
<td>Table 4.7</td>
<td>Abstract Other Nouns Occurring in One Discipline</td>
<td>42</td>
</tr>
<tr>
<td>Table 4.8</td>
<td>Shell Nouns Appearing in Both Applied Linguistics and Engineering</td>
<td>46</td>
</tr>
<tr>
<td>Table A</td>
<td>Shell Nouns Appearing in One Discipline</td>
<td>53</td>
</tr>
</tbody>
</table>
ABSTRACT

This study investigated the use of the demonstratives *this* and *these* as pronouns and determiners in a corpus of research articles in the disciplines of Applied Linguistics and Materials and Civil Engineering. Motivated by prescriptive rules which advise writers to avoid using *this* as a pronoun, the study examined the frequency of uses of *this* and *these* as pronouns versus determiners and the linguistic environments that occurred with both structures using quantitative and qualitative methodologies. These analyses revealed that authors in the two disciplines use both structures with similar frequencies, with pronominal uses constituting approximately one-fifth of all uses. For pronominal uses of *this* and *these*, analysis showed that most antecedents constituted extended pieces of text (clauses or sentences) rather than a simple noun phrase. When the pronouns were the subject of the verb that followed, half of those verbs in Applied Linguistics were copular, while there was a higher frequency of non-copular verbs in Engineering. Five types of nouns were found to follow uses of *this* and *these* as determiners: concrete, deictic, shell (Schmid, 2000), adverbial head, and other abstract nouns. In both disciplines, shell nouns constituted over 40% of all nouns following *this/these* as determiners. Qualitative analysis explored the functions of each type of nouns, and the functions of shell nouns paired with the high frequency of occurrence lead to the conclusion that *this/these* + shell noun is a frequently used cohesive structure in academic research articles. Additionally, the findings from this study indicate that pronominal *this* and *these* is a structure often utilized by advanced writers in Applied Linguistics and Materials and Civil Engineering. The descriptive knowledge gained by the study can increase awareness of the real and frequent use of these demonstrative structures in composition instructors and native English-speaking and English as a Second Language writing students. For student writers, the increased awareness may lead to more conscious thought in planning and revising their writing to produce clearer and more cohesive texts.
CHAPTER 1. INTRODUCTION

Simple pronouns are the most troublesome, especially this, that, these, and those when they refer to a previous sentence.Eliminate ambiguityby writing, for example, this test, that trial, these participants, and those reports.

(American Psychological Association, 2001, p. 37)

In the quote above, the American Psychological Association warns writers against the use of demonstrative pronouns—also known as “unattended” demonstratives (Geisler, Kaufer, & Steinberg, 1985) or demonstratives as “Head” (Halliday & Hasan, 1976)—and promotes the use of demonstrative determiners followed by a noun. In structures with demonstrative determiners, the demonstrative serves as a modifier of the noun that follows. The American Psychological Association is not alone in prescribing the use of demonstrative determiners rather than pronouns in instances of anaphoric reference. In fact, most style manuals today warn writers against the dangers of creating ambiguous referents by employing demonstrative pronouns in their writing (e.g., Strunk & White, 2000; Lunsford, 2003; Faigley, 2006). Their reasoning is that this refers “to the complete sense of the preceding sentence or clause” and “may produce an imprecise statement” (Strunk & White, 2000, p. 61). According to prescription, these imprecise statements can lead to confusion for readers and disrupt the cohesion of a text.

The following examples come from a corpus of Applied Linguistics (AL) research articles, which is one of the two corpora utilized in this study. Both corpora will be more fully described in Chapter 3. The first example below illustrates the use of this as a determiner, while the second example demonstrates this as a pronoun.

However, the results of this study demonstrate that Year One children do not deploy their linguistic resources in this way in the construction of the literacy-oriented classroom discourse with the teacher. This finding raises many questions about how the older children’s increased production of messages with prefacing may have occurred. (AL)

Several formulaic expressions repeatedly occurred in these letters of application, both within and across cultures. This was expected since application letters are a genre and, as such, have not only a predictable structure but in many cases predictable formulaic expressions. (AL)
In both examples, the demonstrative structure refers back to the entire sense of the preceding sentence. In fact, both structures even refer back to similar entities—a result determined in the study being discussed. However, in the first example, the sense of the preceding sentence is carried by the determiner this and the noun finding, while the pronoun this carries all of the meaning in the second example. Prescriptivism would argue that the second example leaves room for readers to be confused as to what is being referred to by the pronominal this, and that the cohesion of the text would be disrupted by such confusion.

However, two questions typically arise from prescriptive rules. The first question refers to the accuracy of such rules—in other words, whether or not following prescriptive rules does indeed lead to the textual effect claimed by those rules, whether it is clarity, cohesion, nondiscriminatory language, and so on. In the case at hand here, the question is whether or not simply adding a noun to a demonstrative results in a clearer referential structure, thus increasing the cohesion in the text. Since demonstrative pronouns, such as this or these, often refer back to the entire sense of the preceding sentence or clause when used in anaphoric referential structures, Finn (1995), as well as Halliday and Hasan (1976), reminds us that it is not always possible to try and portray that meaning with a single noun, or perhaps even with a noun with modification. While finding functioned well in the first example previously discussed, and could have even been supplanted in the second example successfully, an appropriate noun may not be so easily found in other situations. The following example illustrates one such situation, as a noun would need to be found that could refer back to the two sentences preceding the pronoun this. This example is taken from the second corpus being investigated in this study, a corpus of research articles in Materials and Civil Engineering (Eng).

For the clogging procedure, 63.5 g of clogging material is poured uniformly over the top of the specimen. Water is then showered over the specimen. This allows the clogging material to slowly penetrate into the specimen with minimal disturbance to the unbound aggregates. (Eng)

Contrary to a prescriptive approach, Halliday and Hasan (1976) claim that whether or not a reader can clearly determine the referent of a demonstrative is predominantly irrelevant; for these authors, cohesion is achieved regardless. But while the question of the cognitive
effect of unattended *this* for readers is certainly interesting, it is beyond the scope of the current study. Rather, it is the second question that is of interest here, and that question is how well prescriptive rules reflect actual language use by accomplished writers. Like many structures and features regulated by prescriptive rules, the descriptive use of *this* and *these* as demonstrative determiners and pronouns has been largely under-researched. The few studies that have addressed unattended *this* (Moskovit, 1983; Steinberg, Kaufer, & Geisler, 1984; and Geisler, Kaufer, & Steinberg, 1985) that will be discussed in more detail in Chapter 2 have focused on prescriptive uses and reader interpretations, with little empirical focus on the linguistic environment surrounding such structures.

1.1 Purpose of the Study

The purpose of the present study is to describe, using corpus-based methods and functional analyses, how published academic writers in two disciplines from distinct rhetorical traditions employ *this* and *these* as both demonstrative determiners and pronouns. For this study, the disciplines of Applied Linguistics and Materials and Civil Engineering were chosen. Using published academic writing as a model of advanced written language use, the study seeks to better understand how writers in Applied Linguistics and Materials and Civil Engineering use specific structures to accomplish communicative goals, particularly in academic discourse communities, using quantitative and qualitative analyses. This pairing of methodologies can offer an insightful look into demonstrative structures with *this* and *these*, which can then be utilized by student writers to understand how to use these structures, which are common, powerful, and useful, yet difficult to employ effectively.

1.2 Research Questions

This study will focus on instances of *this* and *these* that refer back to previous text, as prescriptive rules primarily call into question these uses of unattended *this* and *these* due to their effect on cohesion. In order to arrive at a comprehensive description, this study will seek to answer five research questions:

1. How frequently do published academic writers in the disciplines of Applied Linguistics and Materials and Civil Engineering use *this* and *these* as demonstrative determiners and pronouns?
2. In anaphoric uses of pronominal this and these, what types of linguistic environments occur and with what frequency?
3. In instances of this and these as determiners, what types of linguistic environments occur and with what frequency?
4. How are this and these used functionally in Applied Linguistics and Materials and Civil Engineering?
5. How does the use of this and these as demonstrative determiners and pronouns compare across Applied Linguistics and Materials and Civil Engineering?

1.3 Organization of the Study

In order to address these five research questions, a comprehensive definition of demonstratives and a review of previous research concerning demonstratives and their relationship to cohesion will be presented in Chapter 2. Chapter 2 will also provide an overview of literature related to the methodologies of corpus-based techniques for the study of grammatical features in written discourse. Chapter 3 will provide a detailed description of both the qualitative and quantitative analysis procedures utilized in this study. Chapter 4 will contain the results of the quantitative and qualitative analyses, as well as a discussion of those results. To conclude, Chapter 5 will offer a brief summary of the study as well as the resulting implications for language teachers and student writers, the limitations of the present study, and suggestions for further research.
CHAPTER 2. LITERATURE REVIEW

In this chapter, grammatical approaches to demonstrative uses of *this* and *these* as pronouns and determiners will be explored to further define and describe the structures and their relation to textual cohesion. In addition, previous studies examining these structures will be presented and the gap in the literature that this study aims to address will be identified. Finally, this chapter will situate the present study within corpus-based research.

2.1 *This* and *These* as Demonstrative Determiners and Pronouns

Section 2.1 is divided into three parts. In the first part, demonstrative *this* and *these* as defined and described by grammarians will be explored. In the second part, the relationship between demonstratives and cohesion will be discussed. The third section will explain why *this* and *these* were chosen as the focus of the current study.

2.1.1 Grammatical Approaches to Demonstrative *This* and *These*

Halliday and Hasan (1976) classify *this, these, that, and those* as "selective nominal demonstratives" (p. 59) as they always occur within the nominal group either as determiners or pronouns. The use of the four demonstratives (*this, these, that, and those*) is determined by the number of the antecedent (for pronominal uses) or the head noun (for determiners) and the distance of the referent or head noun in relation to the speaker. Table 1 below shows the distinctions made by each demonstrative.

<table>
<thead>
<tr>
<th></th>
<th>Near (vs. Distant)</th>
<th>Singular (vs. Plural)</th>
</tr>
</thead>
<tbody>
<tr>
<td>This</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>These</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>That</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Those</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

In addition, Biber, Johansson, Leech, Conrad, and Finegan (1999) and Quirk, Greenbaum, Leech, and Svartvik (1985) both relate demonstratives to the function and meaning of definite articles in that they have a definite meaning (Quirk et al.), mark an entity as known information, and are stressed (Biber et al.). Because of these characteristics, "their reference depends on the context shared by the speaker/writer and hearer/reader" (Quirk et
al., p. 372), and Halliday and Hasan (1976) call them forms of “verbal pointing” (p. 57). Thus, demonstratives are referential structures that can be used in various types of reference: situational (outside the text), anaphoric (pointing back), and cataphoric (pointing forward).

2.1.2 Demonstratives and Cohesion

Cohesion is classically defined as “where the INTERPRETATION of some element in the discourse is dependent on that of another” (emphasis in original, Halliday & Hasan, 1976, p. 4), and it is because of the demonstratives’ referential function that the structures carry so much cohesive weight. The debate as to whether or not cohesion is achieved when demonstratives are used as pronouns rather than determiners is a question of clarity. As Quirk et al. (1985) point out, demonstratives may refer to a simple noun phrase, a clause, a sentence, or even a sequence of sentences. When a demonstrative is followed by a noun, that noun is actually the true reference item, and the noun provides lexical cohesion.

Halliday and Hasan (1976), while claiming that cohesion is achieved regardless of whether a demonstrative is used as a determiner or a pronoun, claim that when used as a determiner, the meaning of the structure is always the same as the antecedent, even if the authors or speakers do not use exactly the same word. When *this* is used as a pronoun, they claim that the “reference may still be identical; but it may be broader, referring to the general class denoted by the noun” (pp. 63-64). Quirk et al. (1985) agree, calling either demonstrative use “satisfactory” (p. 1460).

A further distinction between demonstratives as determiners or pronouns is that pronominal use is, in essence, an instance of ellipsis. Halliday and Hasan (1976) and Quirk et al. (1985) both concur that when a demonstrative is used as a pronoun and a noun could be easily added, then ellipsis occurs. Ellipsis, too, achieves cohesion, and is often a result of the quest for economy. Thus, the prescriptive debate concerning demonstratives comes down to balancing clarity with economy. This idea is supported by many researchers who investigate the use of demonstratives, such as Finn (1995), who argues that using a noun after a demonstrative may achieve clarity through redundancy, and that redundancy has advantages in that readers can clearly understand what the demonstrative structure refers to and
disadvantages in that “using more symbols to convey the same amount of information slows down the flow of new information” (p. 244).

2.1.3 A Focus on Demonstrative This and These

Through the grammatical description of the demonstratives this, that, these, and those, we can see that various distinctions exist among the four demonstratives, which Halliday and Hasan (1976, p. 60) list as

1. near versus distant (i.e., this/these versus that/those)
2. singular versus plural (i.e., this/these versus that/those)
3. “Modifier” versus “Head” (i.e., determiner + noun versus pronoun)

While the first two distinctions, near versus distant and singular versus plural, are interesting, it is the third distinction that is the focus of the current study. This study is not examining the singular versus plural distinction because whether this or these is used is primarily a distinction between the number of the referent. While we would expect there to be more instances of this in academic prose simply because singular nouns tend to be more frequent in all registers (Biber et al., 1999, p. 291), there is no real functional difference in the use of this versus these. This is further supported by the fact that this can actually refer to plural entities as well as singular ones (Halliday & Hasan, 1976, p. 62) and generally to the preceding text.

Furthermore, this/these were chosen as the focus of this study because they are more common in expository written language than that/those, and this is especially true in academic prose (Biber et al., 1999, p. 274). Biber et al. claim this is due to the fact that this/these are used “in marking immediate textual reference” (p. 349). Additionally, they claim that academic prose contains “a dense use of nouns and hence a great deal of potential competition among referents…therefore requir[ing] more specific anaphoric devices” (p. 238). Because this/these automatically assume a close proximity to the speaker and are definite structures, they are a more specialized structure (than personal pronouns) that can lead to a more specific reference.

Finally, this study is interested in the distinction between determiners and pronouns because prescriptivism claims that problems of clarity can be solved by simply using demonstratives as determiners rather than pronouns. Furthermore, the different forms allow
for different uses. For example, as Biber et al. (1999) point out, using demonstratives as
determiners allows for more noun phrase modification, which can either efficiently give
readers more information or further clarify what the coreferent is. Additionally, Biber et al.
report that noun phrases with demonstrative determiners are generally rare except in
academic prose, where 20% of all anaphoric reference involves a demonstrative determiner
and repeated noun or synonym (p. 237). This difference in use across registers could be an
indication that demonstrative determiners fulfill a significant function in academic writing.

2.2 Investigations into Demonstrative Use

While a great number of studies investigate anaphoric reference (e.g., O'Brien,
Raney, Albrecht, & Rayner, 1997) or cohesion (e.g., Hinkel, 2001), very few studies have
focused specifically on the use of demonstratives in anaphoric reference and in relation to
text cohesion. Furthermore, the studies that do exist primarily focus on the pronominal use, a
result, I believe, of the prescriptive rules that exist.

Moskovit (1983) seeks to determine when pronominal this that refers back to
something more than a nominal—what he calls 'broad reference'—is unclear by examining
twenty-eight examples of pronominal this. He offers his own judgments of whether or not
each example is clear or unclear, and identifies clear referents as situations in which no
ambiguity exists as to what the antecedent is. Moskovit identifies three types of reference:
syntactic, demarcational, and semantic. Syntactic and demarcational reference are structural
in nature, with syntactic reference occurring whenever the antecedent is structurally able to
be substituted for this and demarcational reference occurring when the reference is clear
because is it limited by physical boundaries (i.e. paragraph breaks, quotation marks, or
function words like but, however, yet, or moreover). Semantic reference, then, occurs when
the antecedent can be determined because the demonstrative structure can only logically refer
to one of the preceding elements due to the meaning of the element and the remainder of the
sentence in which the demonstrative structure occurs.

Moskovit (1983) concludes that readers attend to structural and semantic cues to
determine the antecedent. More specifically, he claims that syntactic types are the clearest,
but that as the length of the noun phrase increases, so does the difficulty in determining the
antecedent. Moskovit recognizes that semantic types can also function well, but that their success requires more care in including sufficient semantic indicators for readers to attend to.

In a published response to Moskovit (1983), Steinberg, Kaufer, and Geisler (1984) challenge Moskovit's interpretations and conclusions. They also follow up their response with a larger-scale study in Geisler, Kaufer, and Steinberg (1985). In both studies, the authors are very clear in stating that their goal is to identify what is clear, not what is actually used, and to develop prescriptive rules to help student writers evaluate whether or not to use pronominal this. In order to accomplish this, the authors asked a group of freshmen readers and a group of junior/senior writing majors to read Moskovit’s twenty-eight examples and (1) underline or write the antecedent the unattended this referred to and (2) subjectively state whether or not the reference was clear.

Steinberg et al. (1984) and Geisler et al. (1985) found that many of their students did not agree with Moskovit’s (1983) readings in determining the antecedent, and nor did they always agree with each other. In general, they found unattended this was generally acceptable when there was a relatively small distance between the antecedent and this, and when the instance of this referred to the major predication of the preceding clause. The authors were careful to consider the economy vs. clarity debate mentioned earlier and develop guidelines for writers to follow in determining whether or not they should turn a demonstrative pronoun into a demonstrative determiner in a noun phrase.

Although these early studies offer a starting point, they focus on establishing prescriptivism, a practice which has in some circles fallen out of fashion. In addition, the research methodologies are questionable in that the examples being used are in not justifiably representative of any specific type of language use. Furthermore, these studies focus primarily on the use of pronominal this, and little (if any) attention is paid to demonstrative determiners as a way of validating the prescriptive rules that have arisen. Although prescriptive rules call for the use of a demonstrative in order to eliminate referential ambiguity, attention only in passing is paid to whether or not having a noun following the demonstrative makes the message any clearer.

One exception to this focus on pronominal uses is Tyma’s (1981) article that examines seven examples of demonstrative determiners in anaphoric reference from two
Engineering textbooks. Tyma concludes that such anaphoric structures are utilized to give implicit classifications or definitions of the antecedent, and serve to overcome barriers to textual cohesion caused by "the problem of describing a nonlinear concept with the necessarily linear surface grammar of expository English" (p. 73). Again, this study looks at a very limited set of data—seven examples from two textbooks.

While the general frequencies and functions of demonstratives have been outlined through descriptive grammars, the detail needed to fully understand how demonstratives are used in communication is missing. Additionally, most studies focus on the reader's reaction to demonstratives, or the cognitive processing of such structures. What is missing in these grammatical descriptions and studies of the cohesion of demonstrative pronouns and determiners is an in-depth investigation that more fully describes the linguistic environment in which they occur, as the linguistic environment may have a significant effect on how cohesive—or disruptive—demonstrative structures are for readers.

One study that indirectly supports this claim is Aktas (2005), a corpus-based investigation of "shell nouns" (Schmid, 2000) as used in academic writing to create textual cohesion. Shell nouns, which will be discussed in more detail in Chapter 3, are abstract nouns that act as a "conceptual shell" (Schmid, 2000) to carry complex information indicated by previous text into the current sentence. In the following example, again taken from the Engineering corpus utilized in this phenomenon functions as a shell noun.

\textit{Susceptibility of pavement to clogging} is one of the great concerns in porous pavement applications as mentioned by Field et al. (1982). \textit{This phenomenon} is common on public roads and highways because they are subjected to more frequent passes of traffic and various types of vehicles. (Eng)

In this example, \textit{phenomenon} functions as a shell noun because it carries all of the information held in the phrase \textit{susceptibility of pavement to clogging} over to the following sentence. Aktas found that the structure \textit{this} followed by a shell noun was the most frequently occurring lexico-grammatical pattern for five of the six most common shell nouns investigated in the study (p. 34).

Aktas's (2005) study, along with many other lexico-grammatical studies, supports the idea that the co-occurrence of lexical items and grammatical patterns must often be
considered to fully understand how such items and patterns are employed functionally by language users.

2.3 Corpus-based Investigations of Language Use

The rise of corpus-based investigations into language use has come at a time when descriptive methods of linguistic analysis are gaining prevalence. Many researchers believe that corpus-based methodologies, in conjunction with other methodologies, are one powerful way of accounting for many of the limitations of earlier linguistic research. As can be seen in the investigations summarized above, a major issue of earlier studies was a lack of representative samples of language use from which generalizations about language could be made. Corpus-based analyses involve a principled collection of naturally occurring texts, through which generalizations can often be made about a specific genre, style, or register.

Biber, Conrad, and Reppen (1998) outline four basic characteristics of corpus-based investigations:

- they are empirical in nature in that they examine observed patterns in natural language use
- they involve principally collected texts
- they use computers to aid in automatic and interactive analyses
- they involve both quantitative and qualitative analyses

While some may view corpus linguistics as a primarily quantitative analysis of linguistic features, in reality, the goal of corpus-based investigations is “to propose functional interpretations explaining why [quantitative] patterns exist” (Biber et al., 1998, p. 5). Thus, corpus-based investigations necessarily incorporate a balance of both quantitative and qualitative analyses in an effort to relate linguistic variation to meaningful factors than can explain variation in language use.

Investigations into genre often involve making even finer distinctions than the genre-level. It is widely believed that variation exists even within genre, and one of the variables that may affect this variation in academic research articles is the discipline in which the articles are located (Bhatia, 2002). Thus, cross-disciplinary studies utilizing corpora have become one gateway to findings relevant to teaching English for Academic Purposes (EAP). Poos and Simpson (2002) offer one example, comparing the use of two hedging structures
across gender in two academic disciplines. Oakley (2002) looks at one example of formulaic language in three types of academic disciplines. It is believed that such investigations may lead to field-specific generalizations that can inform writing instruction for students in specific fields.

Considering the grammatical nature of the demonstrative structures, the findings from previous research, and applications of corpus-based methodologies, this study focuses on describing the quantitative and qualitative uses of this and these as demonstrative determiners and pronouns in an effort to address a gap in our knowledge of the use and functions of such structures.
CHAPTER 3. METHODOLOGY

In this chapter, the methodology of the study will be explained in detail. In the first section, the corpus will be described. The second section will detail the processes and types of analyses performed in order to answer the five research questions set forth in the first chapter.

3.1 The Iowa State University Research Article Corpus (ISURAC)

The corpus used in this study is the Iowa State University Research Article Corpus (Cortes, 2006). The corpus contains sub-corpora in eleven academic disciplines, each containing research articles from two to six professional journals within the discipline. The ISURAC was collected for use in an academic writing course for ESL graduate students at ISU that incorporates corpus-based methodologies in the course design. Table 3.1 below shows the composition of the ISURAC. These word counts refer to clean text; that is, no footnotes, references, or other markings are included in the corpus.

<table>
<thead>
<tr>
<th>Sub-Corpus</th>
<th>Number of Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Science</td>
<td>459,303</td>
</tr>
<tr>
<td>Applied Linguistics</td>
<td>437,427</td>
</tr>
<tr>
<td>Architecture</td>
<td>496,351</td>
</tr>
<tr>
<td>Art &amp; Design</td>
<td>506,366</td>
</tr>
<tr>
<td>Biology</td>
<td>383,669</td>
</tr>
<tr>
<td>Business</td>
<td>476,122</td>
</tr>
<tr>
<td>Economics</td>
<td>447,845</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>449,699</td>
</tr>
<tr>
<td><strong>Materials &amp; Civil Engineering</strong></td>
<td><strong>452,813</strong></td>
</tr>
<tr>
<td>Physics &amp; Astronomy</td>
<td>393,956</td>
</tr>
<tr>
<td>Statistics</td>
<td>388,269</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,576,119</strong></td>
</tr>
</tbody>
</table>

For the purposes of this study, a preliminary analysis was conducted in order to choose two disciplines to focus on. Using the concordancing program that will be described in 3.2, frequency counts for this and these were conducted. The results of this preliminary analysis are presented in Table 3.2. The two disciplines that were chosen for the study, Applied Linguistics and Materials and Civil Engineering, are highlighted.
The sub-corpora for Applied Linguistics and Materials and Civil Engineering, two applied sciences, were chosen because they were dissimilar in two ways: (1) frequencies of this/these and (2) percentage of occurrences of this/these in sentence-initial position. Applied Linguistics has the third-highest frequency of this/these, while engineering has the third lowest. In contrast, Engineering has the highest percentage (37%) of sentence-initial occurrences, while Applied Linguistics is the second lowest (27%, tied with Art and Design) in terms of sentence-initial this/these. It is believed that there may be a functional difference between sentence-initial and sentence-media/final positions; thus, disciplines with very different frequencies of these may help reveal these functional differences.

Finally, approximately 100,000 words were chosen from the Engineering and Applied Linguistics corpora to be used in the quantitative and functional analysis. These 100,000 words were chosen randomly to include texts from each of the three journals within the corpora. Table 3.3 displays the exact composition of the sub-corpora for the present study.
3.2 Data Analysis

In order to answer the five research questions established in the first chapter, both quantitative and qualitative methods were utilized. In this section, the processes and steps of analysis will be explained in detail in the same order that the results will be reported in Chapter 4.

The first step in the analysis was to locate all instances of this and these in the two corpora. This was accomplished using MonoConc Pro (Barlow, 2004), commercially available concordancing software that has a key-word-in-context (KWIC) display. Figure 3.1 is an image of the concordance results for sentence-medial this in the Applied Linguistics (AL) corpus.

![Figure 3.1 Image of KWIC Display in MonoConc Pro (Barlow, 2004)](image)

Concordance searches were conducted in the two corpora for both this and these in the sentence-initial and sentence-medial/final positions. The concordance results for each search were converted to Microsoft Excel files. Figure 3.2 shows the converted file for sentence-medial/final occurrences of this, with a context of twenty words to the left and right provided in columns on either side of the key word.
Converting the concordance search results to an Excel file allowed for a physical manipulation of the data, which aided analysis by allowing the linguistic contexts of interest to be clearly identified and sorted. Additionally, while twenty words of context were available in the Excel file, if further context were needed, the concordance results in MonoConc Pro could be utilized to allow the context for sentence-medial/final occurrences of *these* in the Engineering corpus to be separated, categorized, and sorted to aid in analysis. For example, the context to the right of the key word was divided into multiple columns in which the head noun could be separated from any noun phrase modification, making it easier to quickly locate the noun of interest within the entire noun phrase. Once placed in categories, nouns were color-coded to indicate their place in the noun taxonomy.
Some instances of this/these were excluded from the analysis because they were not written by the authors of the texts themselves. Examples of two instances that were excluded are provided below. In the first example, this is part of an example extracted from a text, in which the word this happens to appear. In the second example, this is part of a quotation from a study participant. These instances are not relevant to the current study because they are not a part of the text produced by the authors. As examples or quotes, the referential function of the demonstrative may or may not be present, and readers in fact do not necessarily need to know what the antecedent is in order to understand the text.

For example, The focus of this thesis is on...or The plan for this thesis is therefore divided into three parts are linear text references whose scope is at thesis level.

(AL)
In contrast to the novice tendency to seize up, the expert teachers seized every opportunity to enhance the language and literacy potential of working with computers, focusing on student process and learning rather than on a single plan:

Today we had a really good example...I said well let me show you why some of you are having this problem...So that's like just showing them why they don't get what they want right away or why some of the things that are coming up on their screen are crazy because they've already clicked on it. (Expert 2)

Table 3.4 gives an overview of the analyses performed in this study in order to answer each of the five research questions.

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Method(s)</th>
<th>Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>How frequently do published academic writers in the disciplines of Applied Linguistics and Materials and Civil Engineering use this and these as demonstrative determiners and pronouns?</td>
<td>Quantitative</td>
<td>Label instances as determiners or pronouns in each discipline</td>
</tr>
<tr>
<td>In anaphoric uses of pronominal this and these, what types of linguistic environments occur and with what frequency?</td>
<td>Quantitative</td>
<td>Distinguish between sentence-initial and sentence-medial/final positions in each discipline</td>
</tr>
<tr>
<td>In instances of this and these as determiners, what types of linguistic environments occur and with what frequency?</td>
<td>Quantitative</td>
<td>Distinguish between sentence-initial and sentence-medial/final positions in each discipline</td>
</tr>
<tr>
<td>How are this and these used functionally in Applied Linguistics and Materials and Civil Engineering?</td>
<td>Qualitative</td>
<td>Describe functions of shell nouns, adverbial head nouns, and copular verbs in relation to demonstrative reference</td>
</tr>
<tr>
<td>How does the use of this and these as demonstrative determiners and pronouns compare across Applied Linguistics and Materials and Civil Engineering?</td>
<td>Quantitative and Qualitative</td>
<td>Identify quantitative differences in uses of determiners, pronouns, sentence position, and linguistic environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identify functional differences between two disciplines in how demonstratives are used</td>
</tr>
</tbody>
</table>
Rather than addressing each of the five research questions individually and linearly, the analysis was broken down into three phases. In the first phase, the frequency of the use of *this* and *these* as pronouns versus determiners was investigated in relation to sentence-position. In the second phase, the quantitative and qualitative analyses of pronominal uses were performed and discussed in terms of the differences between the disciplines. In the third phase, the quantitative and qualitative analyses of *this* and *these* as determiners were performed, and again, the differences between the two disciplines were discussed throughout. In the following sections, each phase of analysis is described in further detail.

### 3.2.1 Determine Frequency of Use as a Pronoun versus a Determiner

The first step in finding the frequency of use of pronouns and determiners was to classify each instance of *this/these* as a determiner or pronoun. Any use of the demonstrative followed by a noun phrase was classified as a determiner, and any demonstrative not followed by a noun was classified as a pronoun. Each instance was recorded into one of four categories:

- Sentence-initial pronoun
- Sentence-initial determiner
- Sentence-medial/final pronoun
- Sentence-medial/final determiner

In addition, each instance of pronominal *this/these* was examined to determine if the reference was anaphoric, cataphoric, or exophoric, as only anaphoric reference is of interest here. Only anaphoric reference was used in both disciplines; as a result, no instances of pronominal *this/these* were excluded from subsequent analysis.

Finally, the frequencies of each of the four categories of uses were compared across disciplines. Because this analysis utilized only a portion of each discipline’s corpus, and because approximately 100,000 words could be selected from each discipline, no normed frequency counts were used.

The distributions of use were figured for each category by determining the percentage of each category of demonstrative use. Here, the number of occurrences within each category (sentence position and demonstrative form) were compared to the total number of
occurrences of demonstratives, and were figured with the following formula which results in a percentage of use:

\[
\text{DistributionOfUse} = \frac{\text{NumberOfOccurrencesInCategory}}{\text{TotalNumberOfOccurrencesOfDemonstratives}} \times 100
\]

3.2.2 Analysis of Pronominal Uses

Analyzing both quantitatively and qualitatively the use of pronominal *this/these* involved locating and classifying the verb following the pronoun. First, the role of the pronoun in the sentence structure was determined. For instances of pronominal *this* and *these* followed by a verb, the verb was recorded if the pronoun served as the subject of that verb, as in the first example below. This was always the case in instances of sentence-initial *this/these*. If the pronoun did not serve as the subject of the verb, then the verb was not recorded, as in the second example below.

*On impact of the striker bar onto the incident bar, incident stress pulse develops and this propagates along the incident bar to the incident bar/specimen interface, where it is reflected and transmitted.* (Eng)

*While the literature contains much discussion from a qualitative sense, as seen above, there is little quantitative information. In the next section, we address this quantitatively using large sets of data from a number of freeway locations.* (Eng)

In cases where the pronoun was not the subject of the verb but was an object of a verb or part of a prepositional phrase serving as an adverbial to the entire sentence or modification to a specific noun, the context following the instance was not recorded. This distinction was necessary only for those instances appearing in sentence-medial/final positions. The examples below demonstrate the types of phrases in which no analysis of the verb was included. In the first example, *to facilitate this* serves as an adverbial applying to the entire sentence. In the second example, *consequence* is the subject of the verb, while *of this* serves to modify *consequence*. In the final example, *this* serves as the object of the verb.
Before undertaking stress-strain curve tests, the temperature of the furnace was calibrated against the specimen temperatures. To facilitate this, the concrete cylinders, with thermocouples, were heated in the furnace and the furnace temperatures were measured when the center of the specimens reached the specified target temperature.

There is, then, some evidence to support the notion that, irrespective of L1, a learner's L2 output may be "naturally" lexiscued and topic-prominent in base orientation. One consequence of this may be a tendency for nominal groups in relatively free word order to drive the discourse with the consequent potential for the appearance of marked themes.

They found that SIDRA appears to predict delay well at low volume sites, but in the higher volume sites, it tends to underestimate delay. The author attributed this to the difference in driver behavior between Australia where SIDRA was developed and the United States.

The second step in this analysis was to identify the main verb of the verb phrase. Thus, the verb phrase could be accounted for would be classified as account and can affect would be classified as affect. Information regarding the verb tense, aspect, or modality was not included in the analysis. Next, the verbs were recorded as either copular or non-copular, or ‘other.’ This distinction was chosen because, as Biber et al. (1999) point out, copular verbs serve to “associate some attribute, expressed by the subject predicative following the verb, with the subject of the clause” (p. 435). Thus, the copular verb acts as a sort of mental equal sign linking what comes before and after the verb.

To analyze the functions of the pronouns, the use of copular verbs was examined to determine what kinds of attributes were being linked to the pronouns. In addition, the referent for the demonstrative pronoun was examined for both copular verbs and ‘other’ verbs to see the types of entities this and these are used to refer to.

3.2.3 Analysis of Use as A Determiner

A taxonomy was developed to classify the nouns following this/these as determiners. The taxonomy contains three main types of nouns: concrete, deictic, and abstract. The abstract nouns are further broken down into three subcategories: shell, adverbial head, and
other nouns. Figure 3.4 shows the organization of the taxonomy, with a few examples of each type of noun. The following section will explain each of the categories.

Concrete nouns refer to nouns that represent physical entities. Nouns were determined to be concrete if they could be touched. Examples of concrete nouns include apparatus, card, kit, bucket, student, adult, specimen, etc.

Deictic nouns are those that point to a specific situational element. These nouns point the reader to a specific part of the text, or to extralinguistic elements such as figures or charts, and can also refer to the overall article itself. The deictic nouns serve to orient information within the situational context of study. In the following example, this figure points to an entity within the text for readers to look at.

Useful $D \pm G/G_{\text{max}}$ relationships can also be devised from the series of small- to mid-shear strain amplitude RC tests, as shown in Fig. 12. This figure shows the variation of damping ratio $D$ with $G/G_{\text{max}}$, on the basis of $w$, for all treated specimens. (Eng)

Another example of a deictic noun is one that refers to either a certain part of or the entire paper or article itself, often using the terms article, paper, study, or research effort, as in the example below.

In this final section, we make use of the insights introduced in this article to offer some perspectives on writing education in the university classroom. (AL)
As mentioned earlier, the abstract nouns are divided into three sub-categories: shell, adverbial head, and other nouns. The term *shell noun*, established by Schmid (2000), refers to abstract nouns that “create conceptual boundaries by casting larger chunks of information into nominal structures” (Schmid, 2000, p. 12). Shell nouns have been known by many other names. In his investigation of academic lectures and textbooks, Flowerdew (2003) calls them “signaling” nouns, defined as “any abstract noun, the meaning of which can only be made specific by reference to its context” (p. 329). Thus, shell nouns are abstract nouns used to sum up, or encompass, detailed information in an efficient manner. In the following example, *results* functions as a shell noun because it carries of the details containing the preceding sentences.

*The strains attained, corresponding to peak strength at 600°C and 800°C, were twice and seven times the strain at room temperature. For all four types of HSC the strain corresponding to peak strength is almost the same up to about 600°C. These results suggest that the steel fiber reinforced HSC exhibits better ductility characteristics than plain HSC at elevated temperatures.* (Eng)

Schmid (2000) provides the most comprehensive investigation into shell nouns, and he identifies semantic, cognitive, and textual functions of the structures (p. 14). These functions are summarized in Table 3.5.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semantic</td>
<td>Characterize detailed information carried in clauses or longer text structures</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Create “temporary concept-formation” by allowing readers to relate detailed information to a single nominal</td>
</tr>
<tr>
<td>Textual</td>
<td>Link the nominal shell with related text that gives the detailed information</td>
</tr>
</tbody>
</table>

It is important to look at shell nouns in conjunction with the use of demonstrative determiners because one of the chief counter-arguments against following a demonstrative with a noun is that it is not always possible to relay the entire meaning of the referent with a single noun. However, the use of shell nouns may provide the cognitive and linking functions to account for this issue, as according to Schmid (2000), the shells represent a temporary semantic construction that is inherently linked to what he calls the “shell content” (p. 16)—the context that explicates the detailed information. Take, for example, the following:
The next phase of research will consider ways in which teachers might best raise learner consciousness of the importance of theme in English information structure, and how this awareness may be activated to help learners produce fully coherent written discourse.

In this example, awareness is functioning as a shell noun and encapsulates all the meaning of the preceding clause learner consciousness of the importance of theme in English information structure, carrying that detailed information over into the subject of next clause. As Schmid (2000) points out, shell nouns can only be determined based on their use in a particular context. Therefore, a noun that acts as a shell in one sentence may not be used as a shell in a different sentence. Because of this, determining which nouns should be classified as shell nouns must be done on an individual basis.

The next type of noun in the taxonomy is the adverbial head noun, which serves as a sort of discourse marker because the structures in which the nouns occur are adverbial in function. This type of noun is discussed in Biber et al. (1999, p. 636), who list place, time, reason, way, and day as adverbial head nouns. Structures with these nouns are often adverbial because they mark the circumstances or manner in which something occurs. In the data at hand here, these adverbial head nouns are mainly found in prepositional phrases, as in the examples below:

Chinese writers of academic texts in English demonstrate a clear tendency to place in sentence-initial position certain topic-fronting devices (beginning For and Concerning), and logical connectors (Besides, Furthermore and Moreover) to introduce new information. When fronted in this way, these items usurp the position of the information structure element referred to in systemic-functional linguistics as theme. (AL)

Although the utilization of ash in portland cement concrete has been successful, only a limited amount of the waste can be disposed in this manner. (Eng)

In these uses, the adverbial prepositional phrases are made up of a preposition followed by a noun phrase, which is in turn composed of the demonstrative this followed by adverbial head nouns way and manner. The structures serve as circumstance adverbials that add information to the referent of the structure.
The last type of nouns in the taxonomy is the “other abstract” nouns. All abstract nouns that did not fall under shell nouns or adverbial head nouns were classified as ‘other’ nouns. Further discussion of the nouns placed in each category of the taxonomy, as well as the function of each, will be presented in Chapter 4.

Each noun was coded for taxonomy category by the primary researcher and then validated by a second researcher. After all classifications were completed, the frequencies of the types of noun were compared across disciplines and sentence positions. Finally, a functional analysis of noun types was performed.
CHAPTER 4. ANALYSIS AND DISCUSSION

In this chapter, the results of the quantitative and qualitative analyses will be presented, as well as a discussion of those results. The first section will present the frequency of use of this and these as pronouns and determiners in each field. The second section will examine the quantitative and functional uses of pronominal this/these, while the third section will present the findings for this/these used as determiners. The final section will provide a summary of the results.

4.1 Frequency of This and These as Determiners and Pronouns

The data show more occurrences of this/these as both determiners and pronouns in all sentence positions in the Applied Linguistics corpus. Figure 4.1 shows the frequency distribution of pronouns and determiners in sentence-initial and sentence-medial/final positions for both corpora.

As can be seen from Figure 4.1, not only is this/these more frequent in the Applied Linguistics corpus (1097 total occurrences) than Engineering (749 total occurrences), it is consistently more frequent in Applied Linguistics than Engineering regardless of whether it is used as a pronoun (233 occurrences versus 125) or determiner (848 occurrences versus 624), or in the sentence-initial (204 occurrences versus 177) or sentence-medial/final (660 occurrences versus 447) position. Furthermore, the use of the demonstratives as a determiner
rather than a pronoun is more frequent regardless of sentence position or discipline, and this is demonstrated in Figure 4.2. In Applied Linguistics, 864 instances of this/these are used as a determiner while only 233 instances constitute pronominal use. The distribution is similar in Engineering, with determiners accounting for 624 instances of this/these and pronouns accounting for 125 instances.

![Figure 4.2 Demonstrative Form by Discipline](image)

Additionally, the two disciplines share similar distributions of this/these in the sentence-initial and sentence-medial/final positions, with the Engineering corpus having slightly more instances of this/these in the sentence-initial position than Applied Linguistics. These distributions are shown in Figure 4.3.

![Figure 4.3 Sentence Position Distribution](image)
Overall, the frequency distribution of the use of *this* and *these* is similar in both Engineering and Applied Linguistics. Figure 4.4 below summarizes this similarity. Here, it is interesting to note the two most prominent differences in use: (1) Applied Linguistics uses 6% more sentence-medial/final pronominal *this/these* and (2) Engineering uses 5% more sentence-initial *this/these* as a determiner.

Because the differences in use in these two disciplines are slight, no strong generalizations can be made at this point. However, the following general trends can be summarized from the data:

- Overall, Applied Linguistics uses the demonstratives *this* and *these* more frequently than Engineering as reflected in the research articles in this corpus.
- Applied Linguistics articles use more pronominal *this/these*.
- Engineering articles use more of these demonstrative structures in the sentence-initial position than Applied Linguistics.
- *This/these* is typically used more frequently as a determiner rather than a pronoun in both disciplines.

### 4.2 Pronominal Uses

The pronominal uses of *this* and *these* are of interest because they represent a use that is contrary to what prescriptivism calls for in that they are not turned into determiners by the addition of a noun. Furthermore, every instance of pronominal *this* found here was anaphoric—the type of reference writers are warned about most with these demonstrative
structures. This section will investigate the pronominal use both quantitatively and qualitatively. First, the quantitative findings for the linguistic environment will be presented. Second, the functions of these uses will be considered. Third, a qualitative examination of the types of antecedents these pronouns refer to will be offered.

4.2.1 The Linguistic Environment of Pronominal This/These

As discussed in the previous chapter, when studying the linguistic environment of pronominal this/these, the type of verb that follows the pronoun is of primary interest. In particular, this study is focusing on the use of copular and non-copular verbs due to their function of linking characteristics or attributes with the subject, in this case, the pronominal this/these. In these two disciplines, two copular verbs were found: appear and be. An example of each appears below.

*A number of examples were printed entirely in uppercase letters. This appears to be another legacy from 'telex-speak' days.* (AL)

*When a structure is subjected to impact or shock loads, understanding the response of the construction material under dynamic conditions becomes important. This is because the dynamic behavior of materials is different compared to that when it is subjected to static loading.* (Eng)

Figure 4.5 shows the distribution of copular verbs to other verbs in the two disciplines.
As can be seen in this figure, equal numbers of copular and other verbs were used in the Applied Linguistics texts, while many fewer (34%) copular verbs were used in the Engineering texts. A variety of other verbs were used in each discipline, with some overlap. Table 4.1 lists all other verbs found at least twice in either discipline or found in both disciplines at least once, ordered by frequency.

<table>
<thead>
<tr>
<th>Verb</th>
<th>Occurrences in Applied Linguistics</th>
<th>Occurrences in Engineering</th>
<th>Total Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
<td>1</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Explain</td>
<td>-</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Enable</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Mean</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Indicate</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Include</td>
<td>6</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Show</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Lead</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Affect</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Account</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Involve</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Vary</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Translate</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Suggest</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>See</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Imply</td>
<td>-</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Have</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Happen</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Contribute</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Allow</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Achieve</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Use</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Result</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Require</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Refer</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Produce</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Help</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Ensure</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Follow</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Correspond</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Accomplish</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 4.2 displays all verbs that only appeared in one of the disciplines. Although a few nouns do appear to be discipline-specific (e.g., elicit, occur, tape-record, propagate), in general these verbs do not seem to be discipline-specific, but rather may be genre-specific in that they represent processes and states typical in research articles but do not require prior knowledge of the discipline in order to be comprehended.

Table 4.2 Other Verbs Appearing in Only One Discipline

<table>
<thead>
<tr>
<th>Applied Linguistics</th>
<th>Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>acquire, advantage, allow, appear, apply, call, come, compromise, demand, discuss, do, elicit, ensure, expect, facilitate, find, fly, function, give, happen, help, increase, investigate, involve, leave, occur, overcome, point, redefine, reinforce, set out, spoil, start, support, take, tape-record, think, use, vary</td>
<td>agree, aim, allow, assume, confirm, correspond, examine, explain, exploit, imply, influence, limit, need, observe, present, prevent, propagate, repeat, set, stimulate</td>
</tr>
</tbody>
</table>

4.2.2 Functional Analysis of Linguistic Environment

The much more prominent use of copular verbs in Applied Linguistics is intriguing, and the presence of three other verbs—have (3), include (6), and involve (3)—only in Applied Linguistics further emphasizes this difference in the two disciplines because these three verbs can be classified as existence verbs (Biber et al., 1999). While not exactly copular verbs, Biber et al. place them in a similar category as they "report a state that exists between entities" (p. 364). For instance, in the example below, the verb involve adds semantic information to the referent of the pronominal this.

>A tremendous amount of teacher set-up and planning must precede a CMC exchange. This may involve preparing students in unfamiliar skills, such as those needed for cooperative learning, process writing, or small group discussions. (Applied Linguistics)

Here, this refers to the entire subject of the preceding sentence, "a tremendous amount of teacher set-up and planning," and include adds more information about what that set-up and planning entails. In this way, verbs like involve function in a similar way as copular verbs in that they link or add information to the subject of the verb.
An interesting phenomenon in this data comes to light when looking at what the copular verbs lead to. The following four patterns have emerged from the data:

- **this** + copular verb + *because/why*...
- **this/these** + copular verb + adjective phrase
- **this/these** + copular verb + prepositional phrase
- **this/these** + copular verb + noun phrase

The first pattern predominantly appears in the Engineering corpus, occurring only once in the Applied Linguistics corpus, and is used further explain the reasons behind some process or result. For instance, in the following example, the phrase *this is because* leads to an explanation of the process previously described.

As gradation openness increases, the amount of soil retained in each base gradation also increases. **This is because** more clogging particles are now able to penetrate deeper into the base and reside in the void spaces. (Engineering)

Interestingly, this function is quite similar to other constructions, such as *be due to* and *can be attributed to*, two frequent constructions present in the Engineering corpus. Consider the two examples below.

Among them, metakaolin provides the best effect in improving the properties of young concretes. **This can be attributed to** the high reactivity of metakaolin... (Eng)

The delay time has a direct proportional relationship with circulating width. **This is due to** the confusion caused by a larger circulating width for the drivers at the roundabout entries. (Eng)

In both examples, the verb attributes reason or explanation onto a process or reaction, and still more constructions fulfill the same function, such as *is accounted by*, *can be explained by*, and *be influenced by*. This functionality may be a result of the nature of discourse in Engineering, in that one goal is to explain why certain reactions occur.

The second pattern, **this/these** + copular verb + adjective phrase, is found in both disciplines. In these sentences, the copular verb is followed by an adjective phrase that serves as the complement to the verb. In the following example, the adjective *important* is attributed to the referent of *this* through the use of the copular verb.
Consequently, we need corpora that are limited to specific genres and that includes the writing requirements and the cultural contexts in which the texts are generated. This is particularly important when looking at the role culture plays in a genre. (AL)

Besides the adjective due, which will be discussed next, the adjective true is the only adjective used more than one time in both Applied Linguistics and Engineering (appearing four and two times respectively). Other adjectives that appear are evident, possible, consistent, sufficient, plausible, surprising, worthwhile, relevant, and valuable.

As discussed previously, the pattern be due to functions similarly to this + copular verb + because/why to relay an explanation for whatever phenomenon is being expressed by this. Constructions with be due to occur multiple times in each discipline. The more frequent use of be due to in comparison to other adjective phrases may be the result of the nature of empirical research, which seeks to describe and explain relationships. The phrase be due to indicates a relationship, while phrases containing adjectives like important or true simply indicate a characteristic.

In Applied Linguistics, the pattern this/these + copular verb + prepositional phrase is noteworthy. In the examples below, the structure serves to orient the current text within the context of other researchers as a way of validating the study.

First, we wanted to demonstrate the efficacy of a multi-level analysis of a genre-specific learner corpus that included both a hand-tagged moves-analysis coupled with a computerized analysis of lexico-grammatical features of texts. This is in response to Flowerdew's (1998) call, noted earlier, for more research using computer tagging to study text at the semantic or pragmatic discourse level. (AL)

In this paper, we have also shown how a pragmatic concept such as politeness can be operationalized to allow for counts of linguistic features related to politeness. This is in keeping with Biber, Conrad, and Reppen (1998, p. 5) contention that "corpus-based analyses must go beyond simple counts of linguistic features. (AL)

The fourth structure identified from the data, this/these + copular verb + noun phrase, deserves mentioning because of the type of noun that predominantly follows the copular verb. Particularly in Applied Linguistics, the nouns that follow the copular verb are often
shell nouns (Schmid, 2000)—just like those that will be discussed in the analysis of determiners. Take, for example, the following:

It should be further noted that Maier (1992) conducted her analysis by analyzing individual sentences in her data by hand, looking line-by-line for phrases and sentences that matched the different types of politeness strategies. **This is a reasonable approach** when working with a small data set such as the 18 letters used in her study. (AL)

Link delay was selected as the MOE in the calibration process. It should be noted that **this was a very time-consuming process** because...

(AL)

In Applied Linguistics, the structure *this/these* + copular verb + noun is much more frequent the other the other three patterns with copular verbs discussed above. The structure *this/these* + copular verb + adjective is the second most frequent in Applied Linguistics, and it is three times as frequent as *this/these* + copular verb + prepositional phrase. The pattern *this* + copular verb + *because/why* occurs only once in the Applied Linguistics corpus. On the other hand, *this/these* + copular verb + adjective is the most frequent of these four structures in the Engineering corpus, with *this* + copular verb + *because/why* and *this/these* + copular verb + noun phrase occurring with the same frequency, and the final structure, *this/these* + copular verb + prepositional phrase occurring only two times. In sum, all four syntactic patterns with copular verbs identified here appear in both Engineering and Linguistics. However, how often each is used varies greatly between the two disciplines.

4.2.3 Antecedents in Pronominal *This/These*

It appears that the antecedents for pronominal *this/these* are almost exclusively longer stretches of discourse in both Applied Linguistics and Engineering rather than a simple noun phrase. In addition, these longer stretches of discourse are often statements of research
findings or methodologies. In the examples below, pronominal this/these refer to the entire sense of the preceding sentence. The antecedent is underlined.

For all NDT methods, the sensitivity decreases with increasing strength levels; this can affect the variation coefficient of the estimated strength, for HSC cores 105. (Eng)

Clearly, the energy density increases with increase in average strain rate. This is because the specimen is fractured into very small fragments when it is subjected to high strain rate loading. (Eng)

The most common reasons given were that computers made writing "easier," facilitated the correction of spelling and punctuation mistakes, were "modern," "useful," "interesting," and "faster" than writing by hand. This corroborates conclusions from other researchers, who report that CMC in the second language classroom facilitates general communication and the revision process... (AL)

Existing literature from education and psychology seems to concur that Chinese children are good at following directives/instructions and has attributed Chinese American children's academic success in schools partly to their ability and willingness to follow instructions (Hirschman; Peng; Schneider and Su). If this is true, we need to know how directives are issued to Chinese children. (AL)

In each of these examples, this refers to a finding or a claim to explain a reason why something has occurred, add more information about the referent, or show the result or implications of such a finding. This use of pronominal this seems to fit with much of the literature on unattended this. In each instance, restating the finding would be awkward, inefficient, and repetitive. Take, for example, the following:

During the production process of the pull-out specimens it was necessary to keep the yarns in place throughout the process. This was achieved by applying a small tensile load pretension of 0.1 N, which was released after hardening of the matrix. (Eng)

In this example, nominalizing the antecedent would be repetitive and inefficient considering the length of the antecedent, as it would make the second sentence read keeping the yarns in place throughout the process was achieved by... Additionally, it is doubtful that a single-word nominalization can accurately portray the meaning of the antecedent.
Although there are instances of *this* referring to a single noun phrase or element in the previous sentence, as in the excerpt below, these examples are not as prevalent.

> Two common structures stood out as fairly direct, and thus more threatening of the independence of the addressee. *These were* sentences that started with the phrase “You can...” or the phrase “Please [+ action verb]...”, both of which give the impression of a command, although polite. (AL)

In this example, the pronoun *these* stands for the noun phrase *two common structures* in which *structures* is the head noun of the phrase. Most examples of the demonstrative pronoun referring to nouns are examples with *these*. This may be due to the fact that most demonstrative pronouns are used to refer to longer stretches of text that cannot be easily nominalized. The singular form *this* is used to refer to such entities, whereas the plural form *these* is only used to refer to plural, countable entities. Thus, when the antecedent is a noun phrase (rather than longer discourse) containing countable entities, it becomes possible to use pronominal *these*.

### 4.3 Demonstrative *This* and *These* as Determiners

In this section, the use of demonstrative *this* and *these* will be explored. As can be seen in Figure 4.6 below, the distributions of each type of noun in the taxonomy are similar across the two disciplines. In both Applied Linguistics and Engineering, shell nouns are the most frequent (46% and 43% respectively). Deictic nouns and other abstract nouns occur with similar frequencies in both disciplines (19% and 22% in Applied Linguistics and 26% and 19% in Engineering).

![Figure 4.6 Distributions of Noun Types](image-url)
The remainder of this section will be divided into parts in which the quantitative and qualitative findings for each noun type in the taxonomy (concrete, deictic, adverbial head, shell, and other nouns) will be discussed.

4.3.1 Concrete Nouns Following Demonstrative This and These

There is no overlap between the concrete nouns occurring in Applied Linguistics and Engineering. Table 4.3 lists all concrete nouns found in the two disciplines, and nouns appearing more than once are followed by the number of occurrences in parentheses. As can be seen below, few nouns occur frequently, and no nouns appear in both disciplines.

<table>
<thead>
<tr>
<th>Applied Linguistics</th>
<th>Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>administrator, adult, children (7), client, educator, essay, expert, graduate, individual, journal, learner, letter (8), material, merchandiser, people, practitioner, preadolescent, principal (2), school (14), software, student (5), teacher (4), text (8), writer</td>
<td>aggregate (3), apparatus (2), bridge (2), bucket, building, can, card, dam, device, fiber (2), handbook, image (3), instrument, kit (2), layer, machine, material (4), mesh, mixture, particle, pile (5), residue, sand, segment, shaft (2), site (4), slab, slot, soil, specimen (4), station, transducer</td>
</tr>
</tbody>
</table>

Looking at the concrete nouns found in these two corpora, it is apparent that the concrete nouns used in demonstrative structures with this and these primarily constitute discipline-specific entities that are topic-sensitive. These nouns can be said to be discipline-specific in part because of the lack of concrete nouns occurring in both disciplines and because of the essence of the noun, or the semantic domain to which the nouns correspond. The concrete nouns belong to a domain that is consistent with the nature of the research in both disciplines. For example, most of the concrete nouns found in the Applied Linguistics corpus are people, as research involving language most typically involves human participants. On the other hand, research in Materials and Civil Engineering investigates substances, materials, and physical structures, thus leading to many concrete nouns representing physical materials (e.g., fiber, sand) and structures (e.g., bridge, dam).

Additionally, as can be seen in Table 4.3, few nouns occur frequently, with most occurring one to four times. The fact that nouns that do occur more than once often appear within the
same text within the corpus may be an indicator that the concrete nouns used in
demonstrative structures are highly dependent on the topic of the text.

These concrete nouns can be found in demonstrative structures occupying all
sentence positions and with both the singular *this* and the plural *these*. When used in a
sentence-initial structure, as in the example below, the concrete noun typically serves as the
subject of the verb phrase that follows, as in this example:

> *At KTTI, the graduates from the Diploma course in Clothing Merchandising were the subjects of the study. These students receive language training in both years of their course.* (AL)

However, when the concrete noun is in a structure occupying the sentence-medial or
sentence-final position, the determiner + concrete noun structure is commonly part of a
prepositional phrase modifying another noun. An example of this can be seen in the
following excerpt from the Engineering corpus.

> *Residual soil is the common subgrade soil that pavements in Singapore are constructed upon, and spillage of this material has been known to clog the pores of porous asphalt pavements in Singapore.* (Eng)

In this example, *of this material* modifies the head noun *spillage*, and this head noun is the
subject of the verb phrase *has been known to clog*. The prepositional phrase containing the
demonstrative structure functions to explicitly identify what is spilling, thus adding clarity to
the sentence and making a cohesive link between the *residual soil* and *spillage*.

### 4.3.2 Deictic Nouns

Twenty nouns function as deictic words in the two discipline, with four (*study, paper, section, and figure*) appearing in both disciplines. All deictic nouns and the number of times
they occur in each discipline are presented in Table 4.4.
As mentioned in Chapter 3, deictic nouns serve as a pointing device in which readers are directed to a certain part of the text. The deictic nouns seen here point to varying levels of the text. For example, words like study, paper, investigation, article, and research point to the text as a whole in a kind of exophoric reference. On a second level, words such as section and passage point to a smaller portion of the text. A third level represented by words like figure, quote, table, graph, and plot point to more specific objects within the text. Finally, the most specific, deictic words like lines and curves point to discrete points on the objects within the text. To illustrate, look at the four examples below.

Adopting Hasan's (1989) notion that some 'elements' of texts are obligatory and some optional, we can consider some moves to be obligatory and some optional. In this paper, we use the term 'register' to mean the totality of all lexico-grammatical realisations of a genre and the term 'move register' to mean the language features and patterns typically associated with a particular move. (AL)
Instructional/Initiating Directives As described above, instructional/initiating directives refer to directives used to implement some classroom procedure or some pre-existing teaching agenda. In this section, I discuss several ways in which this type of directives are constructed in the two classrooms studied here. (AL)

Graphs were generated for each day of data, at each location comparing the "stable" flow rate with 16-min measurement interval! to flow rates determined using measurement intervals ranging from 2±14 min. These graphs clearly demonstrated less deviation from the stable flow rate as the measurement interval becomes longer. (Eng)

The load±displacement diagrams were plotted for all the piles. Typical load±displacement response is given in Fig. 2. These curves are, in general, similar at all test conditions. (Eng)

In these four examples, the progression of specificity that the demonstrative structures can achieve based on the deictic noun used. As can be seen in Table 4.4 above, the two most frequent deictic nouns—study (175 occurrences) and paper (46 occurrences)—refer to the largest, or broadest, level.

Additionally, as was the case for the concrete nouns, deictic nouns can function as the subject of the verb, as in the last two examples above, or they can appear in prepositional phrases that serve an adverbial function for the sentence, as in the first two examples above. In these first two examples, the prepositional phrase serves to point readers to the current investigation and orient the coming information within a specific context.

4.3.3 Adverbial Head Nouns

Adverbial head nouns are the most infrequent type of nouns in both disciplines. Nine nouns function as adverbial head nouns, with four appearing in both disciplines. All adverbial head nouns are listed in Table 4.5 below along with the number of occurrences. Case is the most frequently occurring noun (22 instances), and way is the second most frequent (12 instances). The remaining seven nouns occur fairly infrequently and often appear in only one discipline.
Unlike concrete and deictic nouns, which appeared in structures in all sentence positions, the adverbial head nouns occur (with two exceptions) only in structures in the sentence-medial/final position, and they only appear following demonstrative this (not these) within prepositional phrases. The fact that adverbial head nouns only occur in prepositional phrases following this may be due to the adverbial function of the structures in which they occur, as the nouns that perform adverbial functions are typically singular. In the two examples below, the phrases in this regard and in this way function as an adverbial that links the content of the sentence in which they appear to information in the previous sentence.

*In fact, of students who found examples most useful, nearly half (44%) failed to agree that the text helps them to understand new material. Only one in ten of these people agreed strongly that the text is helpful in this regard.*  (AL)

*The key point for this adaptive control is to use the LVDT that caught the formation of major crack as control. In this way, the loading will gradually decrease with the increase of the LVDT reading.*  (Eng)

### 4.3.4 Other Abstract Nouns

A great variety of nouns were classified as other abstract nouns. Like the concrete nouns, the majority of other abstract nouns occur in one discipline or the other, with relatively few nouns appearing in both Applied Linguistics and Engineering. Table 4.6 lists the thirteen other abstract nouns found in both disciplines. The three most frequent nouns are type (15 occurrences), kind (14 occurrences), and level (13 occurrences).
Table 4.6 Other Abstract Nouns Occurring in Both Applied Linguistics and Engineering

<table>
<thead>
<tr>
<th>Abstract Other Nouns</th>
<th>Applied Linguistics</th>
<th>Engineering</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>type</td>
<td>12</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>kind</td>
<td>10</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>level</td>
<td>12</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>period</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>range</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>series</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>number</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>program</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>set</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>time</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>hour</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>percentage</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>use</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 4.7 below lists all other abstract nouns that were found in one discipline. The nouns reported in Tables 4.6 and 4.7 can be grouped into several subdivisions within the other abstract category, as they seem to fall into four groups, which are discussed below:

- discipline-specific
- register-specific
- adjectival/nominalizations
- species nouns

Table 4.7 Other Abstract Nouns Appearing in One Discipline

<table>
<thead>
<tr>
<th>Applied Linguistics</th>
<th>Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>adverbials, channel, chapter, class, classroom, clause, coefficient, comment, community, connector, construction, consultation, context, corpus, countercourses, country, course, dichotomy, direction, directive, discourse, entry, expression, field, genre, group, industry, interview, item, lesson, modal, hedge, mode, move, network, part, period, phrase, place, pool, population, preview, pronoun, quotient, reference, resource, rubric, sample, self-promotion, sense, sentence, series, slot, socializing, source, string, subgroup, survey, term, truth-semantics, type, usage, use, verb, visit, word, work</td>
<td></td>
</tr>
<tr>
<td>accident, age, area, arrangement, damping, day, delay, depth, ease of use, equality, formulation, frequency, growth, heat, heave, incident, interface, interval, length, load, location, mass, organization, pressure, rate, redeposition, region, segment, spalling, spike, statement, strain, temperature, traffic, value, void, waste, wave</td>
<td></td>
</tr>
</tbody>
</table>

Similarly to concrete nouns, many of the other abstract nouns tend to be discipline-specific. Because of the discipline- and topic-specific nature of these nouns, few appear with great frequency, and often multiple occurrences of the same word come from the same article within the corpus. This phenomenon can be seen in the following two examples.
A detailed analysis of native speaker Letters of Application would also create a baseline against which rhetorical and linguistic comparisons could in future be made across cultures. There are, therefore, several good reasons why this genre written by native speakers should be investigated in some detail.

(Al)

To facilitate this, the concrete cylinders, with thermocouples, were heated in the furnace and the furnace temperatures were measured when the center of the specimens reached the specified target temperature. These temperatures were used as the representative highest furnace temperature for the following stress-strain tests.

(Eng)

In each of these examples, the words following the demonstrative, genre and temperature, are highly linked to the discipline itself. Other examples of discipline-specific nouns found here include adverbials, connector, corpus, and word in Applied Linguistics and growth, strain, traffic, and heat in Engineering.

Similar to discipline-specific nouns are register-specific nouns, which are other abstract nouns that are typical of a particular register, in this case, research articles in applied sciences. As these two disciplines are both applied sciences, they may share in common some register-specific nouns. Register-specific nouns are often entities used to discuss research methodologies and findings. The examples below show two register-specific nouns, sample and percentage, in use.

The NNSE professional letters (hereafter -N+P) included 12 letters from the same journal and 11 examples submitted by academics (written or received by them). First languages in this sample included: Chinese (Hong Kong) 8; Finnish 2; German 3; Greek 1; Japanese 3; Italian 4; French 1; Swedish 1. (AL)

However, with the increase in the applied load, the fraction of loads carried by the piles increased rapidly at the initial stage, and then decreased gradually to a stable value of 30±35% for sand reinforced with 500 mm piles and 20±30% for sand reinforced with 350 mm long piles at higher loads. These percentages of load sharing by piles are similar to the 32% reported by Horikoshi and Randolph 1998 for design conditions that lead to 80% mobilization of pile capacity. (Eng)
In these examples, sample and percentages are common to quantitative analyses that are often found in research in the applied sciences. Other register-specific nouns include coefficient, frequency, rate, population, range, and value.

The third subcategory within the other abstract nouns are the adjectival/nominalization nouns. These nouns tend to be descriptive nouns that relate to the qualities of the referent. In the example below, arrangement is used as an adjectival/nominalization.

The loading system consists of a motorized screw jack, of 15 ton capacity, with 915 mm maximum travel, mounted on a steel plate which was bolted onto the loading column steel tubing. This arrangement allows pushing the pile vertically or at any angle up to 45° with the vertical by a system of a sleeve, a pin, and supporting frames (Hanna and Afram 1986). (Eng)

In this example, arrangement is a nominalization that describes and specifies the concept of the preceding sentence that is of interest in the coming sentence. Other examples of adjectival/nominalization nouns include dichotomy, equality, ease (of use), void, waste, and wave.

The final type of nouns includes species nouns, like type or kind, that are often followed by prepositional phrases. These nouns are especially interesting because they carry little semantic weight and are made specific through the use of prepositional phrases. In the following example, the species noun kind is made specific through the prepositional phrase of defective cohesion.

The result is that readers are left stranded looking for a cohesive antecedent in the second sentence and, not finding it, are then required to put extra effort into construing the connection for themselves. This kind of defective cohesion is compounded by our Chinese subject's overwhelming tendency to place certain classes of logical connectors. (AL)

The two most frequent other abstract nouns in the two disciplines are kind (with 15 occurrences) and type (with 14 occurrences).
4.3.5 Shell Nouns

As was demonstrated earlier in Figure 4.6, shell nouns (Schmid, 2000) constitute nearly half of all nouns used after the demonstrative determiners this and these (46% in Applied Linguistics and 43% in Engineering). Like the other types of nouns discussed in this study, shell nouns can be divided into three groups: those occurring in both disciplines, those occurring in only Applied Linguistics, and those occurring only in Engineering. Table 4.8 lists all shell nouns that appear in both disciplines along with the number of occurrences for each discipline. The nouns are ordered by frequency in descending order.

Shell nouns are particularly interesting not only because of their high frequency in these demonstrative structures in the disciplines at hand, but also because they do not appear to be as discipline-specific as many other types of nouns. This is suggested by the number of shell nouns that were found in both Applied Linguistics and Engineering. Rather, the most frequent shell nouns found here, research (34 occurrences), method (27 occurrences), result (21 occurrences), and model (20 occurrences), deal with the methodologies and findings that are inherently found in research articles.
<table>
<thead>
<tr>
<th>Shell Nouns</th>
<th>Applied Linguistics</th>
<th>Engineering</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>research</td>
<td>8</td>
<td>26</td>
<td>34</td>
</tr>
<tr>
<td>method</td>
<td>1</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>result</td>
<td>7</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>model</td>
<td>5</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>test</td>
<td>2</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>data</td>
<td>6</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>analysis</td>
<td>12</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>finding</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>difference</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>issue</td>
<td>7</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>system</td>
<td>1</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>study</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>approach</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>area</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>information</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>assumption</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>phenomenon</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>occurrence</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>reason</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>environment</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>investigation</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>point</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>problem</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>process</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>element</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>relationship</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>similarity</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>thesis</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>effect</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>device</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>measure</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>pattern</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>response</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>situation</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>goal</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>increase</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>tendency</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>change</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>circumstance</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>concept</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>concern</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>cycle</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>effort</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>limitation</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>need</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>product</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>reaction</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>variation</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Even though there are a great number of shell nouns that appear in both Applied Linguistics and Engineering, there are still a substantial number of nouns that occur only in one discipline. See the Appendix for a list of shell nouns occurring in one discipline. However, it is apparent that, unlike the discipline-oriented concrete and other abstract nouns, shell nouns are more similar to the deictic and adverbial head nouns in that they seem to be discipline-neutral. That is, readers would not need to be familiar with a specific discipline in order to understand what these shell nouns refer to. This is consistent with the idea that these nouns carry little semantic weight until they are made specific because of their property of carrying information. Take, for example, the following excerpts from both disciplines.

The results of this study show that the interaction effect seems to be most noticeable when rating personality traits such as consideration, honesty, trustworthiness, and friendliness. The basis for the interactions was shown to be related to the ratings given to the low and high white speakers. With respect to these four characteristics, low and high white speakers received statistically significantly higher ratings from the white raters compared to the black raters. (AL)

Wires are always wet at the side, wet at night and dry during the day at the top, highly humid at the center, and continuously saturated at the bottom. Accelerated corrosion tests of galvanized steel wires under these different environments were conducted. (Eng)

In the examples above, the shell nouns characteristics and environments could easily occur in any number of other disciplines. It is only once the referent of the shell noun and the register in which it is used are considered that these nouns have any specific meaning. While what the content the shell nouns refer to may be discipline- or topic-specific, the shell noun itself is not. An investigation into the types of antecedents for demonstrative noun phrases containing shell nouns would certainly be interesting and most likely fruitful; however, such an investigation is beyond the scope of the current study.

In this chapter, a quantitative and qualitative analysis of the demonstrative structures of interest has been explored. In the following chapter, the results of this analysis will be summarized and the implications of these results will be explored.
CHAPTER 5. CONCLUSION

The goal of this study was to explore the ways that the demonstratives this and these are used in published academic research articles in two disciplines, Applied Linguistics and Engineering. In this chapter, a brief summary of the results will be discussed and the implications of these results will be presented. Additionally, the limitations of the current study will be addressed. The chapter will end with suggestions for further research.

5.1 Summary of Results

The first research question asked how frequently the demonstratives this and these are used as determiners versus pronouns in the Applied Linguistics and Materials and Civil Engineering corpora. The analysis showed that for both disciplines and both sentence-initial and sentence-medial/final positions, the use of this and these as a determiner is more frequent than the use as a pronoun. Although the majority of instances of this and these in Applied Linguistics and Engineering were used as determiners in a noun phrase, pronominal structures also constitute a significant portion—nearly one-fifth of each discipline. This finding indicates that pronominal uses are most likely not solely instances in which the writers went against prescriptive rules by not following the demonstrative with a noun, but rather that reasons exist as to why and how pronominal this and these are employed.

The second research question focused on determining the linguistic environments surrounding anaphoric instances of pronominal this and these. All pronominal instances were found to be anaphoric in both disciplines. For pronouns acting as the subject of a verb, two copular verbs (appear and be) and a wide variety of non-copular verbs were found to follow the pronoun. In Applied Linguistics, half of the verbs investigated were copular, while fewer were copular verbs in the Engineering corpus.

The third research question addressed the type and frequency of the linguistic environments after this and these used as a determiner. Five types of nouns were found in noun phrases containing demonstrative this and these: concrete, deictic, shell (Schmid, 2000), adverbial head, and other abstract nouns. In both Applied Linguistics and Engineering, shell nouns occur most frequently, making up 46% and 43% of all demonstrative noun phrases respectively. Deictic and other abstract nouns occur with the
second and third highest frequencies in both disciplines, and the frequencies of each are quite similar. Concrete nouns are the fourth most frequent, and adverbial head nouns are the least frequent.

The fourth research question asked for a functional description of the uses of this and these as pronouns and determiners. For pronominal instances, the use of copular verbs is noteworthy because of its function as a mental equal sign in which the subject is linked with the information that follows the verb. Additionally, four main structures using copular verbs recur in the data at hand:

- this + copular verb + because/why...
- this/these + copular verb + adjective phrase
- this/these + copular verb + prepositional phrase
- this/these + copular verb + noun phrase

These structures function to further describe the antecedent of the pronominal this/these, with the pronoun serving as a link between the antecedent and the additional information provided after the copular verb. It was also discovered that the antecedent for most pronominal uses of this/these are stretches of discourse longer than a simple noun phrase. In other words, the antecedent of the pronoun is typically an entire clause, sentence, or group of sentences. This seems logical in considering that it may be difficult to summarize or restate all of the information contained in this type of antecedent in a single word or simple noun phrase.

In noun phrases with this and these used as determiners, concrete and many of the other abstract nouns were found to be discipline-specific because the semantic domain to which they belong is reflective of the content and domain of the discipline, and this is supported by the fact that concrete and a subset of other abstract nouns infrequently or never appear in both Applied Linguistics and Engineering. On the other hand, another subset of other abstract nouns, as well as the deictic nouns and shell nouns, appear to be registerspecific in that they seem inherent to the nature of reporting on empirical research. Deictic nouns paired with demonstrative determiners point readers to specific parts of the text, and it is, in fact, the demonstrative determiner that makes the phrase point to a specific part by indicating the proximity of what is being pointed to.

Shell nouns, which constitute over 40% of all nouns used following a demonstrative determiner in both Applied Linguistics and Engineering, appear to be neither discipline- nor
register-specific. Rather, these nouns are very general, and alone, they carry little semantic meaning. However, the use of the demonstrative determiner points them to nearby information in the text, giving them a very specific meaning. These shell nouns carry all of the meaning associated with their antecedents. The high frequency of these shell nouns in comparison to the other types of nouns may reflect their function; authors use shell nouns to encompass complex information in one word to make the referential structure with *this/these* more clearly point to a specific antecedent.

The final research question addressed the similarities and differences between the findings for the Applied Linguistics and the Materials and Civil Engineering corpora. In terms of similarities, both disciplines exhibited similar distributions of the use of demonstrative *this* and *these* as pronouns and determiners. Additionally, when investigating the types of nouns following *this* and *these* as determiners, the proportion of noun types is quite similar. Despite the fact that many nouns were found in one of the disciplines, those nouns belonged to the same class of words, thus fulfilling similar functions despite being different lexical items. Nouns that did appear in both disciplines despite the very different content of the corpora tended to be more general nouns made to have specific meaning when paired with a demonstrative determiner.

On the other hand, more pronominal uses of *this/these* were followed by copular verbs in Applied Linguistics than Engineering. This finding could reflect the differing nature of research in the two disciplines. In Applied Linguistics, the focus is often on characterizing and describing people and language, while a heavier focus is often placed on physical actions in Engineering. Thus, Engineering may use more non-copular verbs to indicate these actions.

### 5.2 Implications

The results summarized in this chapter can be applied in the context of teaching academic writing skills to both native English-speaking and English as a Second Language learners. Although both disciplines utilized demonstrative *this* and *these* more frequently as determiners than as pronouns, the fact remains that they did indeed use them as pronouns as well. Furthermore, approximately 20% of all instances of the demonstratives investigated here constituted pronominal uses. This finding indicates that pronominal *this/these* has a
significant role to play in academic writing, and that instructors shouldn’t dismiss the possibility of pronominal this/these as being a cohesive structure, and can advise students to consider elements of the linguistic context (such as what the structure refers to, the type of verb that follows it, the syntactic placement of the structure, and the type of nouns following determiners) when deciding whether to use this and these as determiners versus pronouns.

The findings of this and future studies investigating demonstrative pronouns and determiners can raise awareness of the real and frequent use of these demonstrative structures in composition instructors and writing students. The effects of an increased awareness may in turn lead to a more conscious effort to think about language use so as to create a clearer and more cohesive text for readers, and possibly promote the development of reading skills for student writers by helping them determine the antecedent of referential structures with demonstrative this/these more efficiently and accurately.

5.3 Limitations

The study has several limitations that must be considered when interpreting these finding. The first limitation is the size of the sample being used. Because of the nature of the structures’ referential function and the fact that a major element of analysis—shell nouns (Schmid, 2000)—can only be categorized as such according to their function within a specific context, most of the analysis had to be conducted by hand. This resulted in the scope of the study being limited to two disciplines and to a subset of the available corpora. A possible result of this limitation may be the lack of findings of quantitatively significant differences between uses and disciplines. Additionally, the results cannot be generalized to other disciplines or genres.

The second limitation is that because much of the analysis was conducted by hand, and because the distinction between an abstract noun and a shell noun is solely a functional difference, it was at times difficult to determine the functional use of a particular structure or element. As discussed in Chapter 3, the effects of this limitation were combated as much as possible by having a second researcher validate the coding of the linguistic features.
5.4 Further Research

This study has provided support for the idea that our conception of how writers ‘should’ use structures in which *this* and *these* are used as determiners in noun phrases and as pronouns is not as simple as prescriptive rules imply, and that how the structures are used by accomplished writers in Applied Linguistics and Materials and Civil Engineering does not necessarily match those prescriptivisms.

While this study has strived to provide detailed information about the lexico-grammatical patterns of these demonstrative structures, the surface has only been scratched, not breached, for two very specific disciplines. Further studies are needed to fully investigate demonstrative *this* and *these*, particularly studies involving additional disciplines. For example, a comprehensive examination comparing the types of antecedents for structures containing *this* and *these* as pronouns versus determiners may reveal significant differences in use. In addition, the effect of copular verbs and what they lead to for both pronominal and determiner uses may offer insights into the structures. Another analysis that was not approached in this study was an analysis of the tense, aspect, and modality of the verb phrases following pronominal or demonstrative structures. It is possible that the characteristics of the verb phrase may have a significant impact on how the structures are used, especially as the register at hand—academic writing—contains much passive voice and modality.

Finally, more sophisticated investigations into how readers perceive the use of these structures is needed. As all the possible lexico-grammatical patterns are identified, those structures can be evaluated for clarity and cohesion in a scientific manner in order to investigate whether or not the use of the structures reflects what is textually effective for readers.
## APPENDIX

Table A Shell Nouns Appearing in One Discipline

<table>
<thead>
<tr>
<th>Applied Linguistics</th>
<th>Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>ability, act, activity, advantage, agenda, ambivalence, argument, article, aspect, attitude, awareness, background, belief, benefit, capacity, category, characteristic, choice, coding, conception, conclusion, configuration, connection, consideration, continuum, contrast, conversion, correspondence, danger, definition, delay, determination, device, difference, difficulty, dimension, discourse, discussion, distinction, episode, evidence, exchange, exercise, experience, fact, factor, fault, feature, flaw, focus, format, function, grouping, idea, influence, input, interpretation, item, judgment, knowledge, matter, message, metaphor, methodology, misconception, mission, mistake, myth, notion, option, perception, placement, policy, position, possibility, practice, principle, progression, project, propensity, proposition, purpose, question, reality, repetition, request, risk, role, rule, scenario, school, selection, sentiment, setting, sharing, simulation, skill, space, strategy, support, task, tension, theme, theory, thinking, thing, tradition, transition, translation, view, work</td>
<td>action, ambiguity, behavior, case, change, comparison, condition, conflict, control, criterion, deficiency, deviation, estimate, failure, field, formula, history, hypothesis, limit, link, mechanism, mode, modulus, moment, movement, observation, paper, parameter, phase, phenomenon, procedure, property, ratio, recommendation, relation, report, section, sensitivity, snapshot, stage, step, stress, step, study, technique, trend, variable</td>
</tr>
</tbody>
</table>
REFERENCES


ACKNOWLEDGEMENTS

I would like to thank my major professor, Dr. Viviana Cortes, for her guidance, assistance, and patience, not only through the process of writing this thesis, but also throughout the past several years as I have begun and completed my graduate work at Iowa State. I am also grateful to my committee members, Dr. John Levis and Dr. David Russell, for their questions, comments, and supportive suggestions.