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PROCESSING OF AMERICAN IDIOMS BY
NATIVE SPEAKERS OF BRAZILIAN PORTUGUESE:
A STUDY BASED ON THE HEURISTIC MODEL OF T.J. COOPER

by

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A capstone submitted in partial fulfillment of the requirements for the degree of
Master of Arts in English as a Second Language

Hamline University

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LIST OF INITIALS AND ACRONYMS

BK	Background Knowledge
BP	Brazilian Portuguese
DA	Discussing and Analyzing
DIR	Dual Idiom Representation
EP	European Portuguese
ESL	English as a Second Language
GC	Guessing from Context
IRT	Idiom Recognition Test
L1	First Language
L2	Second Language
LM	Literal Meaning
MAESL	Master of Arts in English as a Second Language
MEG	MagnetoEncephoGraphy
MWU	Multi-Word Unit
NS	Native Speakers
NNS	Non-Native Speakers
NSBP	Native Speakers of Brazilian Portuguese
OS	Other Strategy
RI	Requesting Information
RP	Repeating or Paraphrasing
TA	Think Aloud

CHAPTER ONE: INTRODUCTION

Non-native speakers (NNSs) encounter many obstacles and challenges as they learn to navigate a new language and culture. American English has many features that can cause confusion for NNSs in their learning process. As a teacher of American English to students with several different native languages, I have found it especially challenging to convey an understanding of idioms. These language elements are often culturally specific and the meaning frequently cannot be derived from the literal meanings of the components involved. For this project I have chosen to explore American English idiom processing by NNSs of a specific L1 language group—native speakers of Brazilian Portuguese.

Processing Idioms

Idioms present unique challenges for NNSs. They may understand the literal meaning of an idiomatic phrase but become lost as to the more relevant figurative meaning. Sometimes NNSs process American idioms through the meaning in their L1, especially when they perceive an equivalent idiom in their own culture (Cooper, 1999). The same idea is often expressed differently according to its cultural context. Culture can reveal itself through idioms. In Brazil, to stare into space in deep contemplation invites others to inquire if you are thinking about the “death of the calf.” The American idiom “pulling your leg” offers no clue that someone has deceived you. Metaphorical idioms in particular are culturally specific because they are motivated by concepts and beliefs that may be prominent in one culture but not in others. For example, sports, business and

driving have played an important role in American life (Liu, 2008). American speech is rich with idioms such as “bottom of the ninth,” “move the ball down the field” and “strike out” from baseball and American football, and “out of gas” and “step on it” from driving. In contrast, Chinese idioms are more often inspired by eating, the family and Chinese opera. Where Americans might say “I don’t buy that,” Chinese are likely to say “I don’t eat that” (Liu, 2008, p. 41).

In a teaching context, I have found that NNSs in the United States have difficulty dealing with American idioms. Two visiting scholars from China used the word “obstacle” to describe how they experienced American idioms. These learners possessed a strong English vocabulary, routinely engaged in complex academic work and showed sincere desire to improve their English proficiency. Nonetheless, when they encountered American idioms they were confounded. They asserted emphatically that teaching idioms was important because understanding idioms could help them learn more about American culture and develop a sense of humor so they could relax when conversing with Americans. An Eritrean couple found idioms to be tricky and deceptive. An adult Ethiopian student used a simile to describe how he felt about idioms: “idioms are like looking at the back of a man’s head, not the front.”

A study by Thomas C. Cooper, “Processing of idioms by L2 Learners of English” (1999), offers a model for examining the thought process utilized by NNSs. His informants included eighteen adults speaking five L1 languages: eight Spanish, five Korean, three Japanese, one Russian and one Portuguese. Each was presented with a list of twenty American idioms, ranging from simple to complex, which Cooper called the Idiom Recognition Test (IRT). Each informant attempted to reach the correct meaning while

describing to the researcher how they processed the idiom's meaning via the "think-aloud" (TA) method. This research tool is used widely by scholars who seek to get "as close as possible to the inner workings of the participant's mind" (Perry, 2011, p.118). Based on informant reactions and responses in this process, Cooper states that his study can best be identified as a "heuristic" model, with subjects employing a variety of strategies through trial and error to find the meanings of the idioms (1999, 257-58).

Role of the Researcher

To further my understanding of the process and to contribute data from a single L2 population, I conducted a smaller and more limited study based on Cooper's heuristic model. I have access to an ample community of Brazilians living in and around the Twin Cities; my wife is among them. They speak American English in their work and public lives but Brazilian Portuguese among themselves. Over fifteen friends and acquaintances expressed interest in participating in my study. All have a high professional level in English. None are current or former ESL students of mine.

As a beginning researcher, my intent was to design and carry out a project of a dimension that I could conduct successfully. An experienced researcher in a university setting, Dr. Cooper utilized the services of two assistants in conducting and transcribing interviews and one collaborator in analyzing data. My study utilized Cooper's data collection and analysis methods but with a fifty per cent smaller informant group (nine), all with Brazilian Portuguese as L1, and a 50% smaller IRT (ten items) as a data gathering tool. I conducted all interviews myself, had a volunteer assist with transcription, and two colleagues assist with analysis and scoring in order to better triangulate results. Specific methodology is discussed in Chapter Three.

Background of the Researcher

I have always been intrigued by other languages and cultures and have enjoyed puzzling through foreign languages attempting to find meaning. I have studied several languages, including Spanish, Portuguese, Ojibwe and Mandarin. I have traveled extensively in Mexico, Spain, Brazil and China. Understanding the second language (L2) learning process is crucial to me as a Teaching English as a Foreign Language or Teaching English as Second Language teacher. I have six years of experience teaching American English to children in several cities in China. Upon completion of my MAESL, I intend to go abroad again for further teaching assignments. The more insight I gain as to how NNSs navigate through both a new language and a new culture, the more directly I can address their issues as learners.

This capstone study investigates an important component of learning a second language: processing idioms. My study utilizes the research methods of T.J. Cooper (1999) with a 50% smaller informant group and a 50% smaller data gathering tool (IRT). Cooper's informant group includes native speakers of five languages, whereas my informant group is comprised only of Brazilian Portuguese native speakers.

Guiding Questions

- 1) How do native speakers of Brazilian Portuguese process American English idioms?
- 2) What strategies were used by the informants in their attempts to comprehend the idioms? (Cooper, 1999, p. 238)
- 3) How much did the idioms included in the Idiom Recognition Test vary in difficulty as measured by success in comprehension by the informants? (Cooper, 1999, p. 238)

Summary

The focus of this study was on how native speakers of Brazilian Portuguese process American English idioms. In Chapter One, I discussed how NNSs come to terms with American idioms and speculated briefly on how they might process the literal and figurative meanings of these idioms. I suggested how idioms have references unique to each culture, and briefly described some cross-cultural experiences that provoked my thinking on this topic. I introduced Cooper's study employing the Think-Aloud (TA) method to track thought processes. I also introduced my plan to conduct a smaller study based on Cooper's model with informants having a single L1: Brazilian Portuguese.

Chapter Overviews

In Chapter One, I discussed how NNSs have encountered American idioms and I speculated on how they might process them. Chapter Two reviews and discusses literature concerning idiom processing, especially as relevant to my research questions. Chapter Three introduces and describes the various steps involved in my own study with Brazilian Portuguese L1 informants here in the Twin Cities, based on Cooper's model. The Think-Aloud (TA) method and Idiom Recognition Test (IRT) are described specifically. Chapter Four presents the results of my study. In Chapter Five, my results are compared with those of Cooper, and implications are discussed. Finally, the chapter suggests potential for further research regarding idiom processing by NNSs.

CHAPTER TWO: LITERATURE REVIEW

Chapter Two presents and discusses the findings and conclusions of current research literature relating to the proposed study, the processing of idioms by NNSs. Topics include the following: various definitions of idioms, explanation of literal and figurative meanings, exploration of transparency and opaqueness, and the role of context. The “gap” section introduces the topic of my study.

Idioms Defined

What is an idiom? Researchers do not always agree. Schweigert (1986) sees idioms as strictly defined. According to Schweigert, idioms are figurative expressions whose meanings cannot be surmised from the component words in the phrase. Grant and Bauer (2004) define idioms quite narrowly and refer to core idioms. Core idioms are multi-word units that must be non-compositional; that is, the idiom’s figurative meaning cannot be predicted from the meaning of its constituent parts. A core idiom must be held in memory as an institutionalized, fixed, frozen unit. If the word order is changed or any individual word is added or omitted, the phrase can no longer be defined as a core idiom. Other scholars (Wood, 1981, Fernando, 1978 & 1996, and Moon, 1998, as cited by Grant and Bauer, 2004) “prefer to describe a scale or continuum of idiomaticity” (p. 42). The term “idiomaticity” refers to the quality of being marked by idioms and an ability to speak fluently in the language. There is a perception by some scholars that all multi-word units (MWUs), including idioms, are not equally opaque or

transparent. They can be placed on a continuum from very opaque, or purely idiomatic, such as “kick the bucket” or “red herring,” to those more transparent--that is, their literal meanings are closer to their figurative meanings, such as “spill the beans” or “by and large.”

Liu (2008, p.23) offers three criteria for idiom identification and definition. His first criterion is that idioms are often non-literal or semi-literal in meaning. Ibrahim and Zakaria (2003) see idioms as fixed expressions whose figurative meanings cannot be gleaned from their component parts. An idiom’s meaning is often not completely derivable from the interpretation of its component parts. Saberian and Fotovatnia (2012) support this point: “It is impossible to guess the meaning from the individual words that make up the idiom” (p.1231). Cain, Oakhill and Lemon (2005) expand on this idea when they describe an idiom as a figurative expression whose literal meaning is transformed into a figurative meaning as the result of being placed in a context. Secondly, Liu claims that idioms are generally rigid in structure. Some of them are completely invariant but others allow some restricted variance in composition. Saberian and Fotovatnia (2012) define idioms as having “a fixed word order” (p. 1231). Finally, Liu asserts that idioms are multi-word expressions consisting minimally of two words, including compound words. Rohani, Ketabi and Tavakoli (2012) see idioms as multi-word expressions that have figurative meanings differing from the literal meanings of their component parts. Grant and Bauer (2004) say “idioms are a type of multi-word units (MWU)” (p. 38). These criteria serve as a touchstone throughout this study.

Literal or Figurative Meaning

An ongoing point of discussion and research in the area of idiom acquisition is the question of what comes to mind first when encountering an idiom, the literal or the figurative meaning. Cooper (1999) cites four theories that attempt to explain how L1 speakers comprehend idioms.

Bobrow and Bell (1973) propose the Idiom List Hypothesis. Cooper (1999) describes how this hypothesis suggests that native speakers who encounter a novel idiom first interpret it literally. Only after a native speaker realizes that the expression's literal meaning does not fit the context does this person begin to search for the idiom's figurative meaning in his or her own mental lexicon.

Swinney and Cutler (1979) present the Lexical Representation Hypothesis, which maintains that idioms are accessed in the same manner as any other word or group of words. They also emphasize that literal and figurative meanings are processed simultaneously.

Schweigert (1986) submits the Direct Access Hypothesis, proposing that figurative meanings are accessed directly, bypassing literal meaning altogether. According to Schweigert, this model predicts that figurative meanings will be understood more quickly if they are accessed directly than if the idioms' literal meanings are processed first. Gibbs (1984) breaks with the Lexical Representation Hypothesis when he finds that people do not simultaneously process literal and non-literal meanings of idioms. He concludes that a literal analysis is not a necessary step in processing idioms.

Further evidence suggesting that idioms are directly accessed in L1 is presented by Boulenger, Shtyrov and Pulvermuller (2012), who found that by using MagnetoEncepho-Graphy or MEG technology, idiom recognition can be electronically detected and measured in the brain. MEG technology measures and records the brain's magnetic activity at precise intervals measured in milliseconds (ms), which makes this technology well suited for identifying when the motor system first becomes active after hearing a word or phrase. This study presents evidence that idioms activate specific brain regions, such as the left temporal pole, the Broca's region in the left frontal cortex, the left dorsal lateral prefrontal cortex, as well as the anterior temporal areas more strongly than did literal utterances. This study also documents that the anterior fronto-temporal amodal area's activation actually distinguishes idiom processing from that of literal sentences. This study concludes by suggesting that whole abstract constructions, including idioms, are retrieved instantly by an activated anterior fronto-temporal cortex.

The final theory cited by Cooper is the Composition Model (Gibbs, 1994; Tabossi and Zardon, 1995). These studies determined that when an idiom was decomposable, study informants could assign independent meanings to the individual parts and quickly recognize how these parts combined to form an overall figurative interpretation. Decomposable or transparent idioms are idioms where literal word meanings can be directly mapped from the idiomatic meaning. An example could be "on thin ice." Someone who is literally standing on thin ice is in danger. Someone could be "on thin ice" in the middle of summer if at risk of dire consequences of another form. Thus "on thin ice" is easily decomposable.

In their research into how English monolinguals and bilinguals access figurative meaning, in this case, phrasal verbs and verb + preposition combinations, Matlock and Heredia (2002) speculate that monolinguals and early bilinguals (those who learned English before age twelve) access the figurative meaning first. In a reading exercise, using the following example, “Paul went over the exam with his students,” readers activate a meaning, such as “go over” as a figurative meaning attached to the entire phrase, not the meaning of “go” and “over” individually. These readers grasp the figurative meaning directly in a context. Gibbs (1980) is referenced when Matlock and Heredia (2002) assert that “this interpretation of the data is consistent with the Direct Access Hypothesis for processing idioms” (p. 265).

Kellerman (1979) investigated the role of L1 transference in L2 learning with Dutch students learning English. He observed that L2 learners often experienced surprise when they realized that an idiom from the L1 had an equivalent in the L2. He surmised that this resulted from a kind of linguistic shock that came from finding a familiar idiomatic expression in a foreign language (p. 45). Dutch and English are closely related, which might account for some similarities.

In summary, L2 learners gravitate toward the literal meanings of idioms. As they gain proficiency, they begin to access figurative meanings directly, as is done by native speakers. Cooper’s 1999 results support the idea that L2 learners process idioms that are closer to their literal meanings more accurately than those that are far removed. Each informant response to each idiom was scored on a 3-point scale. The lowest possible score would be 1.00 while the highest possible score would be 3.00. Of the idioms that Cooper considered, the one least understood and with the lowest mean score (1.67) was

“to have a chip on one’s shoulder.” Cooper cites this idiom, along with “to let the cat out of the bag,” as among the most difficult to understand. The informants found the lack of a close connection between the literal and figurative meanings of an idiom proved to be an obstacle to understanding. Conversely, the idiom “to have a big mouth” had the highest mean score (2.78). This score was shared by “to be suffering from burnout.” (The English term “burnout” is now used in other languages, which could account for its high score.) Cooper attributes the relative ease of understanding these idioms to the closer relationship between their literal and figurative meanings.

Transparent and Opaque Idioms

Idioms can be classified as transparent (decomposable) or opaque (nondecomposable). For the purposes of this study I refer to Cacciari and Glucksberg’s taxonomy (1991, as cited in Saberian and Fotovatnia, 2012, p. 1232) to define the difference between transparent and opaque idioms. “Transparent idioms are phrases in which there is a direct mapping of literal word meanings to idiomatic meanings.” For example, in “spill the beans,” which literally translates “to divulge a secret,” “spill” directly maps to the verb “divulge,” and “the beans” directly maps to a “secret” (p. 1232). *A Dictionary of American Idioms* (Makkai, Boatner, and Gates, 1995) defines “spill the beans” as “to tell a secret to someone who is not supposed to know about it” (p. 377). The tangible “beans” stands in for the intangible “secrets.” Thus this idiom is considered transparent or decomposable. Abel (2003) sees a decomposable idiom as one whose individual component words combine to make its figurative meaning. Eykmans, Stengers and Boers (2007) focus on the concept of “source domain” as an original (literal) meaning starting point that motivates the creation of a decomposable idiom. In contrast, Cacciari

and Glucksberg (1991, as cited in Saberian and Fotovatnia, 2012, p. 1232) view opaque idioms as those that do not require the learner to interpret the figurative meaning carefully. “Kick the bucket” is a frequently used example.

In order to distinguish decomposable and nondecomposable idioms in L1 and L2, the Dual Idiom Representation model (DIR) is used (Abel, 2003). The DIR model integrates the representation of idioms in the L1 and L2 lexicons. At the lexical level, the model presumes that constituent and idiom entries exist side by side. A “constituent” is a component part of an idiom whole. For example, in “missed the boat,” “missed” is a constituent of the idiom, contributing to the figurative (or idiomatic) meaning. The literal meaning is clear—a boat is missed, but figuratively, an opportunity is missed. In a case such as this, when someone successfully processes the constituent meanings, that person develops an idiom entry. Thus an idiom entry can be developed by processing a transparent idiom. This is not possible with opaque idioms, such as “kick the bucket” or “pull my leg.” There is nothing to connect the literal to the figurative meanings; understanding an opaque idiom requires a separate idiom entry. Transparent idioms can be processed via constituent entries and can additionally develop an idiom entry. Abel assumes that the figurative meaning of all idioms must be learned and stored separately, thus becoming idiom entries. What distinguishes nondecomposable (opaque) idioms from decomposable (transparent) idioms is that nondecomposable idioms require an idiom entry--they must be explicitly learned, while decomposable idioms can be accessed by the learner analyzing the idiom’s constituents’ literal meanings as well as the context in which the idiom is used in order to develop an idiom entry.

In Abel's study (2003), NNS informants judged opaque idioms to be decomposable more often than did NSs. NNSs reported that they processed unknown idioms in English language texts by first considering the literal meanings of the constituents and then attempting to resolve the idiomatic meaning of the entire phrase. On the other hand, NSs did not have to consider constituent meanings; they accessed their existing idiom entries directly (Abel, 2003, p. 349). With more exposure to English, more advanced NNSs judged more idioms as nondecomposable. Abel's study revealed that NNSs who read English texts more often develop their own idiom entries over time and are able to identify nondecomposable idioms accurately.

Role of Context

A major strategy for processing L1 and L2 idioms is consideration of the context in which the idiom is found (Cain et al., 2005; Cooper, 1999). In an L1 study, nine-year-olds were able to explain the meanings of idioms better when placed in a supportive narrative context than in isolation (Cain et al., 2005). Contextual cues are also crucial for processing unfamiliar L2 idioms (Zyzik, 2009). All examples used in Cooper's 1999 study couched the idioms in a supportive narrative context. Liantas (2002) showed results in a study of 53 third-year American university students of French, Spanish and German that demonstrated the noticeable impact of context. The students of all three languages performed noticeably better on vivid L2 phrasal idioms when contextualized than when noncontextualized.

Research has provided further evidence that L2 learners glean meaning from context when processing L2 idioms. Rohani et al. (2012) examined the strategies employed by 70 Iranian university students studying English. The results confirmed the

effect of context on the strategies applied in the processing of unfamiliar idioms. Two groups were exposed to 23 unfamiliar English idioms, one group by reading a text, the other group by observing an animated cartoon. The results revealed some variance in strategies employed in processing the idioms. Notably, drawing on a wider familiar context, such as the whole passage, was employed more often by the text group than by the animation group by a 24-17 margin. The available research evidence strongly suggests that, in the pursuit of L2 idiom comprehension, L2 learners “should be encouraged to infer the meaning of the idiom by using contextual cues“ (Zyzik, 2009, p. 5). This can help them considerably in moving independently from the known to understanding the unknown.

Brazilian Portuguese

The informants in this study are native speakers of Brazilian Portuguese (BP), which differs from European Portuguese (EP) in a number of ways. BP and EP are mutually intelligible; native speakers of each can understand one another with reasonable ease (R. Lima, personal communication, January 2, 2015). In general, the same could be said for those who speak other varieties of Portuguese, from countries such as Angola, Mozambique, East Timor and others. For purposes of this study, only distinctions between BP and EP are included here.

The first major difference is specific vocabulary. For example, in Brazil train is “trem” and in Portugal it is “comboio”; bus is “onibus” in Brazil and “autocarro” in Portugal (Baxter, 1992). The most notable difference in grammatical structure between BP and EP is how the present progressive is expressed. Brazilians say “Estou falando” (literally, I am speaking), while European Portuguese employs the infinitive rather than

the participle--for example, “Estou a falar” (literally, “I am to speak”). Another distinction between BP and EP is the use of the second person pronoun (you). In Portugal the informal “tu” is used to address those with whom one shares some level of familiarity--for example, “Tu vais a escola de manha” (You go to school in the morning). The formal “voce” is reserved for formal situations. In contrast, Brazilians use “voce” for all second person situations--for example, “Voce vai a escola de manha” (Baxter, 1992).

Upon arrival on the Brazilian coast in the 1500s, the Portuguese found the region inhabited by the Tupi people (Mattoso Camara, 1972). Over time the Tupi were conquered and acculturated by the Portuguese, but Tupi has left its mark on what has become Brazilian Portuguese with words such as “abacaxi” for pineapple, “caju” for cashew, “tatu” for armadillo and “piranha” for that hungry, carnivorous fish (Dantes de Medeiros, 2006). African slaves brought to Brazil from different regions, speaking languages including Bantu, Yoruba and Quimbundo, were forced together and created a creolized Portuguese out of necessity (Mattoso Camara, 1972). Well-known BP vocabulary examples include “moleque” for street kid and the name of Brazil’s national dance, the “samba” (Dantes de Medeiros, 2006).

The Gap

Since Cooper’s 1999 study there has been a substantial amount of additional research in the area of L2 idiom processing. However, much remains to be explored; many language groups in many locations have yet to be examined. I have yet to come across a project that examines how native speakers of Brazilian Portuguese process idioms of American English. I had the convenient opportunity of conducting such a study locally with members of the Brazilian-American community. They speak American

English in their work and public lives but Portuguese among themselves. Using Cooper's 1999 study as a model, I constructed and carried out a smaller study with volunteer informants from this group. The results expand the spectrum of data available on idiom processing by a specific L2 population

Guiding Questions

- 1) How do native speakers of Brazilian Portuguese process American English idioms?
- 2) What strategies were used by the informants in their attempts to comprehend the idioms? (Cooper, 1999, p. 238)
- 3) How much did the idioms included in the Idiom Recognition Test vary in difficulty as measured by success in comprehension by the informants? (Cooper, 1999, p. 238)

Summary

In this chapter I have presented research that tells us what is already understood in the area of L1 and L2 idiom processing. First I offered examples of how idioms are defined and briefly compared and contrasted how various scholars in the field define the term. Next, I identified four major theories of idiom processing and discussed ideas of how literal and figurative meanings are accessed. Then I presented ideas from scholars who define and contrast transparent and opaque idioms. Following this, I presented more scholars' analyses of how idioms are processed, and then a description of Brazilian Portuguese.

In Chapter Three I describe the methodologies employed to collect the data. I describe the data collection process in detail, including a profile of the informants. I describe how the collected data was transcribed and analyzed. Finally, I review precautions taken to ensure that the informants were treated in an ethical manner.

CHAPTER THREE: METHODOLOGY

This study was designed to investigate how native speakers of Brazilian Portuguese process American English idioms. The study replicated in reduced form a study by T. J. Cooper published in 1999. In this chapter I describe the methods and tools employed to collect the data as well as the procedures for evaluation.

Guiding Questions

In this study I employed the methods and procedures described in this chapter, which helped to reveal the thought processes of native speakers of Brazilian Portuguese as they encountered American idioms. The following questions guided the study:

- 1) How do native speakers of Brazilian Portuguese process American English idioms?
- 2) What strategies were used by the informants in their attempts to comprehend the idioms? (Cooper, 1999, p. 238)
- 3) How much did the idioms included in the Idiom Recognition Test vary in difficulty as measured by success in comprehension by the informants? (Cooper, 1999, p. 238)

Chapter Overview

In this chapter I describe the methodologies employed in collecting the needed data. First, I describe the research paradigm guiding this study and the rationale for using it. Then I describe details of the data collection process, including a profile of the

informants and the setting for the questioning. I describe the materials employed in collecting data, elaborate on how the collected data was transcribed into written form, and explain how the transcribed data was analyzed by two assistants and myself. I then review the steps taken to ensure ethical treatment of the informants.

Mixed-Methods Research Paradigm

The primary objective of this study was to record, through speech in real time, the thought processes utilized by representative L1 speakers of Brazilian Portuguese serving as informants in their attempts to determine the meaning of selected American English idioms, and subsequently to analyze the data collected. Since this primary objective is descriptive, the study is essentially qualitative in nature. The number of informants involved was too small to generalize about this NNS population as a whole, but they all have high English capability in their professional involvement. (Cooper's informants represented five different L1s, with no intent to generalize.) To enable informants to reveal their immediate thoughts as they occurred, I employed the think-aloud (TA) protocols (Cooper, 1999; Kasper, 1998). The questions asked when administering the Idiom Recognition Test were open ended, and the answers varied considerably. These are characteristics of a qualitative study as described by Guest, Namey, and Mitchell (2013). The responses as a measure of difficulty were scored on a three-point scale, which is characteristic of a quantitative study. Scores were judged and recorded and mean scores were calculated and analyzed, as they were for Cooper's 1999 study. Unlike Cooper's 1999 study, no standard deviation was calculated. Thus, although primarily a qualitative study, this study could most accurately be categorized as using a mixed-methods paradigm.

Method

As introduced in Chapter One, I used the study by Thomas C. Cooper, “Processing Idioms by L2 Learners of English” (1999) as a model for constructing a smaller study with similar objectives, using its tools to focus on a single L1 language group. Cooper’s 18 informants represented five different L1 language groups. My study used nine informants, exclusively native speakers of Brazilian Portuguese.

My Idiom Recognition Test items (see Appendix A) came directly from Cooper’s IRT. Cooper’s study included eight expressions from standard English (more formal), eight informal or colloquial expressions, and four slang expressions (Cooper, p. 240). As identified in *A Dictionary of American Idioms*, (Makkai, Boatner and Gates, 1995, p. x), formal usage indicates language that people usually do not verbalize but use in written essays or spoken lectures. Informal usage indicates a form that is used in conversation but should be avoided in more academic contexts. Finally, slang usage indicates an idiom that is used exclusively among people who are well acquainted. I included ten items rather than twenty, selected from the three forms of usage in the same proportions as in Cooper’s study (40%, 40%, 20%). In my IRT, items 2, 8, 9, and 10 are formal, items 1, 5, 6, and 7 are informal (or colloquial.). Cooper selected the one and two sentence contexts for these idioms from studies of L1 idiom comprehension conducted by Cronk and Schweigert (1992) and Nippold and Martin (1989). These context statements were also included with the idioms used in my IRT.

My study measured use of the processing strategies employed by informants in the Cooper study, including three “preparatory” strategies and five “guessing” strategies (discussed below). The idioms presented in my IRT were scored for difficulty, as they

were in Cooper's study, not by any predetermined difficulty but according to informant difficulty in comprehending them. Cooper and two assistants conducted the informant interviews; I conducted all interviews myself. He used one assistant in analyzing his data; two colleagues helped in triangulating the data.

Data Collection

Informants

The nine informants for my study are adult native speakers of Brazilian Portuguese. I am casually acquainted with them as co-members of the congregation at the church where the interviews took place. I selected them because they are fluent in spoken English and because they were able to come for interviews during the times we had access to the church classroom. At each interview, the terms of the Informed Consent letter were reviewed with the informant, and he or she was presented with a copy of the letter (Appendix B) for their personal records. Each informant signed two copies of the Consent Form (Appendix C); I retained one copy and the informant kept the other.

As done in Cooper's study, I collected the following information for each informant: age, how long they have lived in the United States, how many years they studied English in Brazil, how many months or years they studied English in the U.S., whether their job requires English, how many hours a week they spend with American colleagues, and which language(s) they use at home and during off-work activities. The profile of this information is shown in Appendix D.

Location/Setting

Interviews for data collection took place in a classroom located in a church classroom in a suburban area in the American Midwest. The setting provided protection from distracting noise and disturbances.

Data Collection Technique

In each interview I utilized the Think-Aloud (TA) method, as did Cooper in his 1999 study. TA protocols enable the informants to reveal their thought processes as thoughts occur to them, not to explain their responses (Olson, Duffy, and Mack, 1984, as cited by Cooper, 1999). The TA protocols form an oral record of informants' thoughts immediately after completing a TA task (Kasper, 1998), such as processing a novel idiom.

The procedure was as follows: I explained to the informant what an idiom is, included an example, and then told the informant that he or she would be given ten index cards, each containing an example of an American English idiom within a supportive narrative context. For example, "The researcher had *to roll up his sleeves* to get the proposal in on time. What does *roll up his sleeves* mean?" The informant would then be instructed to think aloud, to verbalize all of his or her thoughts as he or she processed the idiom's meaning. The informant was asked to talk constantly from the time the researcher presented each expression on its card until he or she gave his or her final answer. Each informant was asked to verbalize thoughts in English only. If an informant slipped into speaking Portuguese, he or she was reminded to speak English. Before starting each interview, the researcher told the informant that no help would be offered, only a reminder to read each item carefully.

Materials

The IRT utilized with the informants in this study included ten idioms selected from the IRT constructed by Cooper (see Appendix A). The composition of this document has been discussed above in “Method.” Each idiom was written on a note card, embedded in a sentence offering supportive context. The entire interview with each informant was recorded with a HDM1 2.0 Handy microphone attached to a Samsung computer.

Data Transcription

The audio recorded interviews were transcribed into written manuscripts for all informants. The responses were organized into T-units (minimal terminable units), described by Hunt (1970) as “one main clause plus any subordinate clause or non-clausal structure that is attached or embedded in it” (p. 4, as quoted by Cooper, p. 242). For example, in the following Cooper excerpt, each T unit is numbered and begins a new line. The card given to the informant read “Robert knew that he was robbing the cradle by dating a sixteen-year-old girl. What does ‘robbing the cradle’ mean?”

Informant 1. Cradle is something you put the baby in—

Interviewer: That’s where a baby sleeps... ¹

Informant 2. So that means robbing the cradle/

3. That means, I think you are robbing a child/

4. You’re stilling [stealing] a child from its mother/

5. A sixteen-year-old girl is still too young to date/

6. So robbing the cradle is like dating a really young person/

(Cooper, p. 242).

¹ No assisting comments such as this were offered in my interviews.

Data Analysis

Preparation for Scoring

To assist with analysis and scoring of the IRT transcripts, I obtained the cooperation of two colleagues, both of them native speakers of American English. One is a fellow MAESL candidate and the other is a foreign language instructor with over twenty years of experience. I prepared the scorers by 1) giving them photocopies listing the definitions of all idioms on the IRT, obtained from *A Dictionary of American Idioms*; 2) explaining the three-point scale measuring difficulty of comprehension, making reference to the original study; and 3) making clear that the scorers must read the informant responses from the transcripts carefully and draw from their own depth of knowledge and experience in making fair and accurate judgments. To illustrate what was intended, I shared examples of informant responses from Cooper that illustrated correct, partially correct, and incorrect IRT responses.

Next, we reviewed the processing strategies as defined by Cooper. These L2 strategies are summarized as follows, along with examples from Cooper or from the present study:

- 1) Preparatory Strategies, allowing the informant to buy time as he or she clarifies and consolidates knowledge of the expression:

RP: Repeating or paraphrasing the idiom without giving an interpretation.

Example: “*To tighten your belt* is ..uh.. to make belt more narrower?”

(Cooper, p. 243)

DA: Discussing and analyzing the idiom or its context without guessing the

meaning. Example: “*Tighten his belt* gets...uh..like no spending too

much...no budget...save more, don't spend so much.” (present study)

RI: Requesting information about the idiom or context.

Example: What does [usually a single word from the idiom or context] mean?”

(Cooper, p. 243)

2) Guessing Strategies, in which the informant actually attempts to interpret the expression:

GC: Guessing the meaning of the idiom from the context.

Example: “...so green is related to the plant and thumb because she plants with her hands, so green thumb..she's good..keeping the plants alive...”

(present study)

LM: Using the literal meaning of the idiom as a key to its figurative meaning.

Example: “When I make an image of this the phrase, *to roll up his sleeves*, I think of somebody who is trying to get ready to do something, to work, so I think that's what it means.” (Cooper, p. 243)

BK: Using background knowledge to figure out the meaning of the idiom.

Example: “*What's cooking?* I think my boyfriend might be using this often. I realize the meaning: *What's going on?*” (Cooper, p. 243)

L1: Referring to an idiom in the L1 to understand the L2 idiom.

Example: “She talks too much--in Brazil it's *boca grande* (big mouth)...she talks a lot...can't hold any secrets.” (present study)

OS: Engaging a different strategy altogether (Cooper, p. 243)

Together the scoring team examined examples of informant responses and decided how they would be separated into T-units that could then be identified as

strategies. Our references for this process were Cooper's definitions of the strategies and *A Dictionary of American Idioms* (Makkai et al., 1995).

Analysis of Informant Transcripts

After the training process, the other scorers and I analyzed and scored the data on all transcripts independently. Two score sheets were used for each informant: 1) for scoring level of comprehension difficulty on a 3-point scale (Appendix E) and 2) for identifying comprehension strategies (see Appendix F). I then compared the three scores for both level of comprehension and for identifying strategies; where results differed I reviewed the transcripts and in several cases adjusted the scores and strategy identification on my own. Due to busy schedules, plans for convening the scoring team to review the areas of disagreement together and come to a consensus proved impossible.

In the first phase of analysis, the informants' definitions of the ten idioms were scored on a three-point scale. Each of the ten responses was reviewed carefully and scored as follows: one point for an answer of "I don't know" or for a wrong definition, two points for a transitional stage response that was partially correct, and three points for a correct definition. We were able to calculate a mean score for comprehension of each idiom by each informant; these scores facilitated comparing the relative difficulty of comprehending the IRT items, thus addressing Guiding Question #3: How much did the idioms included in the Idiom Recognition Test vary in difficulty as measured by success in comprehension by the informants? (Cooper, 1999, p. 238) A table ranking the level of comprehension (similar to Cooper, p. 245) is presented in Chapter Four. In the second phase of the analysis, again in accordance with Cooper's procedures,

scoring involved dividing informant responses into T-units, then analyzing and identifying these units according to the idiom comprehension strategies employed by the informant. We recorded the strategies employed by each informant for comprehending each of the idioms; from this we could determine the relative frequency and effectiveness of each strategy. This use of strategies addresses Guiding Question #2: What strategies were used by the informants in their attempts to comprehend the idioms? (Cooper, 1999, p. 238). This usage of strategies is presented in table format in Chapter Four.

Verification of Data

Perry (2011) mentions the value of using multiple observers to control the factor of subjectivity: "...if multiple observers are used and compared to one another for degree of agreement, subjectivity is controlled" (p.117). The engagement of two additional scorers with knowledge in this field of study served to balance any bias I may have had in scoring the data. In order to judge informant responses fairly and accurately, we used the definitions found in *A Dictionary of American Idioms* (Makkai et al., 1995) as the primary reference, as did Cooper in his study.

Ethics

I drafted an Informant Consent letter in accordance with Hamline University School of Education Human Subjects Research protocols. Each person on the informant list was given this letter, with an individual review of its contents. Informants were assured of anonymity and that data would be secured: paper notes are to be in locked storage, computer data will be password secured, and information will be destroyed one year after the study is completed.

After approval following the first committee meeting, all applications and plans were submitted to the Hamline University Human Subjects Research Review Board. Upon its approval, the project went forward.

Summary

In this chapter, I described the mixed-methods research paradigm and my rationale for employing it. Then I elaborated on the method to be employed—the IRT, as used by Cooper, the range and types of idioms selected for the IRT, and how my study varies from Cooper’s. Next, I described establishment of an informant profile and the location of the study. I elaborated on the TA protocols and how they help to reveal informants’ thought processes. I described the materials employed in the data collection and analyses processes, how assistant scorers were trained, and how informant responses were evaluated and scored. I explained how the collected data was verified by the scorers and how responses were checked, using *A Dictionary of American Idioms* as a reference. Finally, I stated the procedures that were followed to ensure ethical treatment of informants. Chapter Four presents the results of the study.

CHAPTER FOUR: RESULTS

The data for this study was gathered in a church classroom in a working class suburban area in the American Midwest. Nine adult Native Speakers of Brazilian Portuguese (NSBPs) took the Idiom Recognition Test (IRT--See Appendix A). The IRT used in this study was a reduced version of the IRT used in T.J. Cooper's 1999 study. The informants were asked to process orally the meanings of ten frequently used idioms selected from *A Dictionary of American Idioms* (Makkai et al., 1995). Each informant, as instructed, verbalized all of his or her thoughts as he or she processed each idiom's meaning. Each informant's response was audio recorded and transcribed for subsequent analysis. Through the collection of these data, I sought answers to the following questions:

- 1) How do native speakers of Brazilian Portuguese process American English idioms?
- 2) What strategies were used by the informants in their attempts to comprehend the idioms? (Cooper, 1999, p. 238)
- 3) How much did the idioms included in the Idiom Recognition Test vary in difficulty as measured by success in comprehension by the informants? (Cooper, 1999, p. 238)

As done in Cooper's study, I collected information from each informant in order to construct an informant profile (see Appendix D). Based on my informal assessment, the nine informants had an English proficiency level sufficiently fluent to comprehend

and respond to the questions asked during the Idiom Recognition Test, based on my informal assessment.

Questions 1 and 2: Idiom Processing

This study indicates that NSBPs appear to process American idioms in ways similar to Cooper's 1999 group. They repeat, consider possibilities, and search for ways to connect unfamiliar figurative meanings to meanings that are more familiar, perhaps literal, or related to a similar expression from their L1.

In addressing Guiding Question #2 (What strategies were used by the informants in their attempts to comprehend the idioms?), this study identified informants' employment of the strategies that Cooper identified in 1999. These include the following: Repeating and Paraphrasing (RP), Discussing and Analyzing (DA), Requesting Information (RI), Guessing from Context (GC), Referring to Literal Meaning (LM), referring to Background Knowledge (BK), Referring to First Language (L1). My two assisting scorers and I analyzed the content of each transcript, dividing the responses into T-units that could be identified by one of the strategies. The following table presents the distribution of strategies that were employed by the informants in this study for processing the ten idioms presented. At the bottom, the percentages of use for the seven strategies are given, for this study and for that of Cooper.

Table 1

Strategies Employed by NSBP (Raw Numbers)

Idiom #	RP	DA	RI	GC	LM	BK	L1
1.	4	10	2	8	0	2	1
2.	5	11	1	5	1	1	1
3.	4	11	0	6	0	2	4
4.	1	6	0	4	1	4	0
5.	12	5	0	4	1	2	0
6.	6	7	0	10	3	0	0
7.	2	10	0	2	5	4	0
8.	4	10	0	3	3	1	2
9.	3	7	0	3	5	2	2
10.	6	11	1	2	4	0	0
Totals:	47	86	3	43	23	18	10
NSBP:	20%	37%	1%	19%	10%	8%	5%
1999:	9%	18%	7%	29%	15%	10%	8%

The NSBPs employed the same strategies as Cooper's 1999 group. However, noticeable differences did emerge, especially in the frequency of strategies employed. For comparison purposes, I adjusted Cooper's 1999 percentages to include only the ten idioms used in both studies. In this study, the most frequently used strategy was Discussing and Analyzing (37%), whereas for Cooper's group, it was the second most used strategy (18%). The NSBPs' second most frequently used strategy was Repeating and Paraphrasing (20%), followed closely by Guessing from Context (19%). For the 1999 group, RP was used more sparingly (9%) and GC was the most frequently used strategy (29%). The NSBPs referred to the literal meaning 10% of the time, compared to 15% for the 1999 group. Both groups referred to Background Knowledge and First Language in almost equal proportions (8% v. 10% and 5% v. 8%). In Cooper's study, three percent of all strategies were identified as Other Strategies; in the present study the scorers identified no other strategies.

Question 3: Difficulty

As in Cooper's study, the intent here was to rank the idioms, on a scale of 1-3, according to the difficulty experienced by the informants in processing them correctly. In this study, mean scores on the individual IRT items ranged from 2.1 (most difficult) for "to have a chip on one's shoulder" and "eye to eye," to a perfect 3.0 for "big mouth," "roll up your sleeves," and "let the cat out of the bag." The overall mean score was 2.68.

Table 2

Mean Scores for Individual Idioms

Idiom	NSBP Mean	1999 Mean
1. To have a chip on one's shoulder	2.11	1.67
2. To see eye to eye	2.11	2.17
3. To have a big mouth	3.0	2.78
4. What's cooking?	2.77	2.44
5. To have a green thumb	2.44	2.50
6. To let the cat out of the bag	3.0	1.89
7. To get off the ground	2.88	2.28
8. To tighten one's belt	2.17	2.17
9. To roll up one's sleeves	3.0	2.50
10. To be a little frog in a big pond	2.77	2.44
Collective Mean	2.68	2.28

As mentioned earlier, point scores for the correctness of each informant's responses were assigned independently by the three scorers. The two assisting scorers submitted their score sheets to me, and I reviewed them carefully to discover differences in score assignments and to decide how to resolve them for a final score.

In a few cases I changed my own scoring; the following is an example. IRT item #6 reads as follows: "By mistake, Kay let the cat out of the bag when she revealed the surprise. What does *to let the cat out of the bag* mean?" Informant #4 responded with:

“Well I think this is in the context is...the surprise is something...the surprise can keep it hidden, then I think somehow...by mistake she said something or showed something that shouldn't be and made the surprise not surprise.” I originally scored this response as a 2 on the 3-point scale because, in my opinion, the informant's response relied almost entirely on the supportive context and seemed shaky. Both other scorers rated the response a 3. I reviewed the response, reconsidered my score and decided that the response was indeed accurate (if not perfect) and deserved a 3.

In other cases of scorer disagreement I maintained my original score. For example, on IRT item 5, “People say Jennifer can keep any plant alive with her green thumb. What does *green thumb mean?*,” informant #8 responded: “Can keep any plant alive...Oh, I see...so she is good with plants. Having a green thumb...it is a new expression to me...probably doesn't have anything to do with being really good with plants...green thumb.” My fellow scorers gave this one a 2 and a 3. I suspect they didn't consider the word “doesn't” so I stuck with my score of 1.

The scores for difficulty on the 3-point scale were comparable for the Cooper group and for my study. Overall, the informants for this study (NSBPs) scored higher on the same questions than did Cooper's 1999 group, but not by a wide difference. The largest gap was for “to let the cat out of the bag,” for which the NSBPs scored over an entire point higher. I suspect that longer exposure to North American culture is likely responsible for the higher scores. This is discussed in more detail in Chapter Five

Conclusion

In this chapter I presented the results of my data collection. Guiding Question #1 (How do native speakers of Brazilian Portuguese process American English idioms?) relates to this study as a whole. Guiding Question #2 (What strategies were used by the

informants in their attempts to comprehend the idioms?) was addressed by analyzing the informant data according to the eight strategies used in analyzing Cooper's data. I addressed Guiding Question #3 (How much did the idioms included in the Idiom Recognition Test vary in difficulty as measured by success in comprehension by the informants?) through analysis of the difficulty experienced by each informant in processing each IRT item, on a scale of 1-3. In my presentation table I included the scores in Cooper's study for each of the ten responses. Based on the data gathered, it becomes apparent that NSBPs process American idioms in a manner comparable to native speakers of other L1s, as indicated in Cooper's study. In Chapter Five, several notable differences will be explored, along with implications for educators and suggestions for further research.

CHAPTER FIVE: CONCLUSIONS

In this study I attempted to answer these Guiding Questions:

- 1) How do native speakers of Brazilian Portuguese process American English idioms?
- 2) What strategies were used by the informants in their attempts to comprehend the idioms? (Cooper, 1999, p. 238)
- 3) How much did the idioms included in the Idiom Recognition Test vary in difficulty as measured by success in comprehension by the informants? (Cooper, 1999, p. 238)

In this chapter I present more detailed analyses of the data gathered in this study, and state what I consider to be its major findings. I also address limitations, implications for educators, and suggestions for further research.

Further Analysis of Idiom Processing

The NSBP group attained a noticeably higher mean total score for comprehension than Cooper's 1999 group (2.68 v. 2.28). The stronger showing by NSBPs on eight of the ten idioms could be due to many factors, one of which may be simply more exposure to English. Compared to Cooper's 1999 group, the NSBPs were on average 15.3 years older, had lived in the USA over twice as long (7.7 years longer), had studied English while residing in the U.S. over four times longer (28 months v. 7.3 months) and reported spending over twice as much time with U.S. friends and colleagues (30.7 v. 14.3 hours per

week). The NSBP group, being more familiar with American English, likely had more idiom entries to draw from. Through daily encounters with idioms in speaking and reading, NNSs develop a considerable vocabulary of idiom entries (Abel, 2003, p.349).

The only category in which Cooper's group collectively possessed an advantage in exposure to English was in years of English study in their home countries. Cooper's group had over three times more study in this category (6.5 v. 2.2 years of study). However, English study in the home country might not provide a notable advantage when taking the IRT. Since "idioms are often but not always non-literal or semi-literal in meaning--that is, their meaning is not completely derivable from the interpretation of their components" and "are generally rigid in structure" (Liu,2008), learning them in a non-English speaking country would likely be somewhat awkward and perhaps not even covered in a class. The difference in how many informants needed English for their jobs was minimal.

The data collection through administration of the IRT showed that informants experienced more difficulty with opaque than transparent idioms. The strategy identification results suggest that more repeating or paraphrasing (RP) could indicate a higher degree of doubt. The NSBP informants employed the repeating and paraphrasing more often when responding to "green thumb" than for any other idiom (12 times v. an average of 4.7 times per idiom). The NSBPs also had their second lowest difficulty score for this idiom (2.44 on the 3-point scale). The responses of informants #3 and #6 seem to support this idea. Informant #3 states "A green thumb would be one of the fingers she has...um... green thumb (RP)...oh this one is hard... green thumb (RP). I think maybe she always forgets to water the plants...she doesn't remember to take care

of it...or maybe she just has bad luck with plants. Not unless it's really not about plants..." Informant #3 employs repeating and paraphrasing twice while she struggles unsuccessfully with the idiom's figurative meaning. On the other hand, informant #6 employs RP three times and successfully connects the literal to the figurative meaning: "Green thumb (RP), green thumb (RP)...well, green is related to plant and thumb because she plants with her hands, so green thumb (RP)...she's good at making the...keeping the plants alive...yah... it's kind of a parallel idea...plants with her hands helping..." This could be considered an example of a learner developing an idiom entry using the literal meaning to find the figurative meaning of a decomposable idiom (Abel, 2003). While informant #6 successfully arrived at the correct figurative meaning, she began with some uncertainty, and employed repeating and paraphrasing (RP) as she processed the idiom.

When informants were able to access the meaning in their first language (L1), they were successful. This strategy was only employed ten times throughout the present study's IRT, but when employed had a high correlation with accurately processing the figurative meanings. Referencing first language (L1) was used most often (4 times) on "big mouth." Informant #4 responded with "oh maybe that's easy. Well, big mouth is *fofaqueira* (one who gossips)...the people got some news and cannot hold it, they start talking..." Informant #5 responded: "She talks too much--in Brazil it's *boca grande* (big mouth)...she talks a lot...cannot hold any secrets." In these two examples, the informants refer to their L1 and immediately access the idiom's figurative meaning, bypassing the literal meaning of "big mouth." This might lend support for the Direct Access Hypothesis (Schweigert, 1986).

The widest discrepancy for the two groups was on “let the cat out of the bag” (3.00 v. 1.89--a difference of 1.11, over a whole point on a 3-point scale). All of the NSBPs answered this question accurately and without detectable hesitation. Overall, the NSPBs employed the discussing and analyzing strategy on an average of 8.6 times per idiom. In the case of “let the cat out of the bag,” however, the NSPBs employed this strategy only seven times. The NSBPs relied primarily on the context and the literal meaning to arrive at the idiom’s accurate figurative meaning. In response to IRT item #6: “By mistake, Kay let the cat out of the bag when she revealed the surprise. What does ‘to let the cat out of the bag’ mean?”, informant #2 employed the guessing from context (GC) strategy: “Means to reveal something, because when the cat is in the bag it is closed, but when it is open, the cat comes out... it means she revealed a surprise or something.” Informant #2 references the contextual cue to understand the figurative meaning. Again we see how learners can develop an idiom entry by processing a decomposable idiom (Abel, 2003). Informant #9 accessed the literal meaning (LM) in order to process IRT item #9: “The researcher had to roll up his sleeves to get the proposal in on time. What does ‘to roll up his sleeves’ mean?” Informant #9 responded: “...people who actually wear suits, you know, for jobs... sometimes they have to take off the suits, roll up, you know, the long sleeves in order to be able to get their hands dirty.” The informant makes a direct association from the literal to the figurative. The NSBPs scored .6 higher than the 1999 group on “get off the ground” and “tighten his belt,” while scoring .5 higher for “roll up your sleeves.”

“A chip on one’s shoulder” was the only fully opaque or nondecomposable idiom in the IRT. The component words of this idiom do not combine to make a

figurative meaning (Abel, 2003). The informants in both studies scored lowest on this idiom by a significant margin (NSBPs = .57 lower than their overall mean; Cooper's group = .61 lower, again on the 3-point scale). The informants who were unable to process this idiom successfully seemed lost to the meaning, and in many cases, even the contextual cue provided little help. They seemed to grasp at the word "chip" but any connection to a figurative meaning proved elusive. NSBPs in my study responded to this idiom with the following quotes: "I heard that expression before but I don't really know what it means..."; "Well, I never heard about this...but...chip...well, I don't know exactly what it means..."; "Never heard of it..."; "I don't know what chip is..."; "I really don't know...but I never heard this before...." These informant utterances seem to support the DIR model (Abel, 2003) which asserts that nondecomposable (opaque) idioms require an idiom entry--they must be explicitly taught and learned.

Informants in both studies experienced low scores on "eye to eye." Notably, this was one of only two idioms in which the NSBPs scored lower than Cooper's group (2.11 v. 2.17). Although not entirely opaque, "eye to eye" was not easily decomposed. Unlike "chip on one's shoulder," the informants did not simply say "I don't know." Even those who answered incorrectly referenced the context and offered plausible answers: "Yeah, I think it is being there in person to discuss buying the house" and "...trying to communicate with non-verbal language--that's what it is--to see eye to eye." Examining the literal meaning of "eye to eye," we can imagine two people facing each other, making eye contact. Does this image of the literal meaning tell us that the two hold the same opinion? It could lead an NNS to conclude accurately that the two are in agreement, as this NSBP did: "Father sees...that means he does. That means he

agrees with her. Right? They are thinking alike.” But if two people are literally facing each other making eye contact (eye to eye), who knows what they might be thinking? It might be a standoff, as another NSBP informant speculated: “Like confronting....”

In contrast, the three idioms that all nine informants understood perfectly were “big mouth,” “roll up his sleeves,” and “let the cat out of the bag.” Why might these idiomatic meanings be so clear? These idioms have equivalents in Brazilian Portuguese. Processing “big mouth” elicited the following comments from the NSBPs: “talks without thinking...and just can’t keep a secret. It has an expression in Portuguese...”; “Oh, maybe that’s easy... Well, big mouth is *fofaqueira*”; “She talks too much--in Brazil it’s *boca grande*”; “In Brazil we have a similar expression.” References to idioms equivalent to “roll up his sleeves” included the following: “We have the same expression in Portuguese”; “Yah, I think it’s similar to Portuguese *aregacar las mangas*—ok, I’m going to have to start really working hard”; and “We have also in Portuguese the same expression.” These responses seem to support an assertion by Zyzik (2009): “Idioms that are identical in both languages will be easiest to learn.” Notably, none of the nine NSBPs used the literal meaning strategy to process “big mouth.” Perhaps in this case they were sufficiently familiar with the idiom to access its figurative meaning directly. These responses appear to support the Direct Access Hypothesis (Gibbs, 1984; Schweigert, 1986). Although the Direct Access Hypothesis is based strictly on L1 research, it seems to apply here because more NSBPs employed L1 as a strategy to process “big mouth” (four times) than for any other idiom. Some cited the context, others offered their own examples, but all nine informants gave an accurate description of what is meant by “big mouth.” They also described “roll up his sleeves”

accurately and with confidence. The NSBPs referenced literal meaning more often (six times) for “sleeves” than for any other idiom. This does not seem to support the Direct Access Hypothesis (Gibbs, 1984; Schweigert, 1986). In response to “sleeves,” the NSBPs decomposed the idiom, recognized the similarity to a Portuguese idiom and successfully processed it. Abel observed this process: “The majority answered that they consider the literal meaning of the constituents and then try to put together the idiomatic meaning of the whole phrase” (2003, p.349).

One finding that surprised me was how much difficulty the NSBPs experienced with “green thumb.” It was the only idiom for which they scored noticeably lower than Cooper’s group (2.44 v. 2.5). Three of the nine failed to define it accurately. The NSBPs mulled this idiom over by repeating and paraphrasing (RP) twice as often as with any other idiom (12 times v. an average of 4.7 times for the other idioms). Frequent use of RP could indicate a heightened level of uncertainty. NSBP responses seem to support this: “...but this one is difficult”; “this one is trickier...never heard of it”; “I don’t know” (twice) “it is a new expression to me...” Considering that the answer was practically word for word in the context (“People say that Jennifer can keep any plant alive with her green thumb”), I was surprised by the depth of their frustration and their low scores on “green thumb.”

Major Findings

How native speakers of Brazilian Portuguese process American English idioms is complex. Based upon this research, I found that they draw from their experience of immersion in the language and culture of the United States. By listening to and interacting with native speakers of U.S. English, these NSBPs seem to have absorbed at least some idiomatic expressions of their new country. As for the strategies that these

informants used in their attempts to comprehend the idioms in the IRT, they used the same strategies as those employed by Cooper's 1999 group but in different proportions. The NSBPs relied more heavily on repeating and paraphrasing (RP) and less heavily on literal meaning (LM) than did Cooper's group. This suggests the possibility of direct access (DA) but there is insufficient data to conclude this with any certainty. The degree in which the idioms in the IRT varied in difficulty as experienced by the informants was noticeable. The difficulty the informants experienced with "a chip on one's shoulder" compared to the other idioms leads me to believe that nondecomposable idioms are more difficult for NNS to process than decomposable ones. Based on informant response to idioms like "big mouth" and "roll up your sleeves", I conclude that idioms that have an equivalent in the L1 are easier to process.

Limitations

As described in Chapter Three, this is a predominantly qualitative study and as such, it is descriptive in nature. The size of the group--nine informants--was too small to draw any firm conclusions about how NSBPs in general process American idioms. Potential informants who were not chosen offered to participate by phone or to have interviews at their homes, but coming to the church at a specified time was not an option. Also, my original intent with my two assisting scorers was to reconvene after we all had completed our individual scoring of the data. However, this proved to be impossible. They understood the need for careful analysis, spent considerable time working individually, and provided me with their completed scoring sheets (Appendices E and F). It then became my responsibility to make decisions on final scoring where differences occurred.

Implications

As an important part of any language, idioms are an indicator of one's fluency in that language (McDevit, 1993, as cited in Saberian and Fotovatnia, 2011). Idiomatic expressions have more specific and nuanced meanings than their literal meanings (Gibbs, 1991, as cited in Zyzik, 2009). As the results of this study confirm, even NSBPs with a high level of U.S. English fluency can find L2 idioms confusing. Bearing this in mind, teachers and administrators should be mindful of their use of idioms in conversation and in ESL instruction. We as native speakers can easily use idioms unwittingly when speaking to NNSs; we use them so routinely that we become unaware of their figurative nature until we experience a failure to communicate with an NNS. Teachers especially must avoid using idioms that may cause confusion, and also teach the meanings of common idioms.

As an essential component of L2 mastery, idioms should be incorporated into L2 curricula (Zyzik, 2009). Understanding that idioms are processed differently is powerful. MEG testing results (Boulenger et al., 2012) reveal that idioms are processed in different regions of the brain than literal meanings. Assuming this to be accurate, focus in a teaching context should be on establishing them as idiom entries rather than on decomposing literal meanings, especially with nondecomposable examples such as "kick the bucket." Cooper (1999) advocates adapting the TA procedure to the classroom, as well as utilizing comprehension strategies involving the literal meanings and context to guide the L2 learner. I could foresee creating some engaging classroom activities mapping transparent idioms using contextual clues. Lakoff and Johnson (2003) state that orientational metaphors offer a sense of spatial orientation. These

authors present examples using the up/down pairing, including “happy is up; sad is down,” “health and life are up; sickness and death are down,” and “high status is up; low status is down.” The spatial terms could be posted on the classroom wall as headings, with “high” posted closer to the ceiling and “low” closer to the floor. The student task would be to place cards with idioms on them, such as “wake up,” “get up,” “up and coming,” “fall asleep,” “lofty position,” “bottom of the barrel,” “high-minded,” “higher-ups,” “under the radar,” “underhanded,” and other examples under the appropriate heading. The students would then explain why they placed their idiom where they did. This exercise could help those from cultures that don’t share our western high and low concepts visualize our idioms.

I can envision using Lakoff and Johnson’s (2003) ideas regarding causation as a theme for a lesson. “Out of” and “into” could be the target language for discussing the process of transforming materials into products. Students could be provided with materials such as clay, paper clips, paper, popsicle sticks and different kinds of cloth. The teacher could demonstrate with an example like “an artist makes a statue ‘out of’ clay,” showing the students a clay statue. The reverse also could be presented: “An artist makes clay ‘into’ a statue.” The students could get creative, making simple objects from the materials and discussing what they made with their classmates using the target language. Once students are comfortable using these expressions, the discussion could expand to idioms. For example, what does it mean to have “feet of clay”?

Further Research

This study explores the processing strategies employed by a specific informant group--namely, speakers of Brazilian Portuguese, as they process U.S. English idioms.

The study provides fresh data that helps to describe how one particular group of NNSs process these idioms. By focusing exclusively on this single L1 group, we now have a sample, albeit small, to compare to multi-L1 informant groups such as Cooper's. This addition to the body of research on the topic provides a stepping stone for further research.

Studying a specific L1 informant group is invaluable in that it offers a glimpse into how this group in particular processes idioms; this data can then be compared to other specific L1 groups and multi-L1 groups. The results of this study, compared to Cooper's 1999 study, suggest a correlation between idiom familiarity and years spent living in the USA. NSBPs, as members of a Western culture, share many linguistic as well as cultural reference points with native born, English-speaking North Americans, including Roman script, frequent Christian religious practices, and popular culture. These shared points of reference could serve as crucial advantages when processing U.S. English idioms. Those whose L1s and cultures originate in non-Western traditions might struggle more with novel idioms.

Examining factors like this and other forms of immersion into North American English-speaking life offers more opportunities for further research. One factor that drew my attention during this study was the effect of raising children in the USA. NNSs often acquire a great deal of English from their children, who are usually more fluent and comfortable with English. Examining this in more detail is fertile ground for research. Schweigert's (1986) Direct Access Hypothesis offers potential for further study—it was in this study that when informants referenced their L1, they bypassed the literal meaning and accessed the figurative meaning directly.

Comprehension and use of idioms is crucial to the mastery of authentic language (Cooper 1999). Even NNSs who have achieved a relatively high degree of English fluency are often confused when confronted with idioms. Therefore it is incumbent on educators to learn as much as possible about how NNSs process and acquire idiom comprehension in order to improve educational materials and develop appropriate teaching techniques that can subsequently be implemented. This study has greatly extended my knowledge of this facet of language learning, and it will be my challenge to implement my own learning in future teaching situations.

APPENDIX A

Idiom Recognition Test (IRT)

Appendix A: Idiom Recognition Test (IRT)

1. Billy often gets into fights with other kids at school. His mother says he has a chip on his shoulder. What does it mean to *have a chip on one's shoulder*?
[Answer: to always have a bad attitude]
2. Mother wants to buy a new house in the country. Father sees eye to eye with her. What does it mean to *see eye to eye*?
[Answer: to agree with someone about something]
3. Because Betsy cannot keep a secret, other people call her a big mouth. What does *big mouth* mean?
[Answer: a person who talks too much]
4. After dinner, John would go over to the mall to see what's cooking. What does *What's cooking* mean?
[Answer: What's happening?]
5. People say that Jennifer can keep any plant alive with her green thumb. What does *green thumb* mean?
[Answer: a way with plants]
6. By mistake, Kay let the cat out of the bag when she revealed the surprise. What does *to let the cat out of the bag* mean?
[Answer: to tell a secret]
7. Many small businesses can be successful once they get off the ground. What does *get off the ground* mean?
[Answer: get a good start]
8. After getting laid off from the pen factory, George had to tighten his belt. What does *tighten his belt* mean?
[Answer: to live on less money than usual]
9. The researcher had to roll up his sleeves to get the proposal in on time. What does *roll up his sleeves* mean?
[Answer: to prepare to work hard]
10. Looking up at the sky can make you feel like a little frog in a big pond. What does *a little frog in a big pond* mean?
[Answer: an unimportant person in a large group]

APPENDIX B

Informant Consent Letter

APPENDIX B: Informant Consent Letter

February 2015

Dear _____

I am a graduate student completing a master's degree in English as a Second Language at Hamline University in St. Paul, Minnesota. Currently I am working on a Capstone Project required for this degree. This research is public scholarship and the abstract and final document will be catalogued in Hamline's Bush Library Digital Commons, a searchable electronic repository. This research may be published or used in other ways in the future.

My research topic involves learning how native speakers of Brazilian Portuguese process American English idioms. A group of participants will be selected to provide the data needed to study this particular language challenge. I will conduct an interview with each participant, presenting him or her with a set of ten selected idioms in written form, with each idiom in a sentence providing appropriate context. I will ask the participant to process the meaning of each idiom using the think-aloud (TA) method. As a researcher, I am interested in what this thought process will reveal.

The identities of all participants will be held completely confidential. Ages, genders, and education levels will be profiled, but no names will be used. In the written document each participant will be identified only with a number. There is little or no risk involved for participants. Participation is completely voluntary, with no consequence involved if an individual chooses to withdraw. All participants will be adults, with no parental consent needed. The benefit for each participant is the opportunity to gain insight into his or her second language acquisition process.

The pastors of the Brazilian Church of Hope, 8000 Portland Avenue South, Bloomington, have granted permission for me to conduct participant interviews in office or classroom space at the church on any Sunday from 2:00-8:00 pm throughout 2015. I plan to complete these interviews during the winter and spring months. Each questioning session is likely to take thirty to forty-five minutes.

Please feel free to contact me if you have any questions or concerns about participating in this project. I can be reached by phone at 763-438-9036 and by email at bobern01@hamline.edu. Correspondence can be sent to: 1445 West Jessamine Avenue #210, St. Paul, MN 55108.

Sincerely,

Brendan Obern

APPENDIX C

Informant Consent Form

APPENDIX C: INFORMANT CONSENT FORM

You are hereby invited to participate in the research project described above. Please indicate your agreement to participate as indicated below:

I, _____, consent to participate in this research project that is part of your graduate degree program. I understand that my participation in this study is completely voluntary and that I retain the right to withdraw at any time. I understand that my identity will remain completely confidential.

Signature: _____

Date: _____

APPENDIX D

Informant Profile

APPENDIX D: Informant Profile

	Age	Yrs. in USA	Eng. Study in US (mos.)	Eng. Study in Brazil (yrs.)	Job uses English	Time w/US friends (hrs./week)
1.	58	10	3	2	yes	30
2.	53	18	60	0.5	yes	50
3.	24	3	18	3	no	45
4.	56	15	48	7	yes	48
5.	54	13	48	2	yes	6
6.	35	8	30	2	no	2
7.	42	17	0	0.5	no	5
8.	44	18	6	1	yes	40
9.	35	11	6	2	yes	50+
Mean:	44.6	12.6	28	2.2		30.7
1999:	29.3	5.1	7.3	6.5		14.3

APPENDIX E

Idiom Comprehension Score Sheet

APPENDIX F

Strategy Score Sheet

APPENDIX G

Informant Profile Information

APPENDIX G: Informant Profile Information

Age:

How long have you lived in the United States

How many years did you study English in Brazil?

How many months or years have you studied English in the U.S.?

Does your job require English?

How many hours a week do you spend with U.S. friends or colleagues?

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