1995

Effects of children's mental imagery on idiom comprehension

Lydia R. Kearney
San Jose State University

Follow this and additional works at: https://scholarworks.sjsu.edu/etd_theses

Recommended Citation

Kearney, Lydia R., "Effects of children's mental imagery on idiom comprehension" (1995). *Master's Theses*. 1150.

DOI: <https://doi.org/10.31979/etd.6x3r-82jb>

https://scholarworks.sjsu.edu/etd_theses/1150

This Thesis is brought to you for free and open access by the Master's Theses and Graduate Research at SJSU ScholarWorks. It has been accepted for inclusion in Master's Theses by an authorized administrator of SJSU ScholarWorks. For more information, please contact scholarworks@sjsu.edu.

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313/761-4700 800/521-0600

**EFFECTS OF CHILDREN'S MENTAL IMAGERY ON IDIOM
COMPREHENSION**

A Thesis

Presented to

The Faculty of the Department of Communication

Disorders and Sciences

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Lydia R. Kearney

December 1995

UMI Number: 1377241

UMI Microform 1377241

Copyright 1996, by UMI Company. All rights reserved.

**This microform edition is protected against unauthorized
copying under Title 17, United States Code.**

UMI

**300 North Zeeb Road
Ann Arbor, MI 48103**

© 1995

Lydia Rose Kearney
ALL RIGHTS RESERVED

APPROVED FOR THE DEPARTMENT OF
COMMUNICATION DISORDERS AND
SCIENCES

Gloria T. Weddington, Ph.D.

Jean M. Novak, Ph.D.

Minerva Galvan, M.A., C.C.C., S.L.P.

APPROVED FOR THE UNIVERSITY

ABSTRACT

EFFECTS OF CHILDREN'S MENTAL IMAGERY ON IDIOM COMPREHENSION

by Lydia R. Kearney

Psycholinguistic research on adult imagery for idioms emphasizes the role of conceptual metaphor in idiomatic understanding. The present study examined whether the use of imagery facilitated idiom understanding in forty-eight children. Two groups of children with normal language abilities (second and fourth graders) and one group of fourth/fifth graders with language disorders completed pre- and post-tests of idiom comprehension. Half the children comprised a treatment group that formed mental images of five idioms, answered questions about them, and used imagery to make sense of post-test idioms. Preferences for idiomatic responses increased with age and language ability. Post-test scores revealed nearly significant differences in proportions of idiomatic interpretations between mediation and control groups. Responses from the imagery exercise showed consistent, tacit knowledge of conceptual metaphors. These findings further support the conceptual metaphor view of idiomaticity. Implications for the use of imagery in teaching figurative language skills are discussed.

ACKNOWLEDGMENTS

I am indebted to many education professionals for their assistance in carrying out this study. Kathy McGrath, Principal at Westlake Elementary, Thom Dunks, Principal at Main Street Elementary, and Kathy Howard, Principal at Soquel Elementary, granted permission to recruit participants at their schools. Paula Fuller, Speech-Language-Hearing Specialist at Westlake Elementary School, was an untiring resource for student selection and recruitment. Danielle Dorrian, Speech-Language-Hearing Specialist at Soquel and Main Street Elementary Schools, and Eileen Balian, graduate student in Speech Pathology, also selected students for recruitment. Special thanks go to the student participants, and to their parents and teachers, for their cooperation.

I thank my advisor and committee chair, Gloria T. Weddington, Ph.D., as well as Jean M. Novak, Ph.D., and Minerva Galvan, M.A., C.C.C., S.L.P., who commented upon and edited numerous thesis drafts. I am grateful to Raymond Gibbs, Ph.D., for his comments, advice, and support during the writing of this paper. Special thanks to Herb Colston, Ph.D., for his assistance with the experimental design and statistical analyses of this study.

Finally, I express my deep appreciation to my parents, John and Nila Kearney. Their confidence, encouragement, and support have enabled me to pursue my educational desires.

TABLE OF CONTENTS

CHAPTER I: Introduction	1
Purpose of Study.....	4
CHAPTER II: Literature Review	
Development of Idiomatic Understanding in Children.....	7
Idiom Understanding in Children with Language Disorders	12
Theories of Idiomaticity in Adults	15
Summary	22
CHAPTER III: Method	
Pretest	
Subjects.....	24
Stimuli and Design.	25
Procedure.	26
Imagery Exercise	
Subjects.....	27
Stimuli and Design.	27
Procedure.	28
Post-test	
Subjects.....	29
Stimuli and Design	29
Procedure.	29
CHAPTER IV: Results.....	31
CHAPTER V: Conclusions and Implications	38
References.....	45
Appendices.....	52

LIST OF TABLES

Table 1: Proportion of Response Type Chosen by Age Level.....	32
Table 2: Proportion of Response Type Chosen by Mediation Group vs. Controls.....	33
Table 3: <i>t</i> Values for the Mean Proportion of Imagery Responses Conforming to the Modal Response	36

CHAPTER I

Introduction

American English is abundant with figurative language. Proverbs (*A rolling stone gathers no moss*), similes (*Her teeth are like pearls*), metaphors (*He's a walking time-bomb*), and irony (*You're a fine friend*) reflect just a few of the many figurative expressions people use everyday. Some of the most pervasive types of figurative expressions are idioms (Boatner, Gates & Makkai, 1975; Hoffman, 1993; Hoffman & Honeck, 1980).

There is a long-standing debate among cognitive scientists as to how people understand and use idiomatic expressions like *lose your marbles*, *kick the bucket* and *spill the beans*. Early theories of language understanding regarded idioms and other figurative expressions (such as metaphor and irony) as unusual language that could not be processed in the same manner as literal language. According to the classical view of figurative language comprehension, a listener or reader must first analyze the *literal meaning* of an idiomatic phrase, match the meaning with contextual knowledge, and then revise the meaning of the phrase when it is inconsistent with the context (Searle, 1979). However, psycholinguistic studies have shown that idiomatic language does not take longer to process than literal language (Gibbs, 1994).

The fact that many linguists, psychologists, and philosophers make a distinction between idiomatic and literal language processing is due in part

to the belief that idioms are "dead" metaphors (Gibbs, 1994; Green, 1989). An expression like *kick the bucket* is thought of as a once-lively metaphor that is no longer meaningful to modern speakers. Scholars argue that idioms must be understood as single words whose arbitrary meanings are listed in some kind of mental dictionary or lexicon. Traditional theorists see no reason why an idiom should have the meaning it has. The formerly meaningful metaphor is now just a highly conventionalized expression whose individual components are without meaning.

The most recent work in psychology and cognitive linguistics has challenged the "dead" metaphor view, asserting that the meaning of an idiom is quite alive in our conceptual system and is not arbitrary. Idioms have the meanings that they do because we use conceptual metaphors to create and make sense of them.

Conceptual metaphors differ from linguistic metaphors. Linguistic metaphors are expressions like Shakespeare's *Juliet is the sun*, whereas a conceptual metaphor is part of a scheme or system that people instantiate when they talk about or understand metaphors, idioms, and even supposedly literal expressions (Gibbs, 1994). For example, Gibbs (1994) points out that the following sentences are commonly considered "dead" metaphors: *"I see what you mean; That's a very clear argument; Tell me no more, I've got the whole picture"* (p.158). However, these expressions have been shown to reflect metaphorical systems of thought that are "alive." Thus, people talk of intellectual activities in terms of vision. This is because our conceptual system is partly metaphorical, in that it contains the conceptual metaphor UNDERSTANDING IS SEEING (Gibbs, 1994;

Sweetser, 1990). This conceptual metaphor partially constrains the kinds of expressions we use to talk about knowing things. Conceptual metaphors map a more concrete source domain (vision) onto a more abstract target domain (reason), and this mapping exists as part of our conceptual structure in long term memory. The conceptual metaphor view accounts for several aspects of linguistic meaning that the "dead" metaphor view cannot, such as multiple meanings, conventional expressions that are related, and figurative language.

Conceptual metaphors appear to explain why many idioms have their particular figurative meanings. For example, the idioms *blow your stack*, *flip your lid* and *hit the ceiling* all mean, figuratively, "to get angry." According to the conceptual metaphor view, we conceptualize anger as heated fluid in a container. These idioms all have a common underlying conceptual metaphor, ANGER IS HEATED FLUID IN A CONTAINER. For instance, we make sense of these "anger" idioms because we understand them in terms of our everyday knowledge of how fluid behaves under intense pressure. In fact, people have very strong intuitions about the use of idioms in context that are consistent with the conceptual metaphor view (Gibbs, 1992; Nayak & Gibbs, 1990). Studies on imagery have also revealed the metaphorical nature of our conceptual system. Gibbs and O'Brien (1990) demonstrated that people have specific and consistent types of imagery for idioms with the same underlying conceptual metaphors. The "dead" metaphor view of idioms as "giant lexical units" cannot account for the remarkable regularities as to the cause, manner, intentionality, consequences, negative consequences, reversibility and manner of actions

revealed by the mental images of idioms that people have. The conceptual metaphor view demonstrates that speakers are partially motivated to talk about anger in terms of internal pressure and not in terms of food, for example. Traditional accounts of idiomatic meaning do not acknowledge or explain this connection between an idiom and its meaning.

Purpose of Study

Although there is evidence that adults make use of conceptual metaphors to make sense of idioms, there is little empirical support for the conceptual metaphor account of idiom understanding in children. The present study examined whether children's understanding of idiomatic phrases could be facilitated by a guided imagery exercise similar to that used by adults in Gibbs and O'Brien (1990). Two groups of children with normal language skills (second and fourth graders) and one group of fourth/fifth graders with language learning delays (LLD) completed an idiom comprehension task. Half the children from all three groups formed mental images of five idiomatic phrases, while the other half received no treatment. Specific probe questions tailored to the children's particular images guided them through the task, presumably activating their tacit knowledge of conceptual metaphors. The children who completed the imagery task then received mediation to show the connection between forming an image of the idiom and understanding it. They were then instructed to use imagery to make sense of the post-test items. Post-test scores determined whether children across all age/language ability groups

who completed the imagery/mediation task understood the idioms better than controls.

The statistical design of the present study employed two levels of treatment (Mediation versus Control) and three grade levels (normal second, normal fourth, and LLD fourth/fifth graders), resulting in a 2 x 3, between-subjects design. Chi-square analyses ensured that the idiom comprehension test was sensitive to age differences and determined the type of choices preferred by the children on the pre- and post-tests. ANOVAs and *t* values analyzed the consistency of children's responses during the imagery exercise. This study addressed the following hypotheses:

1. Children who perform the imagery task (regardless of age and language ability) show greater improvement on their post-test scores than the control group.

2. Idiom comprehension task scores reflect a gradual increase in idiomatic understanding with age and language ability. That is, the older children select more idiomatic responses than their peers with LLD, who in turn choose more idiomatic responses than the youngest children.

3. Children's mental imagery shows consistency in the description, cause, intentionality, manner, consequences, negative consequences, and reversibility of the actions described by the idioms.

If the use of imagery facilitates idiom comprehension in children with and without language delays, then imagery may serve as an effective mediation tool for teaching figurative language skills. If children form consistent mental images for idioms, then the conceptual metaphor view will receive additional empirical support as a partial account of how children make sense of idioms.

CHAPTER II

Literature Review

Development of Idiomatic Understanding in Children

Early studies on figurative language acquisition suggested that children under nine years of age did not understand idioms. For example, Lodge and Leach (1975) claimed that the ability to analyze semantically ambiguous language was a prerequisite to understanding figurative language such as idioms. Children first acquired a literal meaning of idiomatic phrases and then acquired the idiomatic meanings of these phrases. Before children reached a stage of idiomatization, they were thought to process idioms literally, because they had not mastered the ability to analyze semantic duality or ambiguity. Idiom comprehension, then, was seen as an ability to recognize the dual meanings of an utterance, with the idiomatic meaning being understood only after age nine. Lodge and Leach (1975) tested idiomatic understanding in children (ages 6, 9, and 12) and adults with 10 ambiguous sentences which could be interpreted either literally or idiomatically. Participants chose two out of four pictures that were closest in meaning to the spoken idiom. Idioms were read in either an active (*He kicked the bucket*) or a passive voice (*The bucket was kicked by him*). The authors found differences in literal versus idiomatic selection by age regardless of whether the idiom was read in a passive or active voice. Voice did influence the choice between literal and idiomatic

pictures. However, participants were tested on their understanding of idioms that were out of context, suggesting that idiom comprehension was an all-or-none phenomenon. The role of context in idiomatic understanding had not been explored.

Ackerman (1982) constructed short story contexts that were biased either toward literal, figurative, or neutral (ambiguous) interpretations in order to examine the effect of context on idiom understanding in children. The last sentence of each story contained either an idiomatic phrase, *fixed his wagon*, or a changed idiom, *repaired his wagon*. Subjects described parts of the story and then answered yes/no questions about an action that occurred in the story. The results revealed that idiomatic interpretations were more frequent for the sentences with idiomatic terminal phrases. Developmental effects were also found, in that the selection of idiomatic interpretations for both types of stories (*idiom terminal* and *changed-idiom terminal*) increased with age.

Ackerman discussed the results in terms of two theories of idiomaticity. One theory posited that idiomatic interpretation depended upon the literal interpretation plus surrounding context. Ackerman (1982) cited Clark's study, which argued that children needed context in order to recognize some idiomatic interpretations. An alternative theory argued that idiomatic meaning was "computed" the same way as literal meaning (Gibbs, 1979). Ackerman concluded that children learned idioms as giant lexical entries, as also posited by Swinney and Cutler (1979). As children aged, context was regarded as less important to determining idiomatic meaning.

Prinz (1983) compared children's abilities with both idiomatic expression and comprehension. He found that children employed a literalization strategy from ages six to nine, and used an idiomatization strategy from the age of nine to adulthood. Development of idiomatic comprehension preceded the ability to verbally interpret idioms, in that children under age nine were aware of idiomatic phrases, but could not verbalize their idiomatic meanings until a later age.

One problem with earlier studies on idiom acquisition in children was that idioms were seen as single lexical units. Empirical studies have shown that this was not the case for most idioms, which were found to be linguistically and pragmatically flexible. Gibbs and Gonzales (1985) demonstrated that the degree of syntactic "frozenness" of an idiom (whether an idiom can be syntactically altered and retain its idiomatic meaning) affected the ease with which the idiom was accessed from the mental lexicon. Reading time experiments showed that "frozen" idioms like *kick the bucket* were processed more quickly than more flexible expressions such as *to make up one's mind*.

Gibbs (1987) then tested the effect of context and syntactic "frozenness" on children's understanding of idioms. Kindergartners, first and fourth graders interpreted idioms in isolation or in context. The children explained the idioms verbally and then chose their correct interpretations. In context, kindergartners and first graders understood frozen idioms more easily than flexible idioms. Older children performed well on both kinds of idioms. In general, children performed better when they were given context. Idioms whose literal and idiomatic meanings were

closely related (*hold your tongue*) were easier to understand than idioms whose literal and idiomatic meanings were more distantly related (*beat around the bush*).

Semantic analyzability was also shown to be an important factor in children's idiom comprehension. Gibbs (1991) presented kindergartners, first, third and fourth graders with idioms either in isolation or in context. Children gave verbal explanations and chose the correct interpretation of the idioms. The idioms varied in their degree of semantic analyzability. For example, a semantically analyzable idiom had components which independently contributed to its overall figurative meaning. Each component of this idiom (e.g., *pop the question*) could roughly be assigned a figurative meaning (*pop* = to utter, *the question* = a marriage proposal). The components of a semantically nonanalyzable idiom did not appear to have independent figurative meanings. Gibbs found that young children performed better with analyzable idioms versus nonanalyzable ones when idioms were presented out of context. Therefore, it appeared that children did make an attempt to get meaning from the individual components of the idiom and did not try to analyze the idiom as a single lexical unit. This did not mean that all idioms were analyzed by their individual components. Gibbs (1991) noted that opaque idioms like *kick the bucket* may, in fact, be treated differently than more analyzable idioms. Nevertheless, children did not generally analyze idioms as single lexical units. This study challenged the long-standing view that idioms were "dead" metaphors with meaningless individual components whose representations were stored in the mental lexicon like single entries in a dictionary.

While some studies have suggested that children under the age of nine cannot understand idiomatic expressions (Ackerman, 1982; Lodge & Leach, 1975; Nippold & Martin, 1989), further studies have shown that children below age nine *can* understand idioms when given sufficient context (Cacciari & Levorato, 1989). More traditional accounts of idiom acquisition proposed that children learned idioms in a rote manner and as single lexical units by being repeatedly exposed to them in specific contexts (Ezell & Goldstein, 1991; Lodge & Leach, 1975; Nippold & Martin, 1989). This exposure hypothesis predicted that the more familiar an idiom was, the easier it would be for the child to understand. Other evidence contradicted this claim (Gibbs, 1987, 1991; Levorato & Cacciari, 1992). These findings showed that, from age 6:9 to 11:9, children's *understanding* was not influenced by the familiarity or unfamiliarity of a given idiom. Instead, familiarity influenced the children's use or *production* of idioms.

An alternative view of idiom acquisition was the global elaboration hypothesis and the development of figurative competence (Levorato & Cacciari, 1992). The acquisition of an idiom was thought to follow the same path or processes that occur in the general processing of language and world knowledge. Figurative competence (Levorato & Cacciari, in press) referred to a specific set of abilities integrated "within a general cognitive mechanism underlying semantic competence and language comprehension" (p.7). Again, Gibbs (1991) suggested that children did not learn entire idioms as single lexical items, as predicted by the exposure hypothesis. Instead, children tended to seek the meaning of the individual words in the idiom, much as they did for literal phrases. The idea that figurative

language acquisition involved processes similar to those involved in understanding language in general, or the global elaboration view, is more in line with the findings of Gibbs (1991), which suggested that children attempted to get meanings from the components of literal sentences as well as idiomatic ones.

Idiom Understanding in Children with Language Disorders

Idioms and other instances of figurative language are highly frequent in English; dictionaries list thousands of these phrases. Idioms provide a wonderful way to talk about more abstract ideas in terms of our everyday experience with the world. In fact, speakers use so many idioms unreflectively that they often need to explicitly point out to their listeners that they're about to use a phrase literally (Van Lancker & Canter, 1981). Consider their example:

City engineer Don Hurlburt had another theory: fluctuations in air pressure, perhaps caused by a blown out window, might have caused more pressure to build up under the roof than above it, *literally* blowing the roof off.

Time, 1979, p.74.

This example is particularly salient because the description of pressure being built up in the building is consistent with the everyday conceptual knowledge people have about internal pressure. This everyday knowledge

about roofs being blown off was perhaps so associated with the idiom *blow the roof off* that the speaker needed to emphasize a literal interpretation of the phrase. Pollio, Smith and Pollio (1990) noted that an average child in the third grade reads an instance of figurative language every two pages, and a high school junior will be presented with five figures of speech per page. Teachers use nonliteral language an average of 35% of the time when talking to kindergartners through eighth graders (Lazar, Warr-Leeper, Nicholson, & Johnson, 1989). African American culture provides numerous examples of figurative language through sounding (ritualized insult), rap lyrics, and the rhetoric of preaching used in some church services (Milosky, 1994). In fact, sounding skill and general verbal abilities of African American seventh graders were found to directly influence figurative language comprehension (DeLain, Pearson, & Anderson, 1985). In turn, language ability in African American children indirectly influenced figurative language ability via its facilitating effect on sounding skills. Figurative language, then, is not some unusual kind of language. It is a common and essential form of communication used unreflectively in both classrooms and communities.

If children with normally developing language skills must understand and use figurative language to function in everyday discourse situations, it is all the more important that children with language learning difficulties understand and use figurative language skillfully. Young adults who had been labeled language learning disabled (LLD) reported that rapid, humorous conversational exchanges had given them a great deal of trouble. They struggled to understand the many figurative uses of language

common to such exchanges. These young adults often nodded or laughed, pretending to follow the conversation and contributing little (Milosky, 1994). Youths with language learning disabilities also had difficulty using indirect expressions. Most people view the use of indirect and conventionalized language in social situations as a form of politeness. A speaker who does not use this socially preferred, indirect means of communication is often deemed "slow," "literal minded," or "rude" by the listener (Milosky, 1994). Clearly, people who don't understand or use figurative language well are at an academic and social disadvantage.

Although most speech-language clinicians agree that figurative language skills are essential to a student's communicative competence, there is surprisingly little research on how children with language disorders understand idioms and other types of figurative language. Strand (1982) studied idiomatic understanding in children ages 7 to 13 years with normal performance I.Q.s but receptive and expressive language deficits. The children were required to match spoken idioms to different topics that illustrated the idiom's meaning and then explain the meaning. Children with language deficits showed a similar but delayed pattern of idiom acquisition as compared to children with no language difficulties.

Nippold and Fey (1983) found that preschoolers with a history of expressive syntax and auditory comprehension problems later misinterpreted metaphors. Children with language disorders provided more literal interpretations for metaphorical sentences such as *She has pearly teeth* ("It means that she has pearls on her teeth") than did their non-language disordered peers. There were also numerous clinical

observations (Wiig & Semel, 1984) that "language learning disabled youths may have problems recognizing and interpreting figurative language" (p. 249).

Creaghead and Westerback (1984) presented isolated idioms to first through seventh graders with language learning difficulties in a picture-pointing, multiple choice format. Children with language learning difficulties were at least two years behind non-language disordered peers. Non-language disordered children reached their top performance level at age eight, but children with language difficulties showed a very slow, gradual improvement in performance.

Children with language disorders often need effective figurative language learning strategies. It is therefore essential that speech-language clinicians examine theories of idiomaticity in adults, as several relevant changes have occurred in the way cognitive scientists view idiom understanding over the past ten years. By understanding current research on idiomatic understanding, speech-language clinicians may enhance their approaches to teaching figurative language skills to children with language learning difficulties.

Theories of Idiomaticity in Adults

Studies on idiomatic understanding in children have been largely influenced by theories of how adults understand idioms. The figurative language

learning approaches used by speech-language clinicians should reflect the current research available on both children and adults and idiomatic understanding. Therefore, a review of research on idiomatic understanding in adults is warranted.

Traditional theories of how adults understood idioms and other types of figurative language viewed literal language as distinct from idiomatic language. The traditional view of idiomatic meaning claimed that idioms were noncompositional. That is, the individual components of idioms did not have meaning and only the word string as a whole was meaningful. For example, *kick the bucket* contained words which contributed little to its overall figurative meaning. According to the noncompositional view of idiomaticity, an idiom and its figurative meaning were arbitrarily linked in the mental lexicon, in the same way as words were listed with their meanings in a dictionary (Ackerman, 1982; Prinz, 1983). Thus, *kick the bucket* meant "to die," and *to button your lip* meant "to keep quiet." This view accounted for the syntactic unproductivity or "frozenness" of many idioms. Changing the idiom *Sally faced the music* to *Sally must face the music*, for example, retained its figurative meaning, whereas making the phrase passive, as in *The music must be faced by Sally*, did not (Gibbs, 1994). The existence of syntactically "frozen" idioms supported the notion that figurative meanings were arbitrarily linked with idiomatic phrases and stipulated in the mental lexicon.

Related to the traditional or noncompositional view of idioms is the idea that idioms were "dead" metaphors. Idioms were once metaphorical, but have lost their original figurative meaning and were understood by

modern speakers as lexical items. For example, the original meaning of *to kick the bucket* is unknown to most present-day English speakers, and therefore it seemed reasonable to propose that people understand these idioms as single units in the lexicon (Gibbs, 1994). Idioms were seen as mere arbitrary conventions of the language. For example, the phrase *break a leg* was uttered originally because it was considered bad luck to wish a performer good luck. *Break a leg* has then become a convention, and other phrases such as *fracture a tibia* could not be used to wish a performer luck.

However, our intuitions that once-lively metaphors have died and become rigid, conventionalized idioms might be incorrect. Kronfeld (as cited by Gibbs, 1994) illustrated how *a fork in the road*, which was presumed to be a dead metaphor based on the eating utensil *fork*, is actually rooted in a live part of our conceptual knowledge. *Fork* was actually a term that referred to anything that forked (Old English *forca*, Latin *furca*), and its original sense referred to the pitchfork of the Middle Ages. Therefore, the use of *fork* in reference to both the eating utensil and the *fork* in the road are *both* metaphorically based on "anything that forks" (p.275). These examples emphasize how difficult it is to classify certain idioms as "dead," and that conventionalized idioms are not "dead."

The traditional view of idioms has been widely challenged. According to the traditional view (Bobrow & Bell, 1973; Searle, 1979), people first attempted to compute a literal meaning based on the literal meanings of the words in a sentence. If the resulting meaning did not make sense given the conversational situation, people then computed a figurative

interpretation by drawing on the surrounding context of the utterance. However, studies have shown that the literal meanings of idioms were not necessarily processed first. In fact, people *could not ignore* the figurative meanings of ambiguous phrases and actually processed the idiomatic meanings without *any* analysis of the literal meanings of these phrases (Gibbs, 1980, 1985). Evidence that people made use of their everyday conceptual knowledge in order to make sense of idioms challenged the idea that idioms had no internal semantic analyzability. Gibbs and Nayak (1989) demonstrated that adults attempted to assign a figurative meaning to an idiom's component words in order to make sense of it. Further studies found that conceptual knowledge played a large role in making sense of idioms (Gibbs, 1994). The ability to assign figurative meanings to the individual parts of an idiomatic phrase provided highly useful information not only for comprehending idioms, but also interpreting or making sense of them. This componential analysis of an idiom reflects the application of conceptual knowledge about the world to an abstract concept.

Recent theories of idiomaticity and empirical research indicated that figurative language is understood via conceptual metaphors (Gibbs, 1994; Lakoff, 1987; Lakoff & Johnson, 1980). For example, the figurative meaning of several idioms that seemed unrelated in terms of their literal semantic content were actually motivated by a single underlying conceptual metaphor. There was no reason, according to the traditional view, to think that *spill the beans* and *let the cat out of the bag* would have related meanings. Yet the fact that both these idioms mean roughly, "to reveal a secret" was not arbitrary. Studies have empirically demonstrated that a

knowledge of conceptual metaphors is used to make sense of these idioms. The figurative meaning of *spill the beans*, for instance, was motivated by the underlying conceptual metaphors THE MIND IS A CONTAINER and IDEAS ARE ENTITIES. The conceptual metaphor view of figurative language understanding posited that the meaning of the idiom *let the cat out of the bag*, for example, was motivated by the conceptual mapping of a source domain (knowledge about letting an animal escape from a container) to a target domain (knowledge about revealing secrets) (Gibbs & O'Brien, 1990).

One interesting empirical finding by Gibbs and O'Brien (1990) was that the mental imagery reported by adults for idioms was largely constrained by such conceptual mappings. The CONDUIT metaphor, for example, constrained the imagery for *spill the beans*, in that it specified the conceptual mappings that the MIND IS A CONTAINER and IDEAS ARE PHYSICAL ENTITIES. These metaphors were found to be communicated by the concept of taking one's ideas from the mind, formulating the idea into words, and sending those ideas to others (along a conduit). Thus, we understand the mind (the target domain) in terms of a container (the source domain) and ideas (target domain) in terms of physical entities (source domain), such as food or money (Lakoff & Johnson, 1980).

Most images (Gibbs & O'Brien, 1990) for *spill the beans* consisted of a container about the size of a person's head, beans that related to the information that was supposed to be kept in the container, and the accidental spilling of the beans from the container. The responses by participants about the intentionality, manner, cause, and consequences of an

idiomatic phrase such as *spill the beans* or *hit the ceiling* were highly consistent, whereas their responses to the same questions about literal phrases (*spill the peas, hit the ball*) and the idiom's figurative definition alone (*to reveal a secret, to get angry*) varied greatly. Such consistent, conventional images for idioms like *spill the beans*, together with a knowledge of the image and the CONDUIT metaphor, motivated the connection between the idiom and its figurative meaning, "to reveal a secret." Therefore, it was no accident that this idiom had its particular meaning. Tacit knowledge of these metaphorical mappings of source domains to target domains accounted for those idiomatic meanings (Gibbs, 1994; Gibbs & O'Brien, 1990; Lakoff, 1987).

The findings of Gibbs and O'Brien (1990) lent empirical support to the conceptual metaphor view of idiomaticity. Traditional theories of idiomatic understanding claimed that the meaning of an idiom was understood as a single lexical unit with an arbitrary definition, or that an idiom had once been metaphorical but was now a "dead" metaphor whose figurative meaning was arbitrary. The traditional view, however, has failed to account for the degree of consistency and specificity of people's images of idiomatic expressions (Gibbs, 1994). Nor could the traditional view explain why the conceptual mapping of a source to a target domain was unidirectional. For example, secrets were conceptualized in terms of beans, but beans were never conceptualized in terms of secrets (Gibbs & O'Brien, 1990). This unidirectional mapping of such apparently different domains was found to motivate how the meaning of an idiom is understood. Merely combining literal and figurative meanings of idioms in the mental

lexicon was not enough to constrain the images participants reported for idiomatic expressions.

Finally, even language we think of as "literal" has been understood through underlying conceptual metaphors. For example, apparently literal, conventional statements about love, such as *I'm starved for your affection* and *He's sustained by her love*, were thought to be "dead" metaphors. There was no reason, according to traditionalists, why statements like these should be clustered together. In reality, these statements were not just related by coincidence. They were similar because they all reflected the underlying conceptual metaphor LOVE IS A NUTRIENT. People conceptualized an abstract notion, such as love, in terms of a concrete notion, such as nutrients. Because people had conceptual structures that were metaphorical, it made sense that they understood love and talked of it in this way. The distinction between literal or "dead" and "nonliteral" language has been widely criticized in light of the conceptual metaphor account of not just figurative language, but language in general. The structure of meaning for many aspects of language and thought has come to be viewed as figurative. This did not mean that *all* representations of meaning and thought were figurative. Instead, figurative thought and conceptual metaphor partially accounted for how we understand and speak about the world (Gibbs, 1994; Lakoff, 1987).

Summary

The most recent research on idiomaticity has addressed several points. First, children and adults appear to analyze the individual meanings of an idiom's components and do not first attempt to analyze idioms as a giant word string or lexical unit. Second, idioms are more syntactically and semantically flexible than earlier theories had claimed, and idioms can no longer be seen as "giant lexical units." Finally, conceptual knowledge plays an important role in the understanding of idioms. The components of an idiom have a figurative meaning that reflects an underlying conceptual metaphor, which explains why certain kinds of idioms share the same figurative meaning.

The use and understanding of figurative language has proven to be an essential aspect of communication. It is therefore important that children, especially those with language learning difficulties, learn how to make sense of idioms and other figurative expressions. If studies have shown that idioms are not giant lexical units, it makes little sense to teach children idioms by having them memorize an idiomatic meaning and pair it arbitrarily with an idiom. Nippold (1991) has outlined a general strategy to teach children with language difficulties how to generalize their learning of idioms as opposed to learning idioms in isolation. Bromley (1984) demonstrated that the use of imagery and pictures helped children with hearing loss better understand idioms. Clinicians appear to be making use of more current research on idiomaticity to give children better strategies for understanding figurative language.

The present study examined the use of a mental imagery/mediation task as a strategy for facilitating children's tacit understanding of the link between conceptual metaphors and idiomatic meaning. This study reported the findings from a single experiment involving children from three grade levels: normal second graders, normal fourth graders, and fourth and fifth graders with language learning disorders (LLD). The study included the following tasks: a pretest of idiom comprehension for all groups of children, a guided imagery/mediation for half the children, and a post-test of idiom comprehension for both treatment and control groups. If children (regardless of language ability) can make use of mental imagery to increase their idiomatic understanding, then the use of mental imagery may have clinical applications for teaching figurative language to children with language disorders. Consistent responses from children who form mental images of idioms would provide further empirical support for the conceptual metaphor account of idiomatic meaning.

Chapter III

Method

One purpose of this study was to determine whether an imagery/mediation task increased the performance of two groups of children with normal language and one group of children with language disorders. The study consisted of three parts: a pretest of idiom understanding, an imagery/mediation exercise for half the children, and a post-test of idiom understanding.

Pretest

Subjects. Participants from three groups completed the pretest: 16 second graders with normal language abilities, 16 fourth graders with normal language abilities, and 16 fourth/fifth graders with language learning disorders (LLD). The range of ages for the three groups was: 7:5 to 8:8 (normal second graders), 9:5 to 10:7 (normal fourth graders), and 9:3 to 12:2 (fourth/fifth graders with LLD). The mean ages for the normal second graders, normal fourth graders, and fourth/fifth graders with LLD (with standard deviations in parentheses) were 8.05 (0.37), 10.02 (0.31), and 10.82 (1.02), respectively. All children were native speakers of English, attended elementary schools in Santa Cruz, California, and were of middle-class socioeconomic status as reported by the school officials and speech-language specialists. The children came from

predominantly White ethnic backgrounds, with four children reported to be of Latino background by the school speech-language specialists.

The children with language disorders had all been diagnosed "language delayed" as defined by special education eligibility criteria, and all were receiving services from speech-language specialists at their schools. All children were being treated for expressive and receptive language delays, including semantic and syntactic delays. All children were reported by their speech-language specialists to have reading skills at the appropriate levels for understanding the test stimuli. The children's language learning difficulties were not due to developmental delays.

Stimuli and Design. Thirty idioms from Gibbs and O'Brien (1990) and NTC's American Idioms Dictionary (1987) were rated by 12 elementary school teachers. The teachers were asked to rate on a scale from 1 to 7 how familiar most children were with each idiom. A rating of 1 meant that the idiom was very unfamiliar to most children, and a rating of 7 meant that the idiom was very familiar. The teachers were encouraged to use all of the points of the scale in their ratings. They were instructed to base their ratings on how much they thought most elementary schoolers had been exposed to the idioms through television, spoken conversation, or reading. Average ratings for each idiom were calculated, and the median familiarity rating was computed (3.00). The 15 idioms below the median were selected for the idiom comprehension task. Appendix A contains a list of the 15 idioms with their familiarity ratings. For each idiom, three interpretations were constructed: idiomatic, literal, and associated.

Idiomatic choices were consistent with the correct idiomatic interpretation, literal choices were paraphrases of the idiom's literal meaning, and associated choices were semantically plausible, or somewhat figurative, but were not idiomatic. A pilot study of idioms presented within a short story context showed that all age groups achieved better than 80% correct. Therefore, new test stimuli of idioms in isolation were constructed so that the test was more sensitive to age differences. Below is an example of a comprehension test idiom and its choices (A complete list of test items is included in Appendix B):

To keep something under wraps:

Associated: To keep something warm

Literal: To cover something with a wrapper

Idiomatic: To keep a secret to yourself

Age/Grade Level (normal second graders, normal fourth graders , and fourth/fifth graders with LLD) and Group (imagery/mediation) served as two independent variables, forming a 2 x 3, between-subjects design. Performance was measured by the proportion of responses that were idiomatic, literal or associated.

Procedure. Each child was tested individually and in one session. All children were tested by the principal examiner. Children were seated at a table facing the examiner in a quiet room at the school. The children were asked to indicate what they thought some word phrases meant. No child was informed that the phrases were idiomatic. The examiner gave each

child a test booklet and read these instructions aloud to each child: "Please read each phrase below and circle a, b, or c, to pick what you think the sentence means." The examiner then answered any questions the child had. Idioms and their possible interpretations were read aloud by the examiner as the child followed the printed text. The order of interpretations presented to each child was random. The child then chose the most appropriate answer by reading the choice aloud and circling it. The pre-test took about 10 minutes to complete.

Imagery Exercise

Subjects. Half of the 48 children from each age/grade group that participated in the pre-test were randomly assigned to either the imagery exercise or control group. The treatment and mediation groups each consisted of eight children apiece from the normal second grade, normal fourth grade, and fourth/fifth grade LLD groups.

Stimuli and Design. Stimuli for the imagery exercises consisted of five idiomatic phrases from Gibbs and O'Brien (1990). One idiom from each of the five groups of figurative meanings was selected: Anger (*flip your lid*); Exerting Control/Authority (*keep the ball rolling*); Secretiveness (*button your lip*); Insanity (*lose your marbles*); and Revelation (*spill the beans*). The order of presentation of the five items was randomized. During the imagery exercise, a series of probe questions was constructed about each idiomatic event from each of the following: General

Image (Description of the image); Causation (What caused the action to happen?); Intentionality (Was the action done intentionally?); Manner (How was the action performed?); Consequences (What happens as a result of the action?); Negative Consequences (What would happen if the action didn't happen?); and Reversibility (Is it difficult to reverse the action?). As was done in the Gibbs and O'Brien study (1990), each question was tailored to the specific mental image described by the child. For example, if a child reported for *spill the beans* an image of someone spilling a huge bowl of beans all over the kitchen floor, the reversibility probe was, "Is it difficult or easy to get all the beans back into the bowl?" and the intentionality probe was, "Were the beans spilled on purpose or by accident?"

Procedure. Each child participated individually in the imagery exercise in a quiet room, and was seated at a small table facing the examiner. Upon completing the pretest, the child was informed about the general nature of the imagery exercise. Each child was asked to complete a trial using a nonidiomatic phrase, *the house is burning*, and answered questions such as, "Describe that picture to me," and "What caused the fire?", to ensure that the task was understood. Each child was then instructed to form a mental image of an idiomatic action, such as *spill the beans*, with eyes closed. The order of idioms presented to each child was random. As the child concentrated on the mental image, the examiner asked each of the six probe questions (General description, Cause, Intentionality, Manner, Consequences, Negative Consequences, and Reversibility) in an invariant order. Probe questions were tailored to the

child's responses, so that if a child reported for *lose your marbles* that the cause of the action was, "The bag of marbles had a hole and the marbles all fell out and got lost," the reversibility question for the idiom was, "Is it easy or hard to get all the marbles back into the bag?" Responses were recorded on a Sony CFS-200 cassette recorder and written down verbatim by the examiner. The imagery exercise took about 25 minutes to complete.

Post-test

Subjects. All the children who completed the pretest participated in the post-test.

Stimuli and Design. The materials and design utilized in the post-test were identical to those of the pretest.

Procedure. The procedures for the post-test were the same as those of the pretest for the control group of children. The children completed the post-test session approximately three weeks after the pretest. Children who completed the imagery task received further mediation immediately prior to completing the post-test to make them aware that the use of imagery provides insight to why idioms mean what they do. The following dialogue was constructed, using *spill the beans*, because all children reported similar imagery for this idiom.

Remember when you closed your eyes and made a picture of *spill the beans*? You told me that you spilled them by accident and that it was hard to get the beans back once they'd spilled. Suppose I go to a movie, and my friend has already seen it. She gets so excited that she accidentally tells me the surprise ending of the movie, and I tell her, "Hey! You spilled the beans!" What do I mean when I say my friend spilled the beans? Right, it means to give away a secret. Can you tell me how giving away a surprise or secret is like spilling some beans? [If a child had difficulty, the following prompts were used: Well, when I spill beans, do I do it on purpose or by accident? Did my friend tell me the secret on purpose or by accident? Is it easy or hard to get the beans back into the bowl once they've spilled? Is it easy or hard for my friend to take it back after she's told me the surprise end of the movie?] So that's why we say *spill the beans* when we talk about telling a secret.

The child was then handed a post-test booklet and instructed to form a mental image of each idiom in a manner similar to that of the imagery exercise. The child was asked to think about the cause, manner, consequence and reversibility of the action that was imagined. For example, for *pop your cork*, the child was asked to form a mental image, and the examiner instructed the child to think about why the action might happen, how it would happen, what the result would be, and whether it was easy to reverse the action. Again, depending on what the child reported, the questions were tailored to responses. The child was asked to consider the meaning of the phrase *pop your cork*, then the examiner read the three interpretations aloud, and the child circled the answer. This procedure was followed for all 15 items of the post-test and took about 10 minutes to complete.

CHAPTER IV

Results

Pretest and post-test responses were scored such that an idiomatic response received a score of 1, an associated response received a 2, and a literal response was given a score of 3. The scores were subjected to chi-square analyses with Grade (normal second grade, normal fourth grade, and fourth/fifth grade with LLD) and Treatment Group (mediation vs. control) as independent variables. Significant differences in performance were found in that fourth graders with normal language abilities chose more idiomatic responses than the fourth/fifth graders with language disorders, and the children with language disorders in turn chose more idiomatic responses than the second graders on the pretest, $\chi^2(4, N = 48) = 74.35, p < .001$, and post-test, $\chi^2(4, N = 48) = 80.55, p < .001$. The idiom comprehension test was found to be sensitive to age differences and a therefore valid measure of the performance of children who completed the imagery task versus controls. Proportions of the response type chosen on the pretest and post-test by grade level are shown in Table 1.

Table 1.
Proportion of Response Type Chosen by Age Level
(I = Idiomatic, A = Associated, L = Literal)

Grade	Pretest			Post-test		
	I	A	L	I	A	L
Normal Second	26.67	16.25	57.08	37.92	15.00	47.08
Normal Fourth	61.67	13.75	24.58	72.50	13.75	13.75
LLD	33.33	19.58	47.08	44.58	22.50	32.92

$N = 48$

The post-test proportions for each response type for the second graders were mostly literal. Children with LLD showed an emerging preference for idiomatic responses, and fourth graders with normal language skills overwhelmingly chose idiomatic responses. There were also differences in the choice of response type between the imagery/mediation and the control group. The proportions of the choices preferred by mediation and control groups are shown in Table 2. The pretest data revealed no significant differences between the two groups, but there were nearly significant differences between the mediation group and controls on the post-test, $\chi^2 (2, N = 48) = 5.42, p = .06$.

Table 2.
Proportion of Response Type Chosen by Mediation Group vs. Controls
(Idiomatic = I, Associated = A, Literal = L)

Type	Pretest		Post-test	
	Control	Mediation	Control	Mediation
I	40.00	41.11	48.89	54.44
A	17.50	15.56	20.28	13.89
L	42.50	43.33	30.83	31.67

$N = 48$

Analyses were conducted on the treatment group's responses to imagery probe questions to determine whether the children were reporting similar kinds of imagery. The traditional view of idiomatic meaning would have predicted that the children's mental imagery would be random and varied. The conceptual metaphor view would have predicted highly consistent mental images for actions described by idioms. Responses from the following seven probe questions were therefore analyzed according to a procedure used by Gibbs and O'Brien (1990): Description of image, Cause, Intentionality, Manner, Consequences, Negative Consequences and Reversibility of the action. Gibbs and O'Brien (1990) computed t values according to a procedure described by Welkowitz, Ewen, and Cohen (1982), in which t values are obtained for a single population. Because the sample size was small (24) and sample means were compared to a hypothetical mean predicted by the null hypothesis, the standard deviation

of the population mean was unknown. Thus, an estimated standard error (SE) was computed from the standard deviation of the sample mean for each probe question, using the following t value formula:

$$t = \frac{(\text{observed sample mean}) - (\text{hypothetical mean})}{\text{sample standard deviation} / \text{square root of } N}$$

The t value was then compared to a two-tailed t distribution particular to the sample's degrees of freedom ($N - 1$, or 23). To compute sample means and standard deviations, the most frequent response for each idiom for each probe was tallied across all 24 treatment group participants. For example, the most frequent response to the intentionality probe for *spill the beans* was that the action was unintentional, as 24/24 children gave this response. Each child received a score for the percentage of responses that matched the most frequent response across all five idioms. For instance, a child had five opportunities to match the most frequent response for the intentionality probe. Some responses were grouped broadly, because the imagery probe questions were open-ended. For example, the most frequent response to the consequence probe for *keep the ball rolling* was that some positive outcome would result. Individual children reported that they would score a goal, keep the ball moving like they were supposed to do, or that they would keep the ball from their opponents, as consequences. These responses were scored as matches to the most frequent response. A child whose probe response matched the most frequent response for across five idioms received a score of 5/5 or 100%. A child

who matched 4/5 of the most frequent response received a score of 80%. Means and standard deviations for the proportion of agreement among the 24 children were then computed for each probe question, with 100% reflecting the highest degree to which individual children's responses conformed to the overall most frequent probe response.

The hypothetical mean predicted by the null hypothesis was .50, as used by Gibbs and O'Brien (1990), for both binary and open-ended probes. The null hypothesis predicted only 50% consistency for the binary probes (Intentionality, Manner, and Reversibility). For the open-ended probes (Description, Cause, Consequences, and Negative Consequences), the null hypothesis also predicted a consistency of 50%. This was a conservative estimate, given that traditional views predicted that children could have provided any number of different images in responses to these probes. The t values for each probe question are presented in Table 3. The t values for all probe questions revealed a high degree of consistency in children's responses to all seven imagery probe questions.

Table 3.
t Values for the Mean Proportion of Imagery Responses Conforming to
the Modal Response

Probe Question	Mean	Estimated SE	<i>t</i> Value
Description	.85	.03	* 11.66
Cause	.82	.02	* 16.00
Intent	.88	.03	* 12.67
Manner	.81	.04	*7.75
Consequences	.76	.04	*6.50
Negative Consequences	.84	.04	* 8.50
Reversibility	.76	.03	*8.67

$N = 24$, $df = 23$, $*p < .001$, two-tailed, $t_{crit} = 3.77$

One-way ANOVAs were also performed for the three probes that, due to their binary response choices, were amenable to undergoing an ANOVA: Intentionality (yes/no), Manner (fast-forceful/slow-gentle), and Reversibility (easy/difficult). The binary scores for Intentionality, Manner and Reversibility each underwent a one-way ANOVA with Age/Grade as a factor. No significant differences were found between age/grade groups for responses about the intentionality, reversibility and manner of the actions,

across subjects and items. This suggested that all age/grade groups were forming consistent responses about their imagery for all five idioms.

CHAPTER V

Conclusions and Implications

The purpose of the present study was to determine whether a guided imagery exercise would tap into children's tacit knowledge of conceptual metaphor and therefore improve idiomatic understanding. Of special interest was whether children with language learning difficulties would improve their understanding of idioms by using this strategy. This study also examined the types of responses preferred by children at different grade levels, as well as the kind and consistency of mental imagery children report for various idioms. The findings address the study's hypotheses as follows:

1. *Children who perform the imagery task show greater improvement on their post-test scores than a control group of children who did not participate in the imagery task.* Children who underwent the imagery and mediation exercises show nearly significant improvement over the control group, suggesting that children may use conceptual metaphors to make sense of idioms. The findings suggest that forming a mental image of idiomatic phrases and being made aware of the connection between imagery and idiomatic meaning can increase idiomatic understanding in children. While this improvement is of marginal significance, it nonetheless shows substantial differences in idiom comprehension for the group that participated in the imagery/mediation task as compared to the group that received no mediation.

The nearly significant differences found between the children who participated in the imagery/mediation task versus controls suggests that forming mental images of idioms may be a useful strategy in teaching children idioms. The imagery may provide the motivation for why idioms have their particular meanings. Cacciari and Tabossi (1993) reported that one strategy adults use to interpret unfamiliar idioms is to try to form a mental image of the idiom. Children may also benefit from using imagery in that it provides a connection between the way we conceptualize the world and the way we talk about such things as anger in terms of fluid that has been heated in a container, for example. Milosky (1994) reports that making implicit comparisons of metaphors more explicit increases idiom comprehension for all children. While children may not have the same images for idioms as adults (Gibbs & O'Brien, 1990), they are nonetheless consistent in the kinds of imagery they report for various idioms. This consistency that can be used as a tool to understand unfamiliar idioms.

2. Performances on the idiom comprehension task reflect a gradual increase in idiomatic understanding with age. Oldest children perform best on the idiom comprehension task, followed by children with language delays and then by the youngest group. The types of responses chosen by the children show an increase in idiomatic understanding with age. Both the fourth graders and the group with language disorders choose idiomatic responses as opposed to either associated or literal choices, although the fourth/fifth graders with language disorders choose fewer idiomatic responses than the fourth grade, non-language disordered group. Second

graders prefer literal choices, followed by idiomatic and associated, which indicates that younger children still favor literal interpretations of various idioms. For the post-test of idiom comprehension, the fourth graders are the most idiomatic in their responses, followed by their classmates with language disorders. The preference for idiomatic responses by the two older groups of children is consistent with the idea that children develop idiomatic understanding gradually from their early school years onward (Levorato & Cacciari, in press).

3. Children's mental imagery shows consistency in the description, cause, intentionality, manner, consequences, negative consequences, and reversibility of the actions described by the idioms. The findings support this hypothesis. Children show a strong degree of consistency in their mental imagery for the description, cause, intentionality, manner, consequences, negative consequences, and reversibility of actions described by idioms, regardless of age group and language ability. The analysis of the children's imagery reveals some interesting trends that support the conceptual metaphor view. Most children appear to have consistent descriptions for idioms such as *spill the beans*, in that they report that the beans were in a bowl, that they accidentally spilled all over the floor, and that they were difficult to retrieve. These images of the actions described by idioms appear similar to imagery reported by adults (Gibbs & O'Brien, 1990). However, some of the children's imagery shows differences from that of adults. For example, when forming an image for *flip your lid*, the children are told to imagine that they had a lid to a container and that it

container and that it flipped. Many children report that the lid is a flat disk that they hold in their hand and flip for fun, whereas most adults describe some internal pressure that forces the lid off a container. Only a few children report that the lid was flipped off a container due to internal pressure. Nevertheless, many of the imagery responses of children are similar to those of the adults in Gibbs and O'Brien (1990), which indicates that children as well as adults have tacit knowledge of conceptual metaphors.

The traditional view would not have predicted that children would have such consistent mental imagery for various kinds of idioms. In fact, traditional accounts of idiomatic meaning would predict that children should give an innumerable amount of different responses to the imagery probe questions, because an idiom and its meaning are arbitrarily linked in the mental lexicon. The consistent responses to imagery probe questions indicates that children of all ages and language abilities studied do not differ in the kinds of mental imagery they had for most of these idioms. Children appear to share tacit knowledge of how beans are spilled and how marbles are lost, for example.

One interesting finding is that the children of different age groups all report consistent kind of imagery, but this consistency did not necessarily relate to their preference for idiomatic interpretations on the comprehension task. Second graders, for example, seem to respond similarly to the older children, yet they still choose mostly literal responses on the comprehension tests. It is unclear whether forming an image of an idiom may in fact encourage literal interpretations of idiomatic phrases in

younger children. On the other hand, the differences between children of different age levels and language abilities may lie in their ability to make a connection between their everyday conceptual knowledge and the meaning of an idiom.

The results of this study have important clinical implications for how to enhance the figurative language skills of children with language learning difficulties. Previous studies have shown that language learning disabled (LLD) children often give literal interpretations of metaphors, as when the statement *She has pearly teeth* is interpreted as, "She has pearls on her teeth" (Nippold & Fey, 1983). In light of the results of the present study, it is plausible that these children are demonstrating that they can generate the imagery of figurative language, but they do not have the metacognitive strategies to use underlying conceptual metaphors to get the figurative meaning of metaphors or idioms.

Ezell and Goldstein (1991) found that children with mental retardation performed better than their younger language-matched peers when idioms were presented in meaningful contexts. The older children probably had more real world knowledge than their language-matched peers, and were able to capitalize on this knowledge. It is therefore essential to embed idioms in a rich and meaningful context to enhance LLD children's idiom comprehension.

Clinicians may also wish to teach LLD children metalinguistic strategies, point out how they work, why they are useful and in what situations the strategies work (Milosky, 1994). Clinicians may also need to emphasize the "transformative nature of metaphor" (p.297) so that children

do not merely see idioms or metaphors as simple analogies or comparisons. In using mental imagery, for example, children should not simply compare how spilling beans and telling secrets are the same. Rather, they should generate reasons for why we talk of secrets in terms of beans, and why we don't think of beans in terms of secrets. It is also useful to point out instances in which forming a mental image for an idiom may not be useful, as with highly conventionalized idioms like *kick the bucket*.

The findings of this study also support the argument that conceptual knowledge plays a role in idiomatic understanding. Children who are familiar with one domain can use world knowledge to interpret metaphors (Vosniadou, 1987). Similarly, children in this study make use of their everyday knowledge about events and apply that knowledge to understand a more abstract domain in terms of a concrete domain. The present study assumed that the children had adequate prior knowledge required to make sense of such idioms, because participants came from similar backgrounds. Clinicians will need to ensure that children from diverse socioeconomic, linguistic and cultural backgrounds have the prior knowledge necessary for understanding certain kinds of figurative language. Nevertheless, taking what everyday knowledge a child has, or enriching that domain by giving children the experiences they need to understand certain domains, will assist them in understanding figurative language and figurative concepts used in the classroom and community.

Children can indeed tap into conceptual metaphors when they make sense of idioms. Much of children's imagery for idioms is consistent and is constrained by the underlying conceptual metaphors of various idioms.

Traditional views of idiom comprehension must therefore have less of an influence on approaches in teaching children with language learning difficulties how to understand figurative language. Through guided mental imagery tasks, children may become aware of how an abstract notion, such as love, anger, or deception can be talked about in terms of a more concrete domain, like nutrients, internal pressure, and cats being let out of bags, respectively. Children with language learning difficulties have often had to learn idioms as single lexical units, for lack of a better strategy. Clinicians should take advantage of the current psycholinguistic research to better teach children how to function in a community whose communication patterns and everyday thought are partly metaphorical in nature. The use of guided imagery can help these children tap into their implicit knowledge of conceptual metaphor and apply it in order to make sense of idioms and many more kinds of figurative communication.

References

- Ackerman, B. P. (1982). On comprehending idioms: Do young children get the picture? *Journal of Experimental Child Psychology*, 33, 439-454.
- Boatner, M., Gates, J., & Makkai, A. (1975). *A dictionary of American idioms*. Woodbury, NY: Barron.
- Bobrow, S. & Bell, S. (1973). On catching on to idiomatic expressions. *Memory and Cognition*, 1, 343-346.
- Bromley, K. D. (1984). Teaching idioms. *The Reading Teacher*, 38, 272-276.
- Cacciari, C., & Levorato, M.C. (1989). How children understand idioms in discourse. *Journal of Child Language*, 16, 387-405.
- Cacciari, C. & Tabossi, P. (1993). *Idioms: Processing, structure and interpretation*. New Jersey: Erlbaum.
- Creaghead, N. , & Westerback, S. (1984). Comprehension of idioms by first through eighth graders. Paper presented at the American Speech-Language Hearing Association Convention, San Francisco, CA.

- DeLain, M.T., Pearson, P.D., & Anderson, R.C. (1985). Reading comprehension and creativity in Black language use: You stand to gain by playing the sounding game. *American Educational Research Journal*, 22, 155-173.
- Ezell, H.K., & Goldstein, H. (1991). Comparison of idiom comprehension of normal children and children with mental retardation. *Journal of Speech and Hearing Research*, 34, 812-819.
- Gibbs, R.W. (1979). Contextual effects in understanding indirect requests. *Discourse Processes*, 2, 1-10.
- Gibbs, R.W. (1980). Spilling the beans on understanding and memory for idioms in conversation. *Memory & Cognition*, 8, 449-456.
- Gibbs, R.W. (1987). Linguistic factors in children's understanding of idioms. *Journal of Child Language*, 14, 569-586.
- Gibbs, R.W. (1991). Semantic analyzability in children's understanding of idioms. *Journal of Speech and Hearing Research*, 34, 613-620.
- Gibbs, R.W. (1992). What do idioms really mean? *Journal of Memory and Language*, 31, 485-506.

- Gibbs, R.W. (1994). *The poetics of mind: Figurative thought, language, and understanding*. New York: Cambridge University Press.
- Gibbs, R.W., & Gonzales, G. (1985). Syntactic frozenness in processing and remembering idioms. *Cognition*, 20, 243-259.
- Gibbs, R.W., & Nayak, N. (1989). Psycholinguistic studies on the syntactic behavior of idioms. *Cognitive Psychology*, 21, 100-138.
- Gibbs, R.W., & O'Brien, J.E. (1990). Idioms and mental imagery: The metaphorical motivation for idiomatic meaning. *Cognition*, 36, 35-68.
- Green, G. (1989). *Pragmatics and natural language understanding*. Hillsdale, NJ: Erlbaum.
- Hoffman, R.H. (1993). Recent psycholinguistic research on figurative language. *Annals of the New York Academy of Sciences*, 433, 137-166.
- Hoffman, R.H., & Honeck, R.P. (1980). A peacock looks at its legs: Cognitive science and figurative language. In R.P. Honeck & R.H. Hoffman (Eds.), *Cognition and Figurative Language* (pp.3-24). Hillsdale, NJ: Erlbaum.

Lakoff, G. (1987). *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago: University of Chicago Press.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.

Lazar, R., Warr-Leeper, G., Nicholson, C., & Johnson, S. (1989). Elementary school teachers' use of multiple meaning expressions. *Language, Speech, and Hearing Services in Schools*, 20, 420-429.

Lodge, D. Nemeth, & Leach, E.A. (1975). Children's acquisition of idioms in the English language. *Journal of Speech and Hearing Research*, 18, 521-529.

Levorato, M.C., & Cacciari, C. (1992). Children's comprehension and production of idioms: The role of context and familiarity. *Journal of Child Language*, 19, 415-433.

Levorato, M.C., & Cacciari, C. (in press). The effects of different tasks on the comprehension and production of idioms in children.

- Milosky, L.M. (1994). Nonliteral language abilities. In G.P. Wallach & K.G. Butler (Eds.), *Language learning disabilities in school-age children and adolescents: Some principles and applications* (pp. 275-303). New York: Merrill.
- Nayak, N., & Gibbs, R.W. (1990). Conceptual knowledge in the interpretation of idioms. *Journal of Experimental Psychology: General*, 119, 315-330.
- Nippold, M.A. (1985). Comprehension of figurative language in youth. *Topics in Language Disorders*, 5 (3), 1-20.
- Nippold, M.A. (1991). Evaluating and enhancing idiom comprehension in language-disordered students. *Language, Speech and Hearing Services in Schools*, 22, 100-106.
- Nippold, M.A., & Fey, S.H. (1983). Metaphoric understanding in preadolescents having a history of language acquisition difficulties. *Language, Speech, and Hearing Services in Schools*, 14, 171-180.
- Nippold, M.A., & Martin, S. Tarrant. (1989). Idiom interpretation in isolation versus context: A developmental study with adolescents. *Journal of Speech and Hearing Research*, 32, 59-66.

- Pollio, H., Smith, M., & Pollio, M. (1990). Figurative language and cognitive psychology. *Language and Cognitive Processes*, 5, 141-167.
- Prinz, P.M. (1983). The development of idiomatic meaning in children. *Language and Speech*, 36, 263-272.
- Searle, J.R. (1979). Metaphor. In A. Ortony (Ed.), *Metaphor and thought* (pp. 92-123). London: Oxford University Press.
- Spears, Richard A. (Ed.). (1987). *NTC's American idioms dictionary*. Lincolnwood, IL: National Textbook Company.
- Strand, K.E. (1982). The development of idiom comprehension in language-disordered children. Paper presented at the symposium on research in child language disorders, Madison, WI.
- Sweetser, E. (1990). *From etymology to pragmatics: The mind-body metaphor in semantic structure and semantic change*. Cambridge: Cambridge University Press.

- Swinney, D., & Cutler, A. (1979). The access and processing of idiomatic expressions. *Journal of Verbal Learning and Verbal Behavior*, 18, 523-534.
- Van Lancker, D.R, & Canter, G.J. (1981). Idiomatic versus literal interpretations of ditropically ambiguous sentences. *Journal of Speech and Hearing Research*, 24, 64-69.
- Vosniadou, S. (1987). Children and metaphors. *Child Development*, 58, 870-885.
- Welkowitz, J., Ewen, R.B., & Cohen, J. (1982). *Introductory statistics for the behavioral sciences* (3rd ed.). New York: Academic Press.
- Wiig, E., & Semel, E. (1984). *Language assessment and intervention for the learning disabled* (2nd ed.). Columbus, OH: Merrill.

Appendix A

Mean Familiarity Ratings and Standard Deviations of Test Idioms
(1 = Unfamiliar, 7 = Very Familiar)

Idiom	Rating	SD
<i>Call the shots</i>	3.00	1.87
<i>Lose your grip</i>	2.85	1.46
<i>Let the cat out of the bag</i>	2.85	1.63
<i>Lay down the law</i>	2.85	1.57
<i>Hit the ceiling</i>	2.77	1.24
<i>Keep someone in the dark</i>	2.62	1.26
<i>Crack the whip</i>	2.54	.78
<i>Blow the whistle on someone</i>	2.38	1.33
<i>Keep it under your hat</i>	2.08	1.12
<i>To have loose lips</i>	2.08	1.19
<i>To pop your cork</i>	2.00	1.22
<i>To foam at the mouth</i>	2.00	1.35
<i>Open a can of worms</i>	1.85	.99
<i>Keep something under wraps</i>	1.62	.77
<i>Wear the pants</i>	1.62	.87

Appendix B

List of Stimuli for Pre- and Post-tests

1. *To wear the pants*

Literal: To put on a pair of pants

Associated: To dress very warmly

Idiomatic: To be in charge of things

2. *To blow the whistle on someone*

Literal: To make a noise with a whistle when you see someone

Associated: To stop a fight between some people

Idiomatic: To tell when someone does something bad

3. *To keep someone in the dark*

Literal: To put someone in a dark room

Associated: To keep scaring someone

Idiomatic: To keep a secret from someone

4. *To foam at the mouth*

Literal: To have a lot of spit in your mouth

Associated: To get very sick

Idiomatic: To get very angry

5. *To lay down the law*

Literal: To put a book of rules down

Associated: To hide from someone

Idiomatic: To make sure a rule is followed

Appendix B (Continued)

6. *To open a can of worms*

Literal: To take the lid off a container full of worms

Associated: To do something that you don't like to do

Idiomatic: To make a problem worse by telling a secret

7. *To pop your cork*

Literal: To remove the cork from a bottle

Associated: To discover something

Idiomatic: To suddenly go crazy

8. *To hit the ceiling*

Literal: To pound the ceiling with your hand

Associated: To have a good idea

Idiomatic: To get very angry

9. *To let the cat out of the bag*

Literal: To let a cat escape from a bag

Associated: To forget to do something

Idiomatic: To give away a secret

10. *To lose your grip*

Literal: To drop something from your hand

Associated: To panic about something

Idiomatic: To get lost somewhere

Appendix B (Continued)

11. *To keep it under your hat*

Literal: To put something under your cap

Associated: To keep your face covered

Idiomatic: To keep something a secret

12. *To call the shots*

Literal: To yell when you hear a gunshot

Associated: To guess where a gunshot came from

Idiomatic: To make all the decisions

13. *To have loose lips*

Literal: To have a floppy mouth

Associated: To smile a lot

Idiomatic: To give away a secret

14. *To crack the whip*

Literal: To make a sound with a whip

Associated: To break a rule

Idiomatic: To be very strict

15. *To keep something under wraps*

Literal: To cover something with a wrapper

Associated: To keep something warm

Idiomatic: To keep a secret to yourself