12-18-2014

Idiom Comprehension Skills of Adult Struggling Readers

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Recommended Citation

Hall, Stephanie Ryan, "Idiom Comprehension Skills of Adult Struggling Readers." Dissertation, Georgia State University, 2014.
doi: https://doi.org/10.57709/6460478

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This dissertation, IDIOM COMPREHENSION SKILLS OF ADULT STRUGGLING READERS, by RYAN HALL, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree, Doctor of Philosophy, in the College of Education, Georgia State University.

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IDIOM COMPREHENSION SKILLS OF ADULT STRUGGLING READERS

by

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Under the Direction of Amy R. Lederberg

ABSTRACT

Idioms such as *break a leg* and *piece of cake* make up a significant portion of spoken and written discourse. Like other linguistic expressions stemming from conceptual metaphor (e.g., metaphors, similes), idioms serve to provide understanding of one concept in relation to a different concept (e.g., *love is a journey*). The ability to comprehend figurative expressions has an extended developmental period that begins as young as 5 years and continues into adulthood. The Language Experience Hypothesis attributes figurative language competence to meaningful exposure to figurative expressions. The Global Elaboration Hypothesis, however, proposes that figurative language comprehension depends upon skills needed for general text comprehension (e.g., ability to make inferences, semantic knowledge). Studies with children and adolescents have shown that reading comprehension relates to both idiom familiarity and comprehension. Similar studies have not been conducted with adult struggling readers. This study examined

idiom familiarity and comprehension of adult struggling readers ($N = 60$; M age = 41 years) in relation to their reading skills. The Idiom Familiarity and Idiom Comprehension tasks developed by Nippold and colleagues (1993, 2001) were used, which allowed for comparisons between the performance of adult struggling readers in this study and past research. Participants' idiom comprehension scores were lower than those of adults studied in previous research, and comparable to those of children reading at similar levels. Their familiarity rankings of individual idioms aligned with the levels established by Nippold and Rudzinski (1993); however, they were less familiar with idioms than the twelfth grade group. Results from a familiarity (high, moderate, low) x context (isolation, story) ANOVA showed story context helped adult struggling readers comprehend more high-familiarity idioms, but hindered comprehension of low-familiarity idioms. Hierarchical regressions revealed that reading comprehension accounted for unique variance over and beyond idiom familiarity and word reading skills for idioms presented in both isolation and story contexts. Findings from this study contribute to the study of figurative language comprehension by examining adults with limited literacy skills. Similarly, these findings contribute to the field of adult literacy by providing initial evidence of adult struggling readers' familiarity and comprehension of idioms.

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RYAN HALL

A Dissertation

Presented in Partial Fulfillment of Requirements for the

Degree of

Doctor of Philosophy

in

Educational Psychology

in

Department of Educational Psychology, Special Education, & Communication Disorders

in

the College of Education

Georgia State University

Atlanta, GA

2014

I dedicate this dissertation to my mother who instilled in me courage, persistence, and the desire

to help others.

ACKNOWLEDGMENTS

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ABBREVIATIONS

GEM   Global Elaboration Model

PIAAC   Program for the International Assessment of Adult Competencies

WJ-LWID   Woodcock-Johnson Letter-Word Identification Subtest

WJ-PC   Woodcock-Johnson Passage Comprehension Subtest

UNDERLYING FACTORS IN METAPHOR COMPREHENSION AND IMPLICATIONS FOR ADULT STRUGGLING READERS

Metaphor is more than a "linguistic ornament" (Thomas,Van Duuren, Purser, Mareschal, Ansari, & Karmiloff-Smith, 2010); it is the foundation of human conceptual thought (e.g., Gibbs, 1994; Lakoff & Johnson, 1980), and it is ubiquitous in everyday language and thought (e.g., Gentner, Bowdle, Wolff, & Boronat, 2001). Since the mid 1990s, there has been much emphasis placed on understanding how people comprehend metaphor. The metaphor comprehension of children, adolescents, and adults has been studied in order to understand the requisite skills for attending to and correctly interpreting various types of metaphorical expressions. One group not well represented in this research area is adult struggling readers—approximately one in six U.S. adults (Organisation for Economic Co-operation and Development, 2013; OECD). The goal of this chapter is to provide a brief overview of the current knowledge base of metaphor comprehension in typically developing children and adolescents with the goal of pinpointing some specific factors that might cause adult struggling readers difficulty in metaphor comprehension.

Figurative language is basically any word or phrase that does not take on its literal meaning. Such words and phrases provide connotative rather than denotative meaning (Palmer & Brooks, 2004). There are many types of figurative language; some are more common than others, such as proverbs, hyperboles, personifications, and allusions. Proverbs are generally phrases that are based on values and beliefs such as *one rotten apple spoils the bunch*. Hyperboles are exaggerations that are used to make a certain point. A common hyperbole is *being on top of the world* (being very happy). A personification is when an inanimate object is given characteristics of living things, such as *the roaring thunder*. Allusions are the most

difficult type of figurative language to comprehend (Palmer & Brooks, 2004) because they require specific knowledge, as in *the virus that attacked my computer was a Trojan Horse*. More common in everyday language than these types of figurative language are metaphors, metonyms, similes, and idioms, which are described briefly below.

Metaphors directly compare two things that are not usually considered to be similar. *Time is money* is one common metaphor that is often used to express the value of one's time. For clarification, metaphor, as discussed in this section, is merely the linguistic form of metaphor. The next section will discuss how, according to more recent theories, metaphor (i.e., conceptual metaphor) is more of an umbrella category of concepts under which linguistic expressions such as metaphors, metonyms, similes, and idioms derive. Several studies as early as the mid 1970s (e.g., Dent, 1984; Gardner, 1974; Reynolds & Ortony, 1980; Siltanen, 1986) looked at the development of metaphor comprehension and found that children as early as 3 years have some abilities to comprehend metaphor and that there is a steady increase in comprehension abilities through childhood and into adulthood (Nippold, 1985). Providing appropriate contextual support, which may vary depending on the particular metaphoric phrase, is also a determining factor in how well young children can understand the figurative meaning of metaphor. In an earlier study (Waggoner, Messe, & Palermo, 1985), children as young as 7 years were able to identify and then correctly interpret metaphors that were embedded within a story schemata (45% of the time), and children ages 9 to 11 years were correct 80% of the time.

Similar to metaphors, metonyms also directly compare objects; however, metonyms are words that replace the known object. Whereas a metaphoric phrase has two concepts being compared (e.g., *Her cheeks were roses.),* a metonym only has the one object and the other must

be inferred (e.g., *the roses on her cheeks)*. Metonyms, then, direct attention to one object by another object related to it (Kövecses, 2010).

Similes are related to metaphor, and are often defined/classified as a variation of a predictive metaphor (e.g., Nippold, 1985) because they make explicit comparisons using the words *like* or *as*. Instead of *The giraffe was a flagpole living at the zoo* (predictive metaphor), for example, a simile is expressed as *The giraffe was like a flagpole living at the zoo* or *The giraffe was as tall as a flagpole living at the zoo* (Nippold, 1985, p. 2). Another example is *life is like a box of chocolates* (made famous by the movie *Forest Gump*); the comparison of life to a box of chocolates harnesses the notion that one never knows what life will bring. Children as young as 5 years were able to interpret similes (e.g., Malgady, 1977), and their interpretive skills increased with age. Appreciation of the figurative meanings of similes, however, was found to require formal operational thinking (Malgady, 1977).

Idioms are groups of words that, together, take on a completely different meaning than the literal meanings of the individual words in the phrase. These phrases, technically, have two possible interpretations (i.e., the literal one or the figurative one), and the correct interpretation is dependent on the context. *To make a mountain out of a molehill* (to make something a bigger deal than it really is) or *to burn the midnight oil* (to stay up late) are two examples of common idioms. Children as young as 5 years are able to comprehend some figurative meanings of idiomatic expressions; however, children, in general, understand the literal meanings of the phrases before they are able to attend to the figurative meanings (Nippold, 1985). Development of idiom comprehension continues to increase throughout childhood and into adolescence. Idiom comprehension varies depending on the personal experiences of the individual because less

familiar idioms are more dependent on the linguistic context in which they occur (Nippold, 1985).

Prevalence of Metaphor

Figurative language, the various types of metaphor in particular, is ubiquitous in everyday language and thought. Some research has shown metaphor to be important in the communication and/or reasoning about abstract concepts, and some other studies have tried to track the prevalence of it in everyday speech (e.g., Gibbs, 1994; Lakoff & Johnson, 1980; Steen, Dorst, Herrmann, Kaal, & Krennmayr, 2010). In one attempt to track the incidence of figurative language in everyday speech, one study (Van Lancker-Sidtis & Rallon, 2004) analyzed the screenplay *Some Like it Hot* and found that figurative expressions (i.e., idioms and proverbs) accounted for 25% of the text. Idioms occurred 7% of the time, and were used mostly to bring a topic to a closing (I guess I'd better get going now, fat chance) or within the context of a complaint or disagreement (what do you think you're doing?, you'll be sorry).

As an example of how metaphorical expressions are used by the media and political groups to discuss everyday situations, consider the following list that is the top 11 metaphors for the year 2008 by the Metaphor Observatory, a project of the cognitive linguistic group from Berkeley. This list is notably important to all U.S. citizens because of the election and the financial crisis, both of which are included. The top metaphors from 2008 are (see Appendix A for full descriptions of each metaphor):

1. Bailout
2. Joe the Plumber
3. Angry Whopper
4. Toxic assets
5. Rock-star
6. Addiction

5

7. Perfect Storm
8. Train Wreck
9. Surge
10. Ratchet
11. Pitbull in Lipstick

The metaphors in this list are excellent examples of how some metaphors are used so often that very little thought must be given in order to figure out what they reference.

Theories of Metaphor

The topic of metaphor has been studied extensively by various academic disciplines including philosophy, linguistics, psychology, and political science. The result is an immense body of literature that attempts to explain the different aspects of metaphor, such as the origins of metaphor, the function of metaphor in human thought, the use of metaphor in everyday language, and the understanding of metaphor in different contexts. Until the early 1990s, research on metaphor focused mainly on the functions of metaphor and how metaphorical statements are understood (Gibbs, 2008). Since then, experimental studies, as well as a growing number of corpus studies, have placed more emphasis on the role of context in how metaphor is used and understood; examined metaphor within models of cognition, communication, and culture; and become more interdisciplinary (i.e., looking at "language-mind-culture interactions"; Gibbs, 2008). This section provides a brief overview of the prevalent theories and hypotheses of metaphor that have served as the foundation of studies looking to determine the underlying factors related to the understanding of metaphors, metonyms, similes, and idioms.

Views of metaphor. Essentially, there are two broad views of metaphor. One is the traditional concept of metaphor, which is the understanding most people have of metaphor (Kövecses, 2010). The traditional view sees metaphor as a figure of speech that compares two

unlike things by saying that one is the other, as in *the lawyer is a shark*. There are five commonly accepted features of metaphor according to this view:

1. Metaphor is a property of words; it is a linguistic phenomenon;
2. Metaphor is used for some artistic and rhetorical purpose, such as when Shakespeare writes, "all the world's a *stage*";
3. Metaphor is based on a resemblance between the two entities that are compared and identified;
4. Metaphor is a conscious and deliberate use of words, and you must have a special talent to be able to do it and do it well;
5. Metaphor is a figure of speech that we can do without; we use it for special effects, and it is not an inevitable part of everyday human communication, let alone everyday human thought and reasoning (Kövecses, 2010, pp. ix-x).

The features of metaphor according to the traditional view do hold true for many metaphorical expressions; however, they also underestimate the ubiquity of metaphor in everyday language and culture. Additionally, because the main feature of metaphor in the traditional view is the pre-existence of similarity between the two things being compared, it does not account for metaphors that do not have pre-existing similarities, such as *digesting food* and *digesting ideas* (Kövecses, 2010). These types of limitations were the impetus of Lakoff and Johnson's (1980) work, which is the second broad view of metaphor.

The cognitive linguistic view of metaphor stemmed from the work of Lakoff and Johnson (1980) and has become the basis of much research since the 1980s. In this view, metaphor is defined as understanding one conceptual domain in terms of another conceptual domain. The cognitive linguistic view differs from the traditional view in the following ways:

1. Metaphor is a property of concepts, not of words;
2. The function of a metaphor is to better understand certain concepts, and not just some artistic or esthetic purpose;

3. Metaphor is often *not* based on similarity;

4. Metaphor is used effortlessly in everyday life by ordinary people, not just by special talented people;

5. Metaphor, far from being a superfluous though pleasing linguistic ornament, is an inevitable process of human thought and reasoning (Kövecses, 2010, p. x).

The idea of the conceptual nature of metaphor was not new to Lakoff and Johnson per se; rather, philosophers—such as Locke and Kant—had discussed it several centuries ago. Lakoff and Johnson's major contribution was to create an empirically-tested theory based on a comprehensive overview of the issues associated with metaphor and its connection to working language, human cognition, and culture (Kövecses, 2010).

Central to the cognitive linguistic view of metaphor is that metaphor is a product of ideas, not just single words, and that these ideas are concepts that belong to conceptual domains. Therefore, a metaphor is the understanding of one concept in terms of a different concept. Such metaphors are called conceptual metaphors, which differ from linguistic metaphors in that the linguistic metaphor is the linguistic expression that stems from the concrete conceptual target domain. Below is an example of a conceptual metaphor with examples of its linguistic metaphors (conceptual metaphor is written in SMALL CAPS and linguistic metaphors are in italics):

> AN ARGUMENT IS WAR
> Your claims are *indefensible*.
> Your ideas are *right on target*.
> He *shot down* all of my arguments.

Mappings between the two domains are what provide the relationship. Lakoff's (2010) more recent work, the Neural Theory of Metaphor, allows mappings to be represented using computational programming so that metaphor relationships can be understood better.

Theories of metaphor processes. Along with the cognitive linguistic view of metaphor come many additional questions about how different forms of metaphor are processed and understood, which is the focus of the remainder of this paper. One such question seeks to understand whether metaphor is processed differently than literal language. In one view (e.g., Glucksberg, 2010), the answer is no. According to Glucksberg, understanding metaphor requires both categorization and comparison skills, depending on the form of the phrase. His view is that both literal comparison statements and similes are processed similarly through comparison. Metaphors, on the other hand, require categorization skills because the comparison between the topic and the vehicle is not as explicit as in similes.

Giora (2002, 2010) also argues that there are no different processes for literal versus figurative language per se. In her view, it is not the fact that the phrase is a metaphor that requires distinct processes for comprehension. The overall salience of the metaphorical phrase will determine how quickly it is understood. The graded salience hypothesis (e.g., Giora, 1999, 2002) says that it is the salient meanings of the words or phrases that are processed initially. The determining factor in which meanings are most salient for a person is whether or not the meanings are available to be coded in the mental lexicon and more prominent due to their familiarity. In this view, the meanings of the words and phrases must already exist in the mental lexicon to be accessed before the context interacts with it. Non-salient meanings will require additional inferences and a stronger contextual base (Giora, 2002). Familiar figurative phrases will activate both literal and figurative meanings, while unfamiliar ones will only have the literal meaning to activate. A familiar phrase such as *step on someone's toes* should activate both the literal (foot) and the figurative (offend) meanings at the same time no matter the context, and the context determines which meaning fits. On the other hand, Giora (1999, p. 1603) offers the

following example using the unfamiliar figurative phrase that is literally-based: *their bone density is not like ours*

  a. My husband is terribly annoyed by his new boss. Every day he comes home even more depressed than he had been the day before. Somehow, he cannot adjust himself to the new situation. *Their bone density is not like ours.*

  b. Our granny had a fracture from just falling off a chair and was rushed to the hospital. I told my sister I never had a fracture falling off a chair. She explained to me about elders. She said: *Their bone density is not like ours.*

In both examples, the literal meaning of the phrase is activated; however, to get the figurative meaning intended for the first example, more inferences must be made. In the second example, only the literal meaning of the phrase will be activated because it fits the context.

  A third view of metaphor processing is offered by Gentner and Bowdle (2010). Their structure-mapping view (Gentner, 1983; Gentner & Bowdle, 2001) argues that similarity and analogy are necessary skills for processing metaphor. An "analogy is a mapping between two represented situations in which a common relational structure is aligned" (Gentner & Bowdle, 2010, p. 109). Within structure-mapping theory, analogical maps create alignments, which are then used to make inferences. This process goes through three stages. In the first stage, all possible matches are made between the two representations being compared. Many one-to-one matches are made during this first stage as all meanings, characteristics, etc. are matched between the two items, and usually this first stage proves to be inadequate for comprehending the correct meaning. In the second stage, all the local matches are combined into clusters based on their connections (termed *kernels*), which create partial-mappings (i.e., connected sets of structurally consistent corresponding base-target pairs) that are based on both the breadth of the

predicates and the depth of the kernal's relational system. In the third stage, the kernels merge into one or more global interpretations.

Gentner and Bowdle's (2001) theory of metaphor comprehension is called "career of metaphor." It outlines how metaphors and similes "evolve from being understood as novel comparison statements to being interpreted as category-inclusion statements in which the vehicle terms serve as the best instances of ad hoc categories" (p. 7, Gibbs, 2008). Its primary purpose is to show the development of unfamiliar figurative phrases.

Several neural imaging studies have sought to understand how various types of figurative expressions are processed in the brain (e.g., Balconi & Amenta, 2010; Diaz, Barrett, & Hogstrom, 2011; Stringaris, Medford, Giampietro, Brammer, & David, 2007). In a recent study, Diaz et al. (2011) used fMRI to study whether metaphors themselves trigger the use of the right hemisphere in language processing, or if there are other factors specific to metaphors that require the right hemisphere (such as conventionality versus novelty). While previous research has looked at right- versus left-hemisphere processing with figurative language, the results have been mixed—possibly due to the differences in the stimuli. In Diaz et al. (2011), figurativeness, novelty, and a combination of both were studied to determine a more exact role of the right hemisphere in language processing.

The results indicated that: (a) all sentence types activate the left inferior frontal regions of the brain, but the novel literal sentences and the figurative sentences increased the activation; (b) figurative sentences activated the right prefrontal regions more than literal sentences, the novel sentences activated more than the familiar sentences, and all metaphors, regardless of familiarity, necessitated processing from the right inferior frontal region (c) both novel metaphors and novel literal sentences activated the right prefrontal regions similarly.

These results partially support the graded salience hypothesis in that the right hemisphere is activated more with novel semantic relationships. Unlike this hypothesis, however, even familiar metaphors activated the right hemisphere, which is consistent with the right hemisphere's involvement in semantic integration. The authors speculate the possibility that all metaphors, even the ones that are familiar, require some additional integrative strategies beyond what is needed for literal language.

Theories of metaphor comprehension. Two theories have been offered to explain the development of metaphor comprehension. The first is the Language Experience Hypothesis, which posits that figurative language competence, in general, develops as a result of meaningful exposure to figurative expressions (Nippold & Rudzinski, 1993). This theory has been used primarily to explain the relationship of idiom familiarity and idiom comprehension. In terms of age, this theory presumes that a person will have more opportunities to be exposed to idiomatic phrases, which may in turn account for the increase in idiom familiarity with age.

The Global Elaboration Model (GEM), proposed by Levorato and Cacciari (1995), is a developmental model of figurative language competence that proposes children's ability to understand figurative language is dependent on the same skills that aid in general cognitive and language development, such as reading comprehension and nonverbal measures of mental capacity (Nesi, Levorato, Roch, & Cacciari, 2006). According to this model, comprehending figurative phrases requires the ability to go beyond local, piece-by-piece understanding of the discourse. Rather, it is necessary to comprehend several portions of a text and make inferences about the figurative meaning of the phrase in question. This theory may account for idiom comprehension difficulties of poor reading comprehenders.

Factors related to metaphor comprehension

The theories presented above (although representing just a handful of what is proposed about the comprehension of metaphor within the cognitive linguistic view of metaphor) cover the factors consistently found to be related to figurative language comprehension. Although theories differ in the way metaphorical comparison is defined and how the comparison is processed (Bowdle & Gentner, 2005), they all share the view that understanding metaphor requires a person to be able to recognize and access some relationship between two concepts that belong to two separate categories (Thomas et al., 2010). Throughout much of the literature, semantic knowledge (e.g, Keil, 1986; Kelly & Keil, 1987; Lakoff & Johnson, 1980; Nippold, Moran, & Schwarz, 2001) and abilities in analogy and inference (e.g, Giora, 1997; Gentner & Bowdle, 2001), as well as reading (e.g., Cain, Oakhill, & Lemmon, 2004; Qualls, O'Brien, Blood, & Hammer, 2003) are shown to relate to figurative language comprehension. This section provides a brief review of the literature of recent articles (i.e., within the last ten years) that focus on the factors related to the comprehension of figurative language in typically developing children, adolescents, and adults.

In a cross-sectional study, Chan and Marinellie (2008) looked at the differences in idiom interpretations of children, adolescents, and adults. Differences in definitions were found among the groups, with more detailed and figurative explanations increasing with age. There was an increase with reported familiarity for the idioms with age, with a significant increase in familiarity in late adolescence (approximately 11th grade; 16-18 years) that remained stable in young adulthood. Additionally, increased familiarity was positively correlated with more refined definitions.

Nippold and Duthie (2003) investigated the relationship between mental imagery ability and idiom comprehension in children (*M* age = 12 years) and adults (*M* age = 27). Each group was asked to write a description of a mental image related to 24 idioms (12 transparent and 12 opaque), and then to complete a multiple-choice task that measured their actual comprehension of each idiom. Overall, the mental images drawn correlated with the comprehension, and both showed a developmental trend from more literal mental images and explanations (based on the multiple-choice task) of the idioms for the children and more figurative images and explanations by the adults. The authors suggested that mental image descriptions might serve as an indicator of how well one understands idioms.

Qualls and Harris (2003) explored the differences in figurative language comprehension abilities of a younger (*M* age = 22) and an older (*M* age = 63) group of African-American adults. They included age, working memory, reading ability, and figurative language type in their comparisons. They found, when working memory and reading comprehension were controlled, the older adults outperformed the younger adults on idioms and metonyms. There was no difference between groups on metaphor comprehension when working memory and reading comprehension were controlled. There were, however, differences between groups based on working memory and reading comprehension; reading comprehension was a significant predictor of performance on the figurative language task.

Cain, Oakhill, and Lemmon (2004) looked at the relationship between 9-year-olds' reading comprehension and idiom comprehension. Idioms were presented in two formats: one within a short story context and one in isolation. Each idiom format contained an even number of transparent and opaque idioms. Children gave a verbal interpretation of each of the idioms. Overall, better explanations were given for idioms in the story context than isolated idioms.

There was no difference in performance on interpreting transparent idioms in the story context. Children with poor reading comprehension were worse at interpreting the meaning of opaque idioms in the story context, which indicates that idiom comprehension is related to reading skills associated with making use of context.

Cain, Towse, and Knight (2009) also looked at the differences in idiom comprehension between a group of eight-year-olds and a group of 10-year-olds. They compared these groups on their ability to use semantic analysis and inference from context to understand idioms. Both groups were helped by context, which suggested that even the younger children were able to use the provided context to understand the meanings of novel idioms. The younger group was less likely to choose the correct interpretation for isolated novel transparent idioms. The authors suggested that this difference shows how the older group was able to use semantic analysis to choose the correct figurative meaning, while the younger children were not.

Qualls, Treaster, Blood, and Hammer (2003) examined a group of urban fifth-graders' (*M* age = 10 years) lexicalization of idioms. Children were able to differentiate between idioms and literal phrases, and they had quicker access times for the idioms than the literal phrases. These two results provided the first evidence of idiom lexicalization in children. Additionally, increased familiarity of idioms was related to faster access times.

Cain and Towse (2008) sought to find the source of idiom comprehension difficulties in children with poor reading comprehension skills. They compared a group of 10-year-olds with age-appropriate word reading skills and poor reading comprehension to a group of 10-year-olds with both age-appropriate word reading skills and age-appropriate reading comprehension skills. All participants completed a semantic analysis task based on ambiguous sentences and two idiom tasks, one within a story context and one isolation context. There were no group differences on

the semantic analysis task or with comprehending transparent idioms with and without context. Group differences occurred with novel opaque idioms within the story context. Children with lower reading comprehension were not able to use the context to infer meaning of the novel opaque idioms.

Qualls, O'Brien, Blood, and Hammer (2003) explored the role of context, familiarity, and academic literacy in the comprehension of idioms for a group of rural adolescents (*M* age = 13 years). Idioms presented within a short story context had the highest comprehension overall, regardless of familiarity. As context decreased, familiarity of the idiom became more important in comprehension, as more isolated, familiar idioms were comprehended at higher rates than less isolated and less familiar idioms. Reading ability was related to idiom comprehension in the tasks where each idiom was presented in a short two- to three-sentence story. Students with higher reading abilities performed better on this task, regardless of their familiarity of the idiom.

Qualls, Lantz, Pietrzyk, Blood, and Hammer (2004) compared idiom comprehension for a group of adolescents (*M* age = 14) with a language-based learning disability with their typically developing peers. The effects of context and familiarity on idiom comprehension were studied for each group. Overall, the students with a language-based learning disability (LBLD) had lower idiom comprehension scores than their typically developing peers matched on either age, gender, or reading ability. Additionally, the LBLD group performed better when there was less context provided.

Findings from these studies provide important evidence for factors related to figurative language comprehension. First, idiom comprehension develops with age. Although young children are able to interpret some familiar transparent idioms, their interpretations are generally more literal-based than the intended figurative meaning. Increased familiarity of idioms related

to more refined and figurative interpretations, as well as quicker lexical access. Context increases idiom comprehension, even with less-familiar idioms. With little or no context, idiom comprehension depends on the level of familiarity. Reading ability relates to idiom comprehension in that more proficient readers were able to use context to interpret opaque and novel idioms, while less proficient readers were not. Additionally, less-proficient readers generally provided more literal interpretations of the idioms with which they are familiar.

As indicated in the studies reviewed in this section, the role of context effects in figurative language comprehension has become a factor of interest in research over the past ten years. Additionally, the relationship of reading comprehension skills to figurative language comprehension is examined consistently. A glaring gap in the literature is the variation of figurative language expressions studied. Only one study in this section included a combination of metaphors, metonyms, and idioms; none of the studies included similes. It would be interesting to see comparisons among the different types of linguistic metaphor expressions (i.e., idioms, similes, metaphors, and metonyms).

Conclusions and Future Research

As has been described throughout this chapter, metaphor is much more than a mere figure of speech reserved for creative language; rather, it is ubiquitous throughout language, cognition, and culture (e.g., Dobrovol'Skij & Piirainen, 2006; Kövecses, 2010; Roberts & Kreuz, 1994) and serves as a foundation to human conceptual knowledge (e.g., Fauconnier & Turner, 2008; Keil, 1986; Lakoff & Johnson, 1980). Comprehension of linguistic metaphor expressions (including idioms, similes, metonyms, and metaphors) begins as early as 3 years and continues to develop throughout adolescence and adulthood (e.g., Nippold, 1984, 1985; Malgady, 1977; Qualls, O'Brien, Blood, & Hammer, 2003). While there are many theories as to how metaphor is

processed (e.g., Gentner & Bowdle, 2001; Gibbs & Matlock, 2008; Giora, 2008; Kintsch, 2008), and many variables shown to affect metaphor comprehension, there are some consistent underlying factors shown necessary for metaphor comprehension. The most agreed upon variables in the existing literature, aside from the developmental age progression, are semantic knowledge (e.g., Cacciari & Levorato, 1998), ability to make inferences (Cain et al., 2009), analogy (Gentner & Bowdle, 2001), and reading comprehension skills (Cain et al., 2009; Qualls et al., 2003, 2004).

In addition to defining further the specific factors related to the comprehension of various linguistic expressions of conceptual metaphor for typically developing children and adolescents, a huge opportunity exists for research with adult struggling readers. According to the 2013 Program for the International Assessment of Adult Competencies (PIAAC; OECD), one in six U.S. adults (16 years and older) have low-literacy skills; approximately 36 million read at elementary grade levels. These adults' limited literacy skills make it difficult for them to perform basic reading tasks, such as reading a newspaper article, filling out simple informational documents, and understanding a prescription label. Several studies have shown that adult struggling readers' oral language skills (e.g., receptive and expressive vocabulary skills) are below what is expected for their age and, instead, align more closely with those of children reading at similar levels (Gold & Johnson, 1982; Greenberg, Ehri, & Perin, 1997; Hall, Greenberg, Laures-Gore, & Pae, 2014; Sticht, 1982). Only two studies were found that examined figurative language skills of adult struggling readers (Bryne, Crowe, Hale, Meek, & Epps, 1996; Whyte, 1983).

Whyte (1983) looked at metaphor interpretation and reading ability in two groups of men. One group ($n = 20$) consisted of men who read below the eighth-grade level, and the other group

($n = 20$) consisted of men who read above the twelfth-grade level. The participants in this group identified and then explained metaphors in sentences that were spoken to them. No group differences were found for understanding the metaphors; however, there was a significant difference in the way that the groups explained the metaphors. The lower-level readers used more concrete referents to describe the metaphors, while the higher-level readers used more abstract referents to explain the metaphors. Additionally, there were nonverbal IQ differences found between the groups.

The other study (Bryne, et al., 1996) investigated the metalinguistic and pragmatic abilities of participants in an adult literacy program designed to help students increase their workplace competencies, as well as their literacy skills. The initial 97 participants were between 16 and 52 years ($M = 30$ years), were mostly females ($N = 92$), and read between 0.1 - 10.9 grades ($M = 5.3$) as measured by either the Wide Range Reading Achievement Test or the Test of Adult Basic Education. These participants scored higher on receptive subtests (synonyms and the figurative usage) of the Test of Word Knowledge (TOWK; Wiig & Secord, 1991) compared to the expressive subtests (word definitions and multiple contexts). It was noted that these participants were relatively strong in figurative language, but they had much difficulty with multiple meanings of words. Synonym subtest score was a predictor of reading level. In follow-up assessments approximately eight months later, 22 participants completed the same battery of tests. Scores on each of the subtests of the TOWK increased as reading level increased; however, only the synonym subtest reached significance, a result the authors contributed to such a small sample size.

While very limited in scopes and sample sizes, these existing studies suggest that adult struggling readers may have difficulties understanding figurative language. Future research on

metaphor comprehension should examine the extent to which adult struggling readers' limited literacy skills might impact their ability to interpret figurative meanings of linguistic expressions of metaphor (i.e., idioms, similes, metaphors, and metonyms). Research in this area would greatly benefit adult literacy where there is a dearth of information specific to adult struggling readers.

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IDIOM COMPREHENSION SKILLS OF ADULT STRUGGLING READERS

Idioms such as *break a leg* and *piece of cake* make up a significant portion of everyday written and oral communication (Cooper, 1998; Van Lancker-Sidtis & Rallon; 2004). Such phrases vary in their ease of comprehension (Nippold & Martin, 1983), and although children as young as 5 years are able to comprehend the figurative meanings of some idiomatic expressions (Levorato & Cacciari, 1992; Nippold, 1985), adults sometimes struggle with comprehending idioms (Nippold & Rudzinski, 1993). Several studies with children and adolescents (ages 7 to 17) have found a relationship between reading comprehension and idiom comprehension (Cain, Oakhill, & Lemmon, 2004; Cain & Towse, 2008; Levorato, Nesi, & Cacciari, 2004; Nesi, Levorato, Roch, & Cacciari, 2006; Nippold & Martin, 1989; Nippold, Moran, & Schwarz, 2001; Qualls, O'Brien, Blood, & Hammer, 2003). As of yet, however, idiom comprehension studies have not included adult struggling readers—approximately one in six U.S. adults (Organisation for Economic Co-operation and Development, 2013; OECD). The purpose of this study was to examine adult struggling readers' familiarity with and comprehension of idioms in isolation and within a story context, and to examine relationships between idiom comprehension and reading comprehension.

Idioms are figurative phrases that, like other types of figurative language, do not take on their literal meaning. These types of phrases provide connotative rather than denotative meaning (Palmer & Brooks, 2004); their meanings must be inferred based on the context in which they are found. There are several types of figurative language (e.g., metaphors, similes, idioms, and proverbs), and they are ubiquitous in everyday language and thought. In one study, for example, Van Lancker-Sidtis and Rallon (2004) found that idioms and proverbs accounted for 25% of a screenplay; idioms occurred 7% of the time. Others have found that idioms, the focus of this

study, occur in everyday speech between three and four times per minute—approximately 6,860

per week and 356,720 per year, assuming that people speak about four hours per day (Cooper,

1998; Pollio, Barlow, Fine, & Pollio, 1977, as cited in Cooper 1998).

Often, idiomatic phrases have two possible interpretations (i.e., the literal one or the

figurative one), and the correct interpretation is dependent upon the context in which they are

found. Idioms are classified as either transparent or opaque. The transparency (or semantic

analyzability) of an idiom refers to the degree in which the literal meaning of an idiom relates to

its figurative meaning. *To make up one's mind* (to make a decision) and *to make a mountain out

of a molehill* (to make something more important than it really is) are examples of transparent

idioms. On the other hand, the figurative meanings of idioms such as *to spill the beans* (to tell a

secret), *to beat around the bush* (to avoid a question)*, and *to burn the midnight oil* (to stay up

late) are not related to the literal meanings of the phrases. These types of idioms are referred to

as opaque idioms.

The Development of Idiom Comprehension

As with many skills, idiom comprehension increases with age. Several studies have

shown that children as young as 5 years are able to comprehend figurative meanings of some

idiomatic expressions (e.g., Levorato & Cacciari, 1992; Nippold, 1985). Idiom comprehension

continues to develop throughout adolescence and into adulthood (Nippold & Duthie, 2003;

Conner et al., 2011), with a steep increase between the ages of 11 and 16 (Nippold, 1998).

Idioms differ in their ease of comprehension (Nippold & Martin, 1983), however, and even

adults struggle with comprehending some idioms (Nippold & Rudzinski, 1993).

Two theories have been offered to explain the development of idiom comprehension. The

first is the Language Experience Hypothesis, which posits that figurative language competence,

in general, develops as a result of meaningful exposure to figurative expressions (Nippold & Rudzinski, 1993). This theory has been used primarily to explain the relationship of idiom familiarity and idiom comprehension. In terms of age, this theory presumes that a person will have more opportunities to be exposed to idiomatic phrases, which may in turn account for the increase in idiom familiarity with age. Such exposure may occur in printed texts, as well as through conversation.

The Global Elaboration Model (GEM), proposed by Levorato and Cacciari (1995), is a developmental model of figurative language competence that proposes children's ability to understand figurative language is dependent on the same skills that aid in general cognitive and language development, such as reading comprehension and nonverbal measures of mental capacity (Nesi, Levorato, Roch, & Cacciari, 2006). According to this model, comprehending figurative phrases requires the ability to go beyond local, piece-by-piece understanding of the discourse. Rather, it is necessary to comprehend several portions of a text—whether written or oral discourse—and make inferences about the figurative meaning of the phrase in question. This theory may account for idiom comprehension difficulties of poor reading comprehenders.

Factors Related to Idiom Comprehension

Familiarity. Familiarity is the measure of how frequently a person has heard or read an expression (Nippold et al., 2001). Several studies have provided evidence in support of increased familiarity with age (e.g., Chan & Marinellie, 2008; Gibbs, 1987; Levorato & Cacciari, 1992; Nippold, Moran, & Schwarz, 2001; Nippold & Rudzinski, 1993; Nippold & Taylor, 1995), especially between the ages of 11 and 16 (Chan & Marinellie, 2008). Although there is an overall increase in familiarity with age, there is also variability within age groups. For example, Nippold and Rudzinski (1993) examined within-group differences of familiarity ratings for idioms with a

group of twelfth-grade adolescents and a group of undergraduate adults. Both groups rated 100 idioms on a 5-point scale based on how frequently they heard each idiom. As in other studies that examined age and familiarity of idioms, between-group comparisons showed that the adolescent group rated the list of idioms less familiar overall than the adult group; however, there was much variation in the familiarity ratings within both groups.

Familiarity ratings have been shown to correspond to ease of comprehension. For example, two studies (Nippold & Rudzinski, 1993; Nippold & Taylor, 1995) examined the relationship between familiarity ratings and idiom comprehension for students in Grades 5, 8, and 11. In both studies, participants were presented with 24 idioms that varied in their familiarity rankings (8 high-familiarity, 8 moderate-familiarity, 8 low-familiarity) and asked to provide a definition for each idiom. Overall, high-familiarity idioms were the easiest to define, followed by moderate-familiarity, then low-familiarity. In another study, Nippold et al. (2001) examined the relationship between participants' own familiarity ratings and their idiom comprehension skills for a group of 12-year-olds from New Zealand. The idioms with the most correct responses were the ones rated as most familiar by the group of students, which suggests that one's idiom comprehension is related to one's familiarity of the idiom.

Context. Linguistic context (i.e., the words, phrases, and sentences that accompany the idiom) is an important factor in idiom comprehension, especially for unfamiliar idioms or idioms that have both literal and figurative meanings (e.g., *spill the beans*). In studies with typically developing children and adolescents, providing context (usually a short story) has been shown to facilitate comprehension of idioms. In one study, children between 3.5 to 6.5 years were able to figure out the meanings of some idioms when they were presented within a short-story context (Abkarian, 1992).

Cain, Towse, and Knight (2009) looked at the differences in idiom comprehension between a group of 8-year-olds and a group of 10-year-olds. This study included "idiom-like" phrases that were used to ensure students were not familiar with any of the idioms in the study. Both groups were helped by story context, which suggested that even the younger children were able to use the provided context to understand the meanings of novel idioms.

Nippold and Martin (1989) also tested the hypothesis that idioms presented within story context are easier to interpret in than isolation for adolescents (ages 14 to 17 years). Overall, idioms in the story context were easier to interpret than in isolation for all four age groups. Qualls, O'Brien, Blood, and Hammer (2003) explored the role of context, familiarity, and academic literacy in the comprehension of idioms for a group of adolescents with a mean age of 13. Idioms presented in a story context had the highest comprehension overall, regardless of familiarity. As context decreased, however, familiarity of the idiom became more important in comprehension. More high-familiarity idioms than moderate- and low-familiarity idioms were understood correctly in the isolation context.

One study shows that context may actually harm some children's ability to comprehend idioms. Qualls, Lantz, Pietrzyk, Blood, and Hammer (2004) compared idiom comprehension for a group of adolescents with a language-based learning disability with their typically developing peers. Overall, the group with a language-based learning disability had lower idiom comprehension scores than peers matched on either age, gender, or reading ability. Additionally, the group with a language-based learning disability performed better on the task when there was less context provided.

Reading comprehension. Researchers have examined reading comprehension skills in relation to idiom comprehension ability. Nippold and Martin (1989) found evidence with16-year-

olds. Students' scores on the idiom comprehension task correlated with their scores on standardized literacy skills tests. Several other studies have shown that reading comprehension relates to idiom comprehension; however, this relationship is not a simple one, and is impacted by factors such as familiarity and context.

Nippold et al. (2001) studied the differences between good and poor idiom comprehenders. As already mentioned, idioms in a story context were easier to comprehend for all participants. However, when reading comprehension was also considered, the good idiom comprehenders reported being more familiar with the idioms, and they had higher reading comprehension scores. Even when idioms were rated as unfamiliar, the good idiom comprehenders were able to choose the correct meaning 94% of the time. The poor idiom comprehenders, on the other hand, reported fewer familiar idioms and had lower reading comprehension scores than the good idiom comprehenders. Additionally, the poor idiom comprehenders had difficulty understanding idioms they ranked as highly familiar. They scored 50% correct on the highly familiar idioms.

In a study with adolescents, Qualls et al. (2003) explored the role of context, familiarity, and reading comprehension in the comprehension of idioms. As previously mentioned, idioms presented in a story context had the highest comprehension overall, regardless of familiarity or reading comprehension abilities. However, students with higher reading comprehension abilities performed better than students with lower reading comprehension abilities on the story task.

Two studies found a relationship between children's reading comprehension skills and their ability to understand unfamiliar idioms. One study (Cain, Oakhill, & Lemmon, 2004) examined the relationship in a group of 9-year-olds. As a group, the children understood more idioms presented within the story context than in the isolation context. When the group was

divided into good versus poor reading comprehenders, however, the children with poor reading comprehension skills did worse than children with good reading comprehension skills on the idioms presented within the story context.

In the second study (Cain & Towse, 2008), word-reading skills were controlled. All students had age-appropriate reading skills. Half had age-appropriate reading comprehension skills; the other half had poor reading comprehension skills. Similar to Cain et al. (2004), all students completed two idiom comprehension tasks (isolation and story). Children with lower reading comprehension skills in this study were not able to use the story context to infer the meaning of the idioms.

Nesi et al. (2006) found that reading comprehension skills of second and fourth grade students were related to their ability to complete idiomatic phrases found in a story context. Students were read aloud short stories containing an incomplete idiomatic phrase and asked to complete that phrase. In both grades, the students with good reading comprehension skills completed more idiomatic phrases than the group of poor comprehenders.

Levorato et al. (2004) studied the relationship between text comprehension skills and idiom comprehension in second and fourth grade Italian children. They used familiar idioms which were embedded into short stories with multiple-choice responses. Good comprehenders outperformed the medium comprehenders, and the medium comprehenders outperformed the poor comprehenders. The poor comprehenders were retested eight months later. The children whose reading comprehension improved performed better on the follow-up idiom tests than the ones whose reading comprehension did not improve.

Figurative Language Skills of Adult Struggling Readers

Although idiom familiarity and comprehension have been studied with a variety of groups, these relationships have not been studied with adult struggling readers. According to the 2013 Program for the International Assessment of Adult Competencies (PIAAC; OECD), one in six U.S. adults (16 years and older) have low-literacy skills; approximately 36 million read at elementary grade levels. These adults' limited literacy skills make it difficult for them to perform basic reading tasks, such as reading a newspaper article, filling out simple informational documents, and understanding a prescription label. Several studies with adult struggling readers suggest that their oral language skills are below what is expected for their age and instead align more closely with their reading age level (e.g., Gold & Johnson, 1982; Greenberg, Ehri, & Perin, 1997; Hall, Greenberg, Laures-Gore, & Pae, 2014; Sticht, 1982). Furthermore, two studies (Bryne, Crowe, Hale, Meek, & Epps, 1996; Whyte, 1983) provide some evidence that adults' limited reading skills may impact their performance on figurative language tasks.

In one of the studies, Whyte (1983) examined metaphor comprehension in a group of men with word-reading skills below the eigth-grade level and a group of men with word-reading skills above the twelfth-grade level (as measured by the Burt Word Recognition Test, 1976). Metaphors directly compare two things that are not usually considered to be similar. *Time is money* is an example of one common metaphor that is often used to express the value of one's time. In this study, participants listened as examiners read aloud sentences containing metaphors. The participants were asked to first identify the metaphor in each sentence and then to explain each metaphor. The groups did not differ in their ability to identify the metaphors; however, the groups significantly differed in the quality of their explanations of the metaphors. The lower-

level readers' metaphor descriptions included more concrete referents than the higher-level readers; the higher-level readers tended to describe the metaphors using abstract referents.

In another study with adults reading between 0.1-10.9 grades ($M = 5.3$) as measured by either the Wide Range Reading Achievement Test or the Test of Adult Basic Education, Bryne, et al. (1996) found that the participants were relatively strong in figurative language skills compared to the other language skills (e.g., providing definitions and synonyms) measured by the Test of Word Knowledge (Wiig & Secord, 1991). In the figurative language task, participants were given a multiple-choice task in which they chose correct interpretations for figurative phrases for which they were familiar. In follow-up assessments with 22 of the original participants approximately eight months later, scores on the figurative language test increased as reading levels increased; however, results did not reach significance—a result the authors attributed to such a small sample size.

Overview of this Study

Findings from the existing research provide evidence for the relationship between reading comprehension and idiom comprehension in children, adolescents, and typically developing adults. Participants with higher reading comprehension were familiar with more idioms, could explain more idioms correctly in isolation, and were better at using context to interpret unknown idioms. Idiom comprehension has yet to be studied in adult struggling readers; therefore, it is unclear how limited literacy skills may affect adults' familiarity with and understanding of idioms. This study served to fill this gap by addressing the following four research questions:

1. How well do adult struggling readers understand idioms? I hypothesized that adult struggling readers would comprehend significantly fewer idioms on both the isolation

and story contexts than expected compared to what has been reported for typically developing adolescents. In fact, they may perform close to chance levels.

2. How familiar are idioms to adult struggling readers? I hypothesized that (a) the adult struggling readers' idiom familiarity rankings would differ from the published familiarity levels as ranked by twelfth graders (Nippold & Rudzinski, 1993) and (b) the adult struggling readers would be less familiar with the idioms than the twelfth graders.

3. What is the effect of context and familiarity on adult struggling readers' idiom comprehension? I hypothesized that the adult struggling readers would perform significantly better in the story context than the isolation context and that they would comprehend significantly more high-familiarity idioms than low-familiarity in both contexts. I also hypothesized that there would be an interaction between context and familiarity, where supportive context would be more important for facilitating comprehension of low-familiarity idioms.

4. To what extent are the reading comprehension skills of adult struggling readers predictive of their comprehension of idioms in isolation and within a story? I hypothesized that adult struggling readers' reading comprehension skills would account for unique variance in idiom comprehension in both isolation and story contexts over and above their idiom familiarity and word-reading skills.

Methodology

Participants

Sixty native English-speaking adults enrolled in an adult literacy program located in a large southeastern city in the United States participated in this study. All students (18 years and older) who scored at or above the fourth grade reading level according to the General

Assessment of Instructional Needs ($M = 6.52$, $SD = 2.20$, range 4.0-11.8) were included. Fifty-eight participants (97%) were African American; two were Caucasian. There were 49 females and 11 males with a mean age of 40.99 (range = 18.11 – 68.04). The participants completed an average of 10.5 years of school (range 6.0 - 12.0).

Materials

  Idioms. The Idiom Familiarity and Idiom Comprehension tasks created by Nippold and colleagues were used in this study (1995, 2001). Instructions and items used in the Nippold et al. (2001) study were used in this study. The same 12 idioms are used in both tasks. These idioms represent three levels of familiarity as rated by twelfth graders from the Nippold and Rudzinski (1993) study (see Table 1). All instructions and test items were read aloud while participants read along silently.

Table 1. Familiarity Levels of Idioms Used in the Idiom Familiarity and Idiom Comprehension Tasks

High-familiarity idioms	Moderate-familiarity idioms	Low-familiarity idioms
Go around in circles	Go into one's shell	Paper over the cracks
Put one's foot down	Strike the right note	Hoe one's own row
Breathe down someone's neck	Keep up one's end	Talk through one's hat
Skate on thin ice	Cross swords with someone	
	Blow the cobwebs away	

Note. Familiarity levels were established by Nippold and Rudzinski (1993), in which twelfth graders ($N = 20$) rated how often they heard or read each idiom on a 5-point Likert scale.

  Idiom familiarity. For this task, participants tell how frequently they heard or read each of the 12 idioms presented using a 5-point Likert scale. Participants rate three practice items before rating the 12 idioms. Below is an example item from the Idiom Familiarity Task:

    I have heard or read this idiom: *pull someone's leg*

    1 = Many times 2 = Several times 3 = A few times 4 = Once 5 = Never

Idiom comprehension. This task assessed comprehension of idioms in two contexts: isolation and within a short story. In the isolation context, participants chose what they thought was the correct meaning of each idiom from four plausible options (see Table 2 for an example item). In the story context, each idiom was presented within a short story that was two or three sentences long and written at the third-grade level. After each story was read, the participants chose what they thought was the correct meaning of each idiom from four plausible options (see Table 2 for an example item). Both versions of the task started with one practice item for which participants received feedback. The same answer choices are given for each idiom in both versions of this task.

Table 2. Example Items from the Idiom Isolation Context and the Idiom Story Context

Isolation context	Story context
get off the hook What does it mean to get off the hook? A. to do many different things B. to think carefully about a problem C. to help other people when needed D. to get out of a situation	Amanda was looking forward to the party on Saturday night. She remembered, though, that she had agreed to babysit the neighbor's child that same night. Amanda didn't want to miss the party. She asked her father, "How can I get off the hook"? What does it mean to *get off the hook*? A. to do many different things B. to think carefully about a problem C. to help other people when needed D. to get out of a situation

Reading skills. Participants' reading skills were measured by the Letter-Word Identification (WJ-LWID) and the Passage Comprehension (WJ-PC) subtests of the Woodcock-Johnson Psycho-Educational Battery III (WJ-III; Woodcock, McGrew, & Mather, 2001). The WJ-III has been standardized for ages 2 to 90. Reliability is .91 for ages 5 to 19 years and .94 for

adults 20 years and over. The WJ-LWID assesses word reading skills. Participants read aloud a list of real words presented in order of increasing difficulty. Test administration followed the assessment manual's guidelines. Participants began with item 33. Testing was discontinued when the last six items in a set were read incorrectly.

The WJ-PC assesses reading comprehension. Participants read sentences silently and then provided the missing word aloud to the examiner. Test administration followed the assessment manual's guidelines. On this task, participants did not receive any assistance with test items, including correct pronunciation of words. Participants began with item 14 (the recommended item for reading at 3.0). Testing was discontinued when the last six items in a set were answered incorrectly. Total correct raw scores were used in the analyses.

Procedures

All students with a minimum reading score of 4.0 on the General Assessment of Instructional Need during the months of August through October 2013 were tested individually in a designated testing office free of distractions. Unlike studies by Nippold and colleagues (e.g., Nippold, et al., 2001; Nippold and Rudzinski, 1993), all instructions and test items for the idiom tasks were read aloud while participants read along silently. Each participant completed all tests within one session that lasted between 45 and 60 minutes. Tests were administered in the following order: (a) Idiom Familiarity Task, (b) WJ-LWID, (c) Idiom Comprehension Task in one context (isolation or story), (d) WJ-PC, (e) Idiom Comprehension Task in the other context (isolation or story). Context order was counterbalanced, with half of the participants receiving the isolation context first and half receiving the story context first. The order of the 12 idioms within the Idiom Familiarity task and both versions of the Idiom Comprehension Task were presented in three different random orders (see Appendix B).

Data Analysis

I used SPSS 19 to analyze students' raw scores from the WJ-LWID, WJ-PC, idiom familiarity, and idiom comprehension tasks. Preliminary analyses included screening data for homogeneity of variance and normality. Effects of the counterbalanced context order (idioms in isolation first versus idioms within a story first) were examined as well. Details for analyzing each research question follow.

For research question 1 (How well do adult struggling readers understand idioms?), participants' raw comprehension scores from both the isolation and story contexts of the idiom comprehension task were examined. A one-sample t-test was conducted for each context in order to determine the likelihood that the adult struggling readers were able to select the correct responses better than chance (25%).

For research question 2 (How familiar are idioms to adult struggling readers?), participants' familiarity ratings of the idioms were examined. A one-way repeated analysis of variance (ANOVA) was conducted to detect differences in participants' familiarity ratings among the three levels of familiarity as rated by twelfth graders from the Nippold and Rudzinski (1993) study.

For research question 3 (What is the effect of context and familiarity on adult struggling readers' idiom comprehension?), a 2 (isolation and story contexts) x 3 (high, moderate, low familiarity) repeated measures ANOVA was conducted. Both context and idiom familiarity were repeated measure independent variables. Idiom familiarity was based on the ratings of the twelfth graders in Nippold and Rudzinski (1993). Because there were unequal numbers of idioms in each of the three familiarity levels, I converted participants' raw scores to percentage correct for each level of familiarity.

For research question 4 (To what extent are the reading comprehension skills of adult struggling readers predictive of their comprehension of idioms in isolation and within a story?), I conducted two hierarchical linear regressions (one for each context). Participants' raw comprehension scores in each context served as the dependent variables. For both models, three independent variables were entered in the following order: idiom familiarity, word reading, and reading comprehension. For these analyses, idiom familiarity was measured by the participants' own ratings of the 12 idioms.

Results

Preliminary Analyses

Table 3 provides descriptive statistics of participants' scores on all reading and idiom tests. Participants' mean word reading grade equivalent score was 5.39. Their mean reading comprehension grade equivalent score was 3.66. Table 3 also includes skewness and kurtosis statistics for raw scores on each of the reading and idiom tests. All scores fell within normal range. Frequency distributions of the participants' raw scores for each test are shown in Figure 1.

Preliminary analyses also revealed that there were no effects of counterbalanced context order on raw comprehension scores in isolation context ($t(58) = 2.21$, $p = .84$) or story context ($t(58) = .87$, $p = .39$). Idiom order also did not matter for familiarity ratings $F(2,57) = .910$, $p = .408$, raw comprehension scores in isolation $F(2,57) = .832$, $p = .440$, and in story context $F(2,57) = .071$, $p = .931$.

Table 3. Means, Standard Deviations, and Ranges for All Tasks

Assessment	Grade equivalent				Raw scores					
	Mean	Min	Max		Mean	*SD*	Min	Max	Skewness	Kurtosis
WJ Word ID	5.39	2.04	18.0		52.75	9.01	35	74	.361	-.111
WJ Passage Comp.	3.66	1.08	13.0		26.83	4.46	18	37	.187	-.383
Idiom Familiarity[a]					39.40	8.08	15	59	-.468	.964
Idiom Comp. Isolation[b]					7.40	2.44	1	12	-.707	.346
Idiom Comp. Story[b]					7.52	2.51	1	12	-.355	-.237

[a] Familiarity scores based on rankings where 1 = highest familiarity and 5 = lowest familiarity. Lower scores indicate higher familiarity with the idioms. [b] Maximum correct score for Idiom Isolation and Idiom Story tasks is 12.
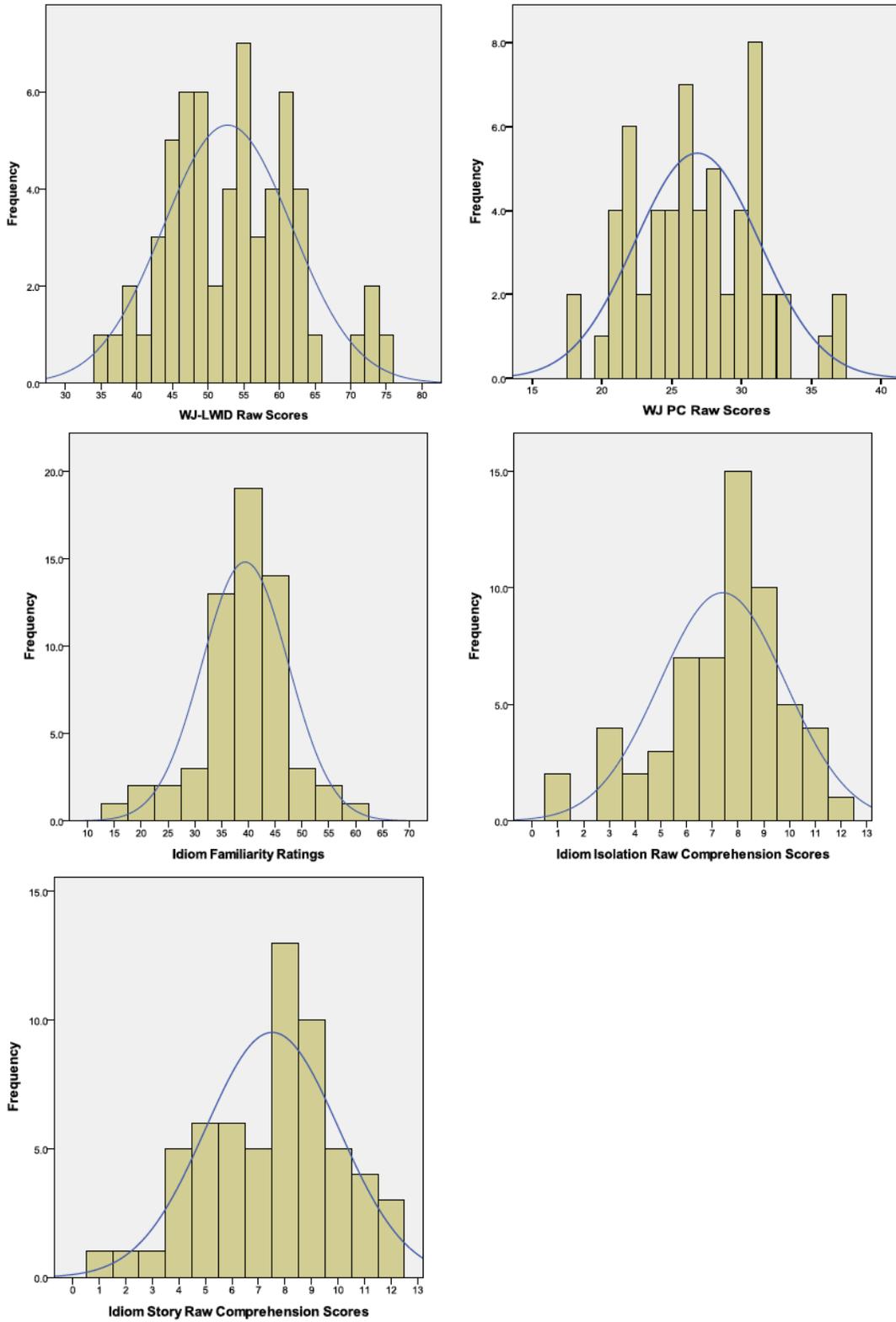
Figure 1. Frequency distributions of raw scores for all tests.

Idiom Comprehension

The first set of analyses examined adult struggling readers' comprehension of idioms presented in isolation and within a story. As Table 3 shows, the mean score for correct responses for the isolation context was 7.40 (*SD* = 2.44) and 7.52 (*SD* = 2.5l) for the story context. Thus, the adults understood, on average, 62% of the idioms in both contexts. A one-sample *t*-test indicated they were able to select the correct referent for the idioms significantly better than chance (.25) in the isolation ($t(59) = 13.95, p = .000$) and story ($t(59) = 13.92, p = .000$) contexts. Table 4 displays the percentage of the participants who understood each idiom. The percentage of adults' understanding individual idioms ranged from a high of 87% to a low of 33% in isolation context and a high of 90% to a low of 35% in story context.

Table 4. Percentage of adults' comprehension of each idiom.

Idiom	Isolation Percentage (N)	Story Percentage (N)
Go into one's shell	86.7% (52)	90.0% (54)
Breathe down one's neck	76.7% (46)	88.3% (53)
Hold up one's end	75.0% (45)	60.0% (36)
Cross swords with someone	71.7% (43)	61.7% (37)
Paper over the cracks	66.7% (40)	45.0% (27)
Go around in circles	65.0% (39)	78.3% (47)
Talk through one's hat	65.0% (39)	65.0% (39)
Hoe one's own row	53.3% (32)	35.0% (21)
Skate on thin ice	51.7% (31)	61.7% (37)
Put one's foot down	48.3% (29)	51.7% (31)
Blow away the cobwebs	46.7% (28)	45.0% (27)
Strike the right note	33.3% (20)	76.7% (46)

Note. Idioms are listed in order of highest to lowest accuracy based on participants' performance on the isolation context.

Idiom Familiarity

The second set of analyses examined adult struggling readers' idiom familiarity. Familiarity ratings ranged from 1 (*I have heard/read this idiom many times*) to 5 (*I have never heard/read this idiom*); thus, lower scores equate to higher familiarity. Table 5 shows the mean familiarity scores for each of the idioms for the adult struggling readers who participated in this study, as well as the twelfth graders from a previous study (Nippold & Rudzinski, 1993). The adults' familiarity rankings were similar to the twelfth graders. They were most familiar with the high-familiarity idioms, followed by the moderate-familiarity idioms, then the low-familiarity idioms.

A one-way repeated measures ANOVA indicated significant differences in the familiarity levels as rated by the adults in this study ($F(2,118) = 227.21$, $p = .000$). Paired t tests showed significant differences between high and moderate levels ($t(59) = -13.49$, $p = .000$), high and low ($t(59) = -19.14$, $p = .000$), and moderate and low ($t(59) = -9.02$, $p = .000$). With the exception of one idiom (*talk through one's hat*), the adults in this study rated each idiom as less familiar than the twelfth graders in the Nippold and Rudzinski (1993) study—especially with the high-familiarity and moderate-familiarity idioms.

Table 5. Idiom Familiarity Ratings of Adult Struggling Readers and Twelfth Graders

	Adult struggling readers[a] M (SD)	Twelfth graders[b] M (SD)
High-familiarity idioms		
Skate on thin ice	1.83 (1.14)	1.30 (0.57)
Breathe down someone's neck	1.95 (1.24)	1.50 (0.83)
Put one's foot down	2.10 (1.31)	1.20 (0.52)
Go around in circles	2.25 (1.35)	1.45 (0.60)
High-familiarity average	2.03 (0.10)	1.33 (0.33)
Moderate-familiarity idioms		
Hold up one's end	2.87 (1.43)	2.75 (1.37)
Strike the right note	3.25 (1.58)	2.95 (1.23)
Cross swords with someone	3.80 (1.46)	3.10 (1.48)
Go into one's shell	3.87 (1.37)	3.05 (1.19)
Blow away the cobwebs	3.87 (1.30)	2.80 (1.40)
Moderate-familiarity average	3.53 (0.12)	2.81 (0.20)
Low-familiarity idioms		
Paper over the cracks	4.47 (1.08)	4.25 (0.79)
Hoe one's own row	4.55 (1.08)	4.35 (1.04)
Talk through one's hat	4.60 (0.91)	4.70 (0.57)
Low-familiarity average	4.54 (0.10)	4.29 (0.24)
Total familiarity average	3.28 (0.67)	2.60 (0.91)

Note. Familiarity is defined as the frequency of how often one has heard or read an idiom. Familiarity ratings were: 1 = many times; 2 = several times; 3 = a few times; 4 = once; 5 = never. [a] N = 60. [b] N = 20. Familiarity ratings for twelfth graders as reported in Nippold and Rudzinski (1993).

Effects of Context and Familiarity on Idiom Comprehension

The third set of analyses examined the effects of context and familiarity on adult struggling readers' idiom comprehension. Idioms were classified as high-, moderate-, or low-familiarity based on a priori categories listed in Table 5. Because there were unequal numbers of idioms in the three levels of familiarity, I converted comprehension scores to percentages. A 2 (Isolation, Story) x 3 (High, Moderate, Low) repeated measures ANOVA was conducted. The ANOVA found a significant main effect for Familiarity, $F(2,118) = 5.48$, $p = .005$, but not for Context, $F(1,159) = .001$, $p = .970$. Additionally, there was an interaction of Context by

Familiarity, $F(2,118) = 10.996$, $p = .000$. Familiarity did not affect idioms presented in isolation. In contrast, the story context helped comprehension of familiar idioms, but impaired comprehension of unfamiliar idioms. Paired t tests showed significantly higher comprehension scores for the high-familiar idioms in the story context than in the isolation context ($t(59) = -2.94$, $p = .005$) and higher comprehension scores for the low-familiar idioms in isolation context than story context ($t(59) = 2.89$, $p = .006$). No significant differences were found for moderate-familiar idioms ($t(59) = -1.351$, $p = .182$). Figure 1 illustrates this interaction.
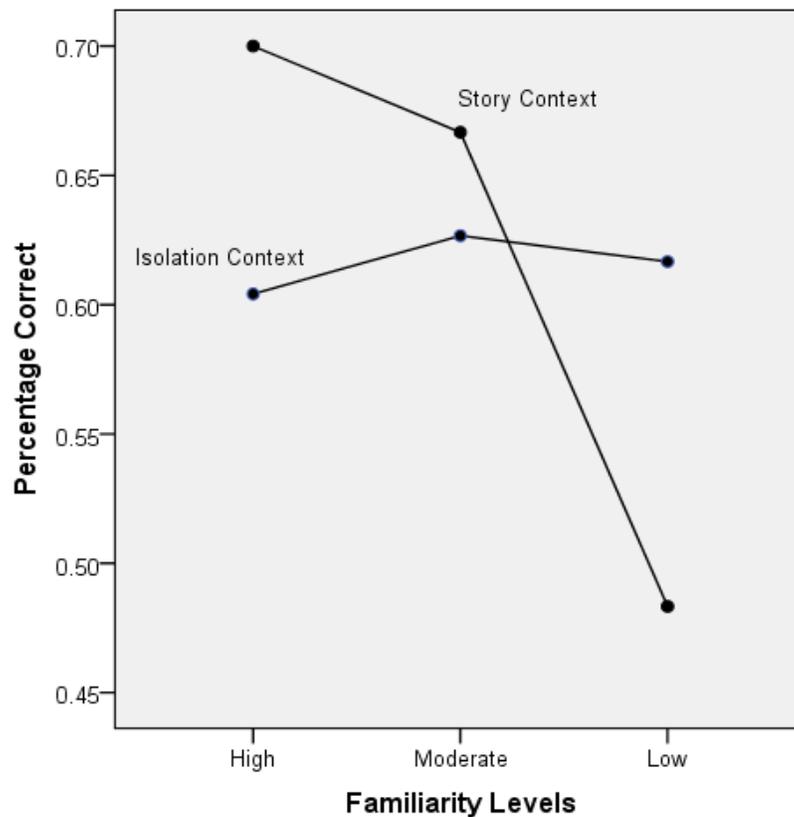

Figure 2. Interaction of context by familiarity on idiom comprehension for adult struggling readers (N = 60).

Relationship of Reading Skills and Idiom Comprehension

      The fourth set of analyses examined the relationship of adult struggling readers' word reading and reading comprehension skills to their idiom comprehension. Table 6 shows correlations for age, education level, and all assessments. Word reading correlated weakly with idiom familiarity, as well as with idiom comprehension scores in both isolation and story contexts. Reading comprehension correlated weakly with idiom comprehension in both isolation and story contexts, but not with idiom familiarity. Age and education level did not correlate with any of the idiom tasks.

Table 6. Correlations of All Measured Variables

	1	2	3	4	5	6	7
1. Age	1.00						
2. Education Level	.008						
3. WJ Word ID	-.059	-.115					
4. WJ Passage Comp.	.058	-.221	.652**				
5. Idiom Familiarity	-.254	.026	-.270*	-.206			
6. Idiom Comprehension Isolation	.174	-.161	.382**	.401**	-.063		
7. Idiom Comprehension Story	.210	-.239	.270*	.428**	-.314*	.680**	1.00

* Correlation is significant at the .05 level (2-tailed). ** Correlation is significant at the .01 level (2-tailed).

      I conducted two hierarchical linear regression analyses in order to examine the extent to which word reading and reading comprehension explained idiom comprehension skills of adult struggling readers over and beyond idiom familiarity (see Table 7). The dependent variable in each model was the participants' raw comprehension scores for each context and the independent variables were (a) idiom familiarity, (b) word reading, and (c) reading comprehension. In both models, familiarity was entered at step 1, word reading at step 2, and reading comprehension at step 3. For the idioms in the isolation context, only word reading skills (step 2) accounted for a significant proportion of the variance (14.4%). Familiarity (step 1) and reading comprehension (step 3) were not significant. When reading comprehension was added at step 3, the overall

model significantly explained 18.9% of the variance; however, word reading was no longer significant. Investigation of the standardized regression weights (β) for word reading ($\beta = .223$) and reading comprehension ($\beta = .267$) revealed a suppression effect. Both word reading and reading comprehension contribute similarly to the model.

For the idioms in the story context, familiarity (step 1) significantly accounted for 10% of variance, word reading (step 2) was not significant, and reading comprehension (step 3) significantly explained an additional 10.4% of variance. This model significantly explained 24% of the variance in comprehension of idioms in the story context.

Table 7. Hierarchical Regressions Predicting Idiom Comprehension in Isolation and Story Contexts

Step and Predictor	B	SEB	β	R^2	ΔR^2
Isolation Context					
Step 1					
Idiom familiarity	-.019	.040	-.063	.004	.004
Step 2					
Idiom familiarity	.013	.038	.043		
Word reading	.107	.034	.394**	.148**	.144**
Step 3					
Idiom familiarity	.016	.038	.052		
Word reading	.060	.044	.223		
Reading comprehension	.146	.087	.267	.189**	.041
Story Context					
Step 1					
Idiom familiarity	-.098	.039	-.314*	.099*	.099*
Step 2					
Idiom familiarity	-.081	.040	-.260*		
Word reading	.056	.036	.199	.136*	.037
Step 3					
Idiom familiarity	-.077	.038	-.247*		
Word reading	-.021	.044	-.075		
Reading comprehension	.240	.087	.426**	.240***	.104**

*$p < .05$. **$p < .01$. ***$p < .001$.

Discussion

This study examined idiom familiarity and comprehension of adult struggling readers in relation to their reading skills. To my knowledge, this is the first study to consider limited literacy skills in relation to adults' familiarity with and comprehension of idioms. Existing research with typically developing children, adolescents, and adults provides much evidence that reading comprehension skills relate to idiom familiarity, as well as to their comprehension of unfamiliar idioms. A growing body of research with adult struggling readers indicates that their oral language skills fall below what is expected for their age and, instead, align more closely with their reading age level (e.g., Gold & Johnson, 1982; Greenberg et al., 1997; Hall et al., 2014; Stitch, 1982). To gain an understanding of how limited literacy skills relate to adults' familiarity with and comprehension of idioms, I investigated four research questions. I used the Idiom Familiarity and Idiom Comprehension tasks developed by Nippold and colleagues (1993, 2001). Doing so allowed me to compare the performance of the adult struggling readers in this study and past research. To control for word reading deficiencies, all items and answer choices from the idiom familiarity and comprehension tasks were read aloud to the participants as they read along silently.

How well do adult struggling readers understand idioms? The adults in this study correctly understood 62% of the idioms presented in both the isolation context and the story context, which was well above chance level. As expected, their performance on the idiom comprehension tasks was more comparable to children reading at similar levels (approximately fifth-grade) than to adults. As a basis for comparison, Cain et al. (2009) reported 85% accuracy for a group of undergraduates ($N = 19$; M age = 19.4 years) and Nippold and Taylor (1995) reported 82% accuracy for a group of 11th-graders ($N = 50$; M age = 17 years). In contrast, three

studies reported accuracy scores for 5th-graders of 55% ($N = 30$; M age = 10.1; Cain, 2008), 58% ($N = 50$; M age = 11.0; Nippold & Taylor, 1995), and 61% ($N = 48$; M age = 10.9; Qualls, 1999). The adult struggling readers' scores on the idiom comprehension tasks were low despite having all items and answer choices read aloud to them as they followed along in their own booklets. These results provide further evidence that adult struggling readers' oral language skills align more closely with their reading age level than what is expected based on their age alone.

How familiar are idioms to adult struggling readers? Familiarity was examined in terms of the adult struggling readers' agreement with the Nippold (1993) familiarity levels based on twelfth graders rankings, as well as the degree to which the adult struggling readers are familiar with the idioms. As a group, the adults in this study ranked the idioms similarly to the twelfth graders from the Nippold (1993) study. All idioms in the high-familiarity group received the highest ratings, moderate-familiarity idioms received lower ratings than ones in the high-familiarity group, and the low-familiarity idioms received the lowest ratings. Therefore, I confirmed that the idiom familiarity levels established by the Nippold (1993) group were similar to those of the adult struggling readers. Exposure to idioms seems robust even for adults with limited literacy skills.

Overall, the adults in this study were less familiar with the idioms than the twelfth graders, however, especially for the high- and moderate-familiarity idioms. The average familiarity rating for the high-familiarity idioms for the twelfth graders was 1.33, indicating the participants almost always chose *I have heard or read this idiom many times*. In contrast, the adult struggling readers' average rating for the high-familiarity idioms was 2.30, which corresponds to *I have heard or read this idiom several times*. The twelfth graders rated the moderate-familiarity idioms 2.81 (*I have heard or read this idiom several times*); the adults in

this study rated them 3.53 (*I have heard or read this idiom a few times*). For the low-familiarity idioms, both groups' average rating corresponded with *I have heard or read this idiom once* (4.29 =twelfth graders; 4.45 = adult struggling readers).

What is the effect of context and familiarity on adult struggling readers' idiom comprehension? Based on previous research with typically developing children and adolescents (e.g., Nippold & Martin, 1989; Nippold et al., 2001; Qualls et al., 2003), I hypothesized that adult struggling readers would comprehend significantly more idioms presented within the story context than idioms presented in isolation. I also hypothesized that higher-familiar idioms would be easier for them to comprehend than lower-familiar idioms in both contexts. Results from this study did not support either hypothesis, however. Both familiarity and context affected idiom comprehension, but in unexpected ways.

As previously mentioned, participants in this study understood 62% of the idioms in both the isolation and the story contexts. These results differed from those of studies with typically developing children and adolescents. In those studies, students scored better in the story context than in the isolation context (Cain et al., 2009; Nippold & Martin, 1989; Qualls et al., 2003).

The effect of familiarity depended on the context. Idiom familiarity as measured by the levels set by Nippold and Rudzinski (1993) did not impact participants' comprehension of idioms in isolation. Additionally, regression analyses confirmed that the adult struggling readers' own familiarity ratings did not account for any variance in their comprehension of idioms in isolation. For the adults in this study, the ability to recognize an idiom did not mean that they correctly understood it. This finding suggests that exposure to idioms is insufficient for understanding their figurative meanings.

The adult struggling readers in this study differed from typically developing children and adolescents from previous studies in this manner as well. In those studies, the children and adolescents had higher comprehension scores for idioms with which they were more familiar (e.g., Nippold & Rudzinski, 1993; Nippold et al., 2001; Nippold & Taylor, 1995). In one study that looked at the interactive effects of context and familiarity with eighth graders (Qualls et al., 2003), students understood more idioms presented within the story context than the isolation context, regardless of familiarity levels. Familiarity became important in the isolation context. Students comprehended more high-familiarity idioms in isolation than they comprehended the moderate- or low-familiarity idioms in isolation. The interaction of context and familiarity was different for the adult struggling readers in this study as well.

High-familiarity idioms presented within the story context were easier to comprehend than in isolation, which indicates that the adult struggling readers were able to make use of the additional information to choose the correct interpretation of idioms for which they were already familiar. This was not the case for the low-familiarity idioms, however. Comprehension of low-familiarity idioms was significantly lower in the story context than in the isolation context. Although stories were written at the third-grade level and they were read aloud by the examiner, the adults in this study were unable to make use of the information provided in the story context to choose the correct meaning. In fact, it appears that the additional information may have confused them.

Qualls et al. (2004) found similar results with a group of eighth grade students diagnosed with language-based learning disorder in that the students with a language-based learning disorder understood significantly fewer idioms presented within the story context than when presented in the verification task—which asked whether or not a given definition was correct

(e.g., "Does *put their heads together* mean to listen to the other person?"). Students were randomly assigned to either the story or the verification context. Mean scores for the moderate- and low-familiarity idioms presented in the story context (moderate = 27; low = 21) were much lower than in the isolation context (moderate = 66; low = 41). As Qualls et al. (2004) explain, students with language-based learning disorder have difficulty processing language because of their impaired vocabulary and comprehension skills such as the ability to integrate information across texts and to make inferences. They were unable to make use of the information provided within the story context to understand unfamiliar idioms.

It is possible that the adult struggling readers in this study had similar language-based impairments. Perhaps they were able to make use of the information in the story context to help ascertain meanings of high-familiar idioms. For the low-familiarity idioms, these adults may have been mislead by the information presented in the story context due to poor text comprehension skills.

To what extent are the reading comprehension skills of adult struggling readers predictive of their comprehension of idioms in isolation and within a story? Reading comprehension accounted for unique variance over and beyond idiom familiarity and word reading skills in both isolation and story contexts. These findings were expected based on previous research with children and adolescents. In those studies, reading comprehension related to students' ability to correctly explain idioms in isolation as well as their ability to use context to interpret unfamiliar idioms (e.g., Cain & Towse, 2008; Nippold et al., 2001).

Altogether, the results from this study indicate that limited literacy skills affect adults' familiarity with and comprehension of idioms. The adult struggling readers understood fewer idioms than expected for their age and they were less familiar with idioms compared to previous

research. Idioms presented within a story context facilitated their understanding of high-familiarity idioms, but hindered their ability to understand unfamiliar idioms. Finally, their reading comprehension skills accounted for unique variance over and beyond idiom familiarity and word reading skills for idioms presented within a story context, but not for idioms presented in isolation.

This study contributes to the research on figurative language comprehension by examining adults with limited literacy skills. One strength of this study was that all participants completed the idiom familiarity task and both versions of the idiom comprehension (story and isolation), which allowed for within-group comparisons as well as comparisons to previous research. Another strength was that all items and answer choices were read aloud to the participants, which helped control for word reading deficiencies. However, measures of vocabulary or text comprehension skills such as making inferences were not included. Future research should include such measures.

This study also contributes to the field of adult literacy by providing evidence of adult struggling readers' familiarity with and comprehension of idioms. One implication for the adult literacy classroom is that native-English speaking adults do not necessarily understand the correct meaning of an idiom, regardless of whether or not they recognize the particular idiom. A second implication is that adult struggling readers' poor reading comprehension skills may impede their ability to understand the figurative meanings of idioms they encounter within spoken or written text.

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APPENDICES

Appendix A. Top 10 Metaphors of 2008 from the Metaphor Observatory

Metaphor	Explanation
1. Bailout	After a tipsy policy captain *wreck*lessly steered America into a red sea, the Good Ship Bubblepop was swamped by an unaccounted-for economic tsunami. Investors watched their 401K's plunge, a raft of bewildered analysts were lost at sea and slipshod execs were summoned to swab the decks. The Admiral barged into the captain's mess and ordered the double-diphthonged bailout, scoppeting a bounty of booty towards a briny of b'rupcy – literally $2,000 for every man, woman, child *and dog* in America…
2. Joe The Plumber	The Republican team tried to slip-up Obama by flooding rally floors with this living, breathing metaphor for hard-workin' tradesdudes. Sharing the GOP's tub with Mr. Plumber was *Joe Six-Pack*, the beer-swilling, *a*-parently unemployed partner of Hockey Mom. Together, they formed a tag team of Republican rhetorical muscle, put in the ring to wrench the spiralling campaign from the ropes. Though during the election Joe plugged McCain, soon afterwards he backed up, saying his involvement with party-head John left Joe, the plumber, feeling…*dirty*.
3. Angry Whopper	Burger King's spice-spiked Angry Whopper highlights an attitudinal change of trajectory in 2008. This positively negative emotion is normally found attached to darkly spirited characters, such as Marvel Comics' Nick Fury, or powerful devices, such as Rage video cards. Metaphors describing spicy food usually refer to the heat of volcanoes, fire or hell. BK's flaming mad cow patty joins the Samsung Rant cell phone, an increase in commercials where one is hit for little or no reason, and a surge in appearances of the outrageous pro John McEnroe. Where's the beef? Maybe the mortgage meltdown, the financial crisis and high energy prices have left us all seeing red.
4. Toxic assets	The economy took the plunge in O'eight, dousing the Dow and diluting Widow-and-orphan stocks into *widow's mite* stocks. This 'cession began when err-do-well banks SWAPped, swiped and swindled their way to the bottom by

selling sub-standard sand castles and banking on bridled bankrupcy. In turn, the bad bets on bad debts left forward players downright backed up, out in the cold and freezing their assets. *Toxic assets* we called them (Observers prefer *accidental poison pills* or *the skeletons in our wallets*). They threatened to corrode the economy, forcing the big-ticket bank rescue universally known as the *bailout bill*. It's nothing new – execs screw up, then the Gov coughs up. But, hey – we live and loan: those who do not learn from their mistakes are doomed to get federal aid.

5. Rock-star

What was once on the Sunrise side of the generation gap now straddles the greens and the grays. Record of choice – "she's the rock star of the Republican party", referring to vice presidi'n'tial candidate Sarah Palin. While this Sarabullish metaphor was being crooned to her neat-o north-of-forty herd, the prObama crowd crowed the same KoЯn-ish kernel to his fledgling under-40 flock. Rock-star – it's a little bit country, it's a little bit rock-n-roll, and it's now the *un*-sung hero of the stage.

6. Addiction

After burying the needle and reaching all-time highs, the delirious global economy took one hit too many and hit rock bottom. Yet again, it was time to draw the line and look in the mirror: we'd become addicted to oil, addicted to spending and addicted to debt; we were broke and begging for change on the Street; depression was setting in… So what did the government do to help us with our little problem? They borrowed more money so we could buy more stuff…

7. Perfect storm

Over and over, it's another day, another disaster for this over-cast meteorological star. Forced into increasingly less precipitous climes by mythomanic pressure, perfect storm is now seeded on the air and in columns to reign over pretty much anything headed south that can fill a windsock. Regrettably, our forecast is that this overblown *weathaphor* will not blow over anytime soon.

8. Train wreck

When a situation goes off the rails and winds up a twisted mental mess, writers get off their cabooses and fire up the *train-wreck* express. With cognitive ties to Tsunamiville, Stormburg and Meltdowntown, this hobo-*kenned* vehicle made a year-long milk run through the Wires, the Posts and theTelegraphs of the press's iron road. Complete with incompetent engineers, ill-maintained

corporate boxcars and a miscarriage of justice, the last train wreck left banking bums covering their tracks, bucking for mulligans and begging for handouts. All a-board!

9. Surge	As the troop surge marched on, the unsinkable "surge" concept was peaking on radiowaves and brainwaves alike. Eleven Pirates felt a surge on the scoreboards while Tenet's pilots saw a surge in surgeries. Sperable candidates surged in the polls and spurious stocks surged in sticker price – at least, that is, until the countersurge came. We don't talk much about *stock surges* anymore. However, we do hear the word "plunge" is surging…
10. Ratchet	Openly blowing smoke for years, the global economy began to sputter and lose speed, then its wheels fell off. In *rhe*sponse, dusty gray repair vehicles were called into service, including trusty ambulances (*resuscitate*, *CPR*), tugboats (*salvage*, *bailout*) and tow trucks (*jump-start*, *refuel*). These fix-it-'phors came to a head in the fall when backbench *merc*anics started promising to "ratchet up" everything from soup to nuts. However, this hands-on verbal tool lost its teeth when we discovered that it was *all* talk – no one actually knew how to repair this heap. "It's a real fixer-upper", we were told. Sure, if you can find anyone who has the parts…
11. Pitbull in lipstick	When VP candidate Sarah Palin tagged herself with "*pitbull in lipstick*", many Observers were sure she was barking up the wrong cognitive tree. Instead, this image sunk its teeth into a rural crowd seeking protection and loyalty during this time of war. But soon afterwards, Palin tore off from the Republi-pack by *con-cur-rent*-ly running her 2012 presidential campaign, helping guide underdog McCain from the Whitehouse to the dog house. After the election, talk shows managed to fetch the pitbull to sit and speak, though we've heard the first few times have been a bit, um – *rough*.

(Retrieved July 13, 2011 from: http://www.metaphorobservatory.com/2009/07/top-ten-metaphors-of-2008/)

Appendix B. Randomized lists of idioms used in each condition.

Group 1		
Familiarity List 1	Isolation List 1	Story List 1
Cross swords with someone	Talk through your hat	Talk through your hat
Put one's foot down	Paper over the cracks	Paper over the cracks
Go into one's shell	Strike the right note	Strike the right note
Paper over the cracks	Skate on thin ice	Skate on thin ice
Strike the right note	Hold up one's end	Hold up one's end
Hold up one's end	Go around in circles	Go around in circles
Blow away the cobwebs	Go into one's shell	Go into one's shell
Breathe down someone's neck	Hoe one's own row	Hoe one's own row
Talk through one's hat	Blow away the cobwebs	Blow away the cobwebs
Go around in circles	Cross swords with someone	Cross swords with someone
Hoe one's own row	Breathe down someone's neck	Breathe down someone's neck
Skate on thin ice	Put one's foot down	Put one's foot down

Group 2		
Familiarity List 2	Isolation List 2	Story List 2
Go into one's shell	Go around in circles	Put one's foot down
Cross swords with someone	Strike the right note	Hold up one's end
Go around in circles	Paper over the cracks	Skate on thin ice
Blow away the cobwebs	Hold up one's end	Blow away the cobwebs
Put one's foot down	Talk through your hat	Cross swords with someone
Paper over the cracks	Go into one's shell	Hoe one's own row
Skate on thin ice	Hoe one's own row	Breathe down someone's neck
Talk through one's hat	Breathe down someone's neck	Paper over the cracks
Hoe one's own row	Put one's foot down	Go into one's shell
Breathe down someone's neck	Cross swords with someone	Go around in circles
Strike the right note	Blow away the cobwebs	Strike the right note
Hold up one's end	Skate on thin ice	Talk through your hat

Group 3		
Familiarity List 3	Isolation List 3	Story List 3
Go into one's shell	Cross swords with someone	Talk through your hat
Paper over the cracks	Strike the right note	Skate on thin ice
Skate on thin ice	Skate on thin ice	Go around in circles
Cross swords with someone	Talk through your hat	Hold up one's end
Hold up one's end	Hold up one's end	Strike the right note
Breathe down someone's neck	Go around in circles	Put one's foot down
Strike the right note	Hoe one's own row	Blow away the cobwebs
Blow away the cobwebs	Put one's foot down	Go into one's shell
Put one's foot down	Paper over the cracks	Paper over the cracks
Hoe one's own row	Breathe down someone's neck	Cross swords with someone
Go around in circles	Blow away the cobwebs	Breathe down someone's neck
Talk through one's hat	Go into one's shell	Hoe one's own row

Note. Group 1 idiom lists match Nippold tests. Group 2 and Group 3 idiom lists were randomized using Urbaniak, G. C. & Plous, S. (2011). Research Randomizer (Version 3.0) [Computer software]. Retrieved on June 1, 2013, from http://www.randomizer.org/.