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Molly Brown
University of Maine, mrosariabrown@gmail.com

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IDIOM COMPREHENSION IN ADULTS WITH AND WITHOUT READING COMPREHENSION DIFFICULTIES

by

Molly R. Brown

A Thesis Submitted in Partial Fulfillment
of the Requirements of a Degree with Honors
(Communication Sciences & Disorders)

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Advisory Committee:

Christopher M. Grindrod, Assistant Professor, Communication Sciences & Disorders, Advisor
Susan Bennett-Armistead, Associate Professor of Literacy
Julie DellaMattera, Associate Professor of Early Childhood Development & Education, Honors College Preceptor
Sarah Howorth, Assistant Professor of Special Education
Judith L. Stickles, Clinic Director & Lecturer, Communication Sciences & Disorders

ABSTRACT

Figurative language, also known as nonliteral language, is the use of words in a way that deviates from their intended or literal meaning. Idioms are a specific form of figurative language, where the words of the phrase are not reflective of the meaning of the idiom. For example, *to tie the knot* means to get married, which is different from the physical act of tying a knot in a string. A great deal of research has focused on idiom comprehension in children with reading difficulties, while few studies have examined this issue in adult struggling readers. Many of the skills needed to understand figurative language are developed as children and adolescents. However, the presence of a reading disorder may prevent full acquisition of these skills. Using the developmental literature as a model, the goal of the current study is to investigate if there is a relationship between reading ability in adults and these individuals' understanding of idioms. Due to the lack of research focused on idiom comprehension in adult struggling readers, a study that would investigate idiom comprehension in this population is proposed.

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I. INTRODUCTION

It is well documented that literacy is a crucial skill for academic and economic success. There are many specific skills relevant to literacy, including both reading and auditory comprehension. Understanding figurative language is a key component of communicating with ease in the English language (Palmer, Shackelford, Miller, & Leclere, 2006). Figurative language involves the use of words in a way that deviates from their literal meaning. Idioms, as one type of figurative language, are particularly pervasive in both written and spoken language (Nippold, Moran, & Schwarz, 2001). These expressions are typically defined as phrases with figurative meanings that are distinct from the literal meanings of their component words (Libben & Titone, 2008).

Past research has shown that there is a connection between reading comprehension and idiom comprehension in children, and that children with lower reading scores tend to comprehend idioms more literally (Cain, Oakhill & Lemmon, 2005). This research helps identify specific skills and abilities to address when working toward higher standards of literacy among children. A smaller but still crucial body of research focuses on specific literacy skills among adults. While some research has focused on adult struggling readers and figurative language comprehension, little to no studies have looked specifically at idioms. The goal of this thesis is to investigate the comprehension of idioms in adults with and without reading difficulties. The purpose of investigating adults with reading deficits is to determine if there is a relationship between reading ability and the development of skills necessary for understanding idioms.

Idioms

An example of an idiom is *to break the ice*, where the literal meaning of 'physically breaking apart ice' bears no relationship to the figurative meaning 'to say something to get a conversation started when meeting new people'. Idioms vary along a number of linguistic dimensions, such as transparency, familiarity and ambiguity. Transparency refers to the degree to which the meaning of the idiom can be derived from analyzing the idiom literally. A transparent idiom, such as *to skate on thin ice*, has some relationship between the literal meanings of its component words and the figurative meaning (i.e., if someone were to literally skate on thin ice, they would be putting themselves in a risky situation). In contrast, an opaque idiom, such as *to be fit as a fiddle*, has no relationship between the literal meanings of its component words and the figurative meaning 'to be in good health' (see Table 1 for examples). Familiarity refers to how often someone encounters a specific idiom. An example of a familiar idiom is *a piece of cake,* which means something is 'very easy to accomplish.' An example of an unfamiliar idiom is *to have a lark,* which means 'to have fun' (see Table 2 for examples). Ambiguity refers to whether the idiom has a possible literal interpretation in addition to its figurative interpretation. An example of an ambiguous idiom is *to spill the beans*, which figuratively means 'to reveal a secret.' An example of an unambiguous idiom is *to be on cloud nine*. The figurative meaning is 'to be extremely happy,' but there is no possible literal interpretation (see Table 1 for examples).

Table 1. Idiom Transparency & Ambiguity.

Transparent	Opaque	Ambiguous	Unambiguous
To Skate on Thin Ice	*To Talk Through Your Hat*	*To Spill the Beans*	*To Change Your Mind*
To Bite Your Lip	*To Be on Cloud Nine*	*To Kick the Bucket*	*To Play it by Ear*

Table 2. Idiom Familiarity.

Familiarity	Idiom
Very Familiar	*To Change Your Mind*
Moderately Familiar	*To Slap Someone's Wrist*
Unfamiliar	*To Have a Lark*

Idiom Acquisition

In a study by Abkarian, Jones, and West (1992), preschool and school-age children, ages 3;6, 4;6, 5;6, and 6;6 were read idioms in context and in isolation, and then asked to choose the picture that best matched the phrase. The children were also asked to provide a rationale for their picture choice, to gauge their awareness of figurative language. For the most part, all children tended to choose the literal (implausible) pictures, with the story context having little influence on their decisions. It was also found that transparency had little impact on the children's comprehension of the idioms. In the 6-year-old children, 70 percent of idiom picture choices were accompanied by a figurative rationale. This result shows that by age 6, children have the ability to comprehend some idioms. The reason why younger children struggled with choosing the idiomatic expression could be due to a lack of word knowledge. Word knowledge is a

key factor for correctly interpreting not only idioms, but other types of figurative language, and at this age, children are still increasing their word knowledge.

A later study by Nippold and Taylor (2002) had similar findings that provide support for the developmental process of idiom comprehension. The results were found by comparing idiom familiarity and transparency in children versus adolescents. The study found that 11-year-old children had lower familiarity and a more difficult time comprehending idioms than 16-year-old adolescents, arguing that the bulk of idiom acquisition happens in later adolescence.

A study by Nippold and Duthie (2003) investigated how mental imagery plays a role in understanding the difference between opaque and transparent idioms in both children and adults. According to the Metasemantic Hypothesis, transparent idioms are easier to understand since the literal meanings of the words can create a literal mental image that can lead to the correct, figurative interpretation of the idiom. The participants were 40 children (mean age = 12;3) and 40 adults (mean age = 27;0). In a mental imagery task, participants were asked to write down the mental image that the phrase invoked. In an idiom comprehension task, participants had to choose the correct response for each idiom from four options. Transparent idioms were easier to comprehend both for children and adults, but the adults exhibited better comprehension of the idioms overall. In line with this result, increasing chronological age was also associated with increased comprehension. Adults also outperformed the children in the mental imagery task. It was shown that the children tended to create more literal-concrete interpretations of idioms, while the adults created more literal-metaphorical referents, showing that there is a developmental process for idiom comprehension.

Models of Idiom Development

Two major theories have been proposed to explain the acquisition of idioms. The *Language Experience Hypothesis* argues that idioms are learned through meaningful exposure. With aging, there are more opportunities to be exposed to idioms, which could account for the increase in idiom familiarity with age. Children gain familiarity with idioms by encountering them both in written and spoken language. The *Global Elaboration Model* of idiom acquisition argues that children develop idiom comprehension in the same manner as they acquire the skills to produce and understand literal language. In other words, the strategies used for general language acquisition, such as reading and listening comprehension, are similar to those used for idiom acquisition. As these skills develop, inferencing skills are also developing. Children move from interpreting language in a piece by piece fashion to using their inferencing skills to determine the figurative meaning of idioms using contextual evidence. Assuming that all of these skills are being developed together, this model accounts for why there is a link between difficulties in reading comprehension and figurative language comprehension.

Supporting evidence for the *Language Experience Hypothesis* was found in a study by Nippold, Moran, and Schwarz (2001). The purpose of this study was to gain an understanding of how preadolescents comprehend idioms. Participants where 50 school age (12;4) children from New Zealand who had taken the Progressive Achievement Tests (PATS) to monitor their progress in school and their academic achievement. The students completed two tasks in the same order: an idiom familiarity task and an idiom comprehension task. In the familiarity task, participants had to rate each phrase on a five-point scale in terms of how often they had heard it. For the comprehension task, students

were presented with the idiom in a four-sentence story. They then had to choose the correct interpretation of the idiom from a set of four choices. When comparing the idiom comprehension task and the PATS, it was found that students with higher language-based academic skills (e.g., reading and listening comprehension) had a better understanding of idioms. In addition, it was found that approximately a quarter of the students performed significantly lower than their peers on both tasks. Not surprisingly, the students that performed at the lower end were found to be struggling readers.

Supporting evidence for the *Global Elaboration* model was found in a study done by Levorato and Cacciari (1995). The authors investigated the development of figurative competence in school children in the second grade (7;6 to 8;2 years old) and fourth grade (9;8 to 10;3). They used four tasks (recall, paraphrase, multiple choice, and completion) to investigate both comprehension and production of idioms. In the first experiment, the children were presented with five narratives that included the familiar idiom in the last sentence. The children were then prompted to recall the story and paraphrase what the idiom meant. The older children tended to give more verbatim responses and the younger children tended to give more literal responses. In both age groups, a high percentage of children produced idiomatic paraphrases, which was most likely due to the high familiarity of the idioms, and the highly informative context. Out of the two groups, the younger children produced more literal paraphrases. Children who recalled the story idiomatically paraphrased idiomatically, and children who literally recalled the story literally paraphrased the story. Many of the literal interpretations by the younger children did not make sense in the context of the story, showing that they lacked the ability to search for the correct meaning.

Experiment 2 investigated the children's comprehension of idioms in a story context using a multiple-choice task. The same five narratives were used, and three possible answers were created for each one: (a) an idiomatic interpretation, (b) a paraphrase of the literal meaning, or (c) a response plausible in context. After the children completed the multiple-choice task, they were asked to recall and paraphrase as in the first experiment. Between the two age groups, the younger children had a higher percentage of literal interpretations, while the older children had a higher percentage of idiomatic interpretations. Again, verbatim and literal recalls were the most common, with younger children giving more literal responses and older children giving more verbatim responses. With respect to paraphrases, it was found again that idiomatic responses were the most common overall, with the older children producing significantly more idiomatic responses than the younger children who produced more literal responses. No difference was found between the multiple-choice and paraphrase tasks.

Relationship Between Reading Comprehension and Idiom Comprehension

Reading comprehension is intrinsically linked to the development of figurative language. If someone is struggling with figurative language, it can deter them from reading. Moreover, a lack of progress in text comprehension can affect word knowledge and language acquisition, which can have an impact on figurative language comprehension (Nippold, 2016).

A study by Cain, Oakhill, and Lemmon (2005) investigated 9-year olds' ability to interpret idioms in relation to their level of reading comprehension. The participants of the study were two groups of 9 to 10-year old children who were considered either poor (reading) comprehenders or good comprehenders based on standardized test performance.

Poor comprehenders were identified based on their word reading accuracy levels being age-appropriate, but their comprehension levels being at least 12 months below their chronological age. The children's comprehension of idioms was assessed using an explanation task that required the children to provide their own verbal interpretations. There were two sets of idioms: those presented in context and those presented in isolation. The results of the study showed that children were better able to explain idioms when presented in context than in isolation. Interestingly, the two groups did not significantly differ when it came to interpreting transparent idioms in context, but poor comprehenders were significantly worse at interpreting opaque idioms in context. Other studies conducted by Cain and colleagues (Cain & Towse, 2008; Oakhill, Cain, & Nesi, 2016) further support these findings. Specifically, these later studies show that younger children and children with lower reading comprehension were less able to determine the meaning of idiomatic phrases and that struggling readers benefit from context to correctly interpret opaque idioms.

In another study, Levorato, Nesi, and Cacciari (2004) investigated whether or not a child's text comprehension skills could predict their idiom comprehension skills. The participants were school-children from the fourth and second grade who were split into three groups (good, medium, and poor comprehenders) using a standardized battery of tasks related to text comprehension and reading speed and accuracy. For the first study, ambiguous idioms were presented at the end of a short story which made the figurative interpretation more plausible. All children were asked to identify the meaning by selecting from three answers: (a) an idiomatic interpretation, (b) a paraphrase of the literal meaning, or (c) a response plausible in context, but different from the idiomatic

meaning. Overall, the children chose idiomatic answers more often than literal ones. However, when comparing the two age groups, second-grade children chose the literal answers more frequently than the fourth graders. With respect to levels of reading comprehension, good and medium comprehenders both chose more idiomatic answers over the other options, and did not differ significantly. In contrast, poor comprehenders tended to choose the literal answers more often.

In Levorato et al.'s (2004) second study, the short story for the idiomatic expressions was constructed in a way that made the literal meaning more plausible. Again, it was found that the second graders chose significantly more literal answers than the fourth graders. It was also found that there was a significant difference between the three groups of comprehenders. Specifically, poor comprehenders chose 28% literal responses, medium comprehenders chose 19% literal responses, and good comprehenders chose 10% literal responses. This finding confirms that there is a strong relationship between text comprehension and the ability to identify the correct figurative meaning of an idiom. A follow-up study was conducted eight months later to investigate the possibility of spontaneous improvement in the poor comprehenders. These children were given the same achievement tests and 67% of the younger children, and 54% of the older children improved enough to be reclassified as medium or good comprehenders. As before, regardless of reading comprehension level, older children chose more idiomatic answers than the younger children. Interestingly, children who were previously categorized as poor comprehenders did show an increase in the number of idiomatic responses, indicating that as text comprehension improves, so does idiom comprehension.

In yet another study, Nesi, Levorato, Roch, and Cacciari (2006) investigated children's ability to complete idiom fragments embedded in stories. The participants were Italian second graders and fourth graders split into two groups: less-skilled and skilled comprehenders. The experimental stimuli were ambiguous idiom fragments (e.g., Paul broke the…) which the children were asked to complete. Their answers were divided into four categories: (1) idiomatic completions (e.g., Paul broke the *ice*), (2) literal completions referring to concrete objects from the context of the story, (3) figurative completions that referred to the mental or emotional state appropriate for the ending of the story, and (4) no answer. It was found that the older children produced significantly more idiomatic completions than the younger children. Overall, the skilled comprehenders produced more idiomatic endings than the less-skilled comprehenders.

Figurative Language Comprehension in Adult Struggling Readers

The purpose of a study by Bryne, Hale, Crowe, Meek, and Epps (1996) was to investigate the relationship between oral and written language skills. The participants were 97 primarily African-American adults (16-52 years old) who were currently enrolled in an adult literacy program. The participants' pragmatic language skills were assessed for their level of conversational assertiveness and responsiveness to find their status of basic interactional skills. The participants also had their metalinguistic/semantic language skills assessed with the Test of Word Knowledge (TOWK; Wiig & Secord, 1991). A majority of the participants' pragmatic skills were found to be inappropriate. On the TOWK, participants scored higher on the receptive subtests (Synonyms and Figurative Usage) when compared to the expressive subtests (Word Definitions and Multiple Contexts). A significant correlation was found between the total score on the

TOWK and reading level. At post-testing, 22 of the original participants' reading levels were reassessed using either the Test of Basic Education or the Wide Range Achievement Test. It was found that the participants' reading levels had risen from a mean reading grade level of 3.0 to 4.8. This finding indicates that as reading level improves, so does a person's word knowledge. It also appeared that as reading level increased, the participants abandoned the principle of mutual exclusivity, understanding that words have similar meanings or more than one meaning.

The purpose of a study by Whyte (1983) was to investigate adults' reading comprehension and its relationship to their ability to comprehend and explain the meaning of metaphors. The participants for this study were a group of 20 adult literacy students or struggling readers (reading age of 8 or less), and a group of 22 typical readers (reading age of 12 or more). The WAIS performance scale and the Burt Word Recognition Test were used to screen the participants. Sixteen metaphoric phrases were used as the test stimuli. All phrases were in the form of propositions, and included dual-function adjectives (e.g., The smell of her perfume was *bright sunshine*.) The metaphoric expressions were read to the participants, and then they were asked to explain the meaning of the sentence. It was found that the struggling readers did not score significantly lower than the typical readers, and overall, the two groups were able to correctly interpret the majority of the metaphors presented. Although the groups did not significantly differ in their ability to interpret the metaphors, the struggling readers differed greatly in the language they used to express the meaning of the phrases. While the typical readers tended to use more abstract and psychological referents, the poor readers used significantly more concrete and sensory based referents.

A study by Qualls and Harris (2003) investigated the influence of working memory (WM), figurative language type (FLT), and reading comprehension (RC) in 40 younger and 40 older African American adults. Participants completed two WM tasks, a reading ability test, and a Figurative Language Comprehension Test (FLCT). The older adults showed reduced working memory and reading abilities that negatively affected their performance on the FLCT. The older adults performed better than the younger adults on idioms and metonyms, but not on metaphors, possibly due to the older adults' increased familiarity with some of these expressions. The findings of this study show that both WM and RC are significant factors in the comprehension of figurative language. WM is significant for comprehension because it aids in integration and inferencing, both of which are necessary for understanding figurative language. On the FLCT, RC was shown to be significantly associated with figurative language comprehension. Even though this study did not investigate struggling readers specifically, it demonstrates that reading comprehension is an important skill for understanding figurative language, further supporting the hypothesis that struggling readers would have difficulty with these expressions.

II. PROPOSED STUDY

In this section, a study on idiom comprehension in young adults with and without reading comprehension difficulties is proposed. The findings of the proposed research would help to provide a better understanding of the connection between idiom comprehension and reading abilities in adults. The results would also help to determine if having a developmental reading difficulty during the ages of figurative language acquisition significantly affects the comprehension of this type of language into adulthood. This research is important because many adults in the United States have reading difficulties. Approximately 32 million adults in the United States cannot read, according to a recent report from the U.S. Department of Education. The Organization for Economic Cooperation and Development has also found that 50 percent of US adults cannot read a book written at an eighth-grade level. Within the state of Maine, 22% of adults perform at the lowest level of literacy (U.S. Department of Education, 2003).

The proposed study seeks to answer the following research questions: 1) How well do adult struggling readers understand idioms?, 2) What is the effect of context on adult struggling readers' idiom comprehension?, and 3) To what extent do the reading comprehension skills of adult struggling readers predict their comprehension of idioms in isolation and in context? Adult struggling readers are expected to understand significantly fewer idioms in isolation and in context than adult non-struggling readers. Struggling readers are expected to perform significantly better on the idioms presented in context than those presented in isolation. Finally, adult struggling readers' reading comprehension skills should be predictive of their understanding of idioms in isolation and in context over and above their familiarity with the idioms and word-reading skills.

III. METHODS

In this section, I will describe the methods for the proposed study, which was scheduled to be conducted during February-March 2020. Due to the COVID-19 outbreak, the study could not be completed.

Participants

Participants would have been healthy adults aged 18- to 30-years-old. All participants would be right-handed, native English speakers with good hearing and vision and no history of neurological illness. Struggling readers would also have been required to have no recent speech therapy related to figurative language. A total of 40 participants would have been recruited: 20 struggling readers and 20 non-struggling readers.

Participants would have been recruited from the Orono and Bangor, Maine area. Struggling readers would have been recruited through adult literacy programs such as Literacy Volunteers in Bangor and through Student Accessibility Services at the University of Maine. Non-struggling readers would have been recruited through classes and the student population at the University of Maine. This project was approved by the Institutional Review Board of the University of Maine in December 2020 (see Appendix A). All participants would have received a $10 gift card for their participation.

Procedure

Adults with reading difficulties would be asked to provide results of a reading achievement test, either in the form of a standardized reading test from high school or a reading test administered when they first enrolled in an adult literacy group or student accessibility services. These participants would consent to provide any test results.

All participants would first be asked to complete a vision test, hearing test and the Edinburgh Handedness Inventory (Oldfield, 1971) in addition to a brief background questionnaire to obtain information on the participant's demographic background, language and reading development, education, and previous experience with speech therapy (see Appendix B), and a consent form (see Appendix C). Participants would then be asked to complete a reading comprehension task, an idiom comprehension task, and an idiom familiarity task. Testing would have taken place in one session lasting approximately one hour. Each task would have taken approximately 15 minutes to complete.

Reading Comprehension Task

The participants' reading comprehension would be assessed using the *Woodcock Reading Mastery Tests III* (WRMT-III; Woodcock, 2011). The WRMT-III includes subtests that cluster into scores that evaluate total reading, readiness, basic skills, and reading comprehension. The specific subtests used for this study would be Basic Skills (*word attack, word identification),* and Reading Comprehension (*word comprehension, passage comprehension, listening comprehension).*

Idiom Comprehension Task

Idiom comprehension would be assessed using stimuli modified from subtests of *Clinical Evaluation of Language Fundamentals 5 Metalinguistics* (CELF-5; Wiig & Secord, 2014) and Nippold and Taylor (2002). All idioms would be familiar, ambiguous idioms, where the expressions have both a figurative and literal meaning (e.g., *let the cat out of the bag*). All idioms would have been chosen from a previous study by Grindrod and Raizen (2019) in which these expressions were normed on idiom familiarity and

literality. Participants would be given idioms presented with and without context. Idioms with context would be presented in the last sentence of a four-sentence passage (see Table 3 and Figure 1 for examples). Participants would be required to choose the correct definition from four multiple choice options: one that represents the literal meaning, another that represents the figurative meaning, and two other incorrect options that do not make sense contextually.

Table 3. Example Idiom Stimuli.

Idiom	Familiarity	Literality
To be a pain in the neck	4.61	4.04
To be hanging by a thread	3.61	4.24
To be in the same boat	4.17	4.20
To be out of line	3.91	3.72
To be too hot to handle	3.91	4.28
To bend over backwards	3.92	3.76

Figure 1. Example Idiom Stimulus with and without Context (from Nippold & Taylor, 2002)

"She got of 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 that she had agreed to babysit the neighbor's child that same night. Amanda didn't want to miss the party. She asked her dad, "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

Idiom Familiarity Task

For the familiarity task, participants would judge the familiarity of the idioms on a five-point scale (see Figure 2). The idioms would be the same as those presented during the previous idiom comprehension task.

Figure 2. Idiom Familiarity Task.

How frequently have seen, heard, or used:

"He was *a pain in the neck*"

Never				Frequently
1	2	3	4	5

IV. DISCUSSION

The goal of this thesis was to explore the relationship between reading comprehension and comprehension of figurative language, specifically idioms. After reviewing previous research, it is clear that there is a strong relationship between these two skills (e.g., Qualls & Harris, 2003). This thesis also revealed that there is a gap in the area of younger adults' comprehension of idioms, especially in those individuals who are struggling readers.

The skills that are needed to understand idioms are primarily developed as children and adolescents (Nippold, 2016). These skills are not passively learned, but often require explicit and repetitive instruction (Palmer & Brooks, 2004). While language arts, including figurative language, is taught as part of the core curriculum of the United States from third through twelfth grade, some adults still struggle with understanding these expressions (Organization for Economic Cooperation and Development, 2000). It is possible that a reading deficit or disorder may prevent a child from fully developing the skills necessary to understand idioms and that this problem persists into adulthood.

Previous research has shown that with struggling readers, an inability to textually comprehend idioms does not prevent them from understanding these expressions, rather a developmental deficit makes decoding figurative language difficult for these individuals. A study by Greenberg et al. (1997) compared the word knowledge and decoding skills of school-age children and adult struggling readers in a literacy group. Despite the hypothesis that the adults would have more word knowledge due to the fact that they were older and had more exposure, the adults did not score higher than the children on

the word knowledge task. Adult struggling readers do not have the same decoding skills as those who are typical readers for their age range, meaning that more than reading comprehension can be affected.

It is possible that an adult who struggled with reading comprehension or had a reading deficit at a younger age, may never have developed the skills necessary for understanding and decoding idioms. A similar phenomenon can be seen with English Language Leaners (ELL). ELLs are not exposed to the same figurative language as native English speakers. The ELL experience of comprehending figurative language is similar to that of an adult struggling reader. For example, non-native English speakers particularly struggle with comprehending idioms due to their unique grammatical structure (Abel, 2003). In addition, Palmer et al. (2006) found that text and reading comprehension were indicative of an ELL's ability to comprehend figurative language, and argued that for these individuals to learn figurative language, they also need to have good reading and text comprehension. This idea supports what other researchers have found in child struggling readers, that as their level of reading comprehension increases, so does their figurative language and idiom comprehension.

If struggling readers want to improve their idiom comprehension, they should also focus on improving overall reading comprehension. It has been shown that adult literacy programs are beneficial for increasing reading levels. Adult literacy groups will cater to the specific goals of participants, but there are no specific guidelines in place for improving idiom comprehension. Speech-Language Pathologists (SLP) can also help improve idiom comprehension. When trying to enhance idiom comprehension in school-age children, it has been suggested that the SLP first determine what specific types of

idioms the child struggles with, and then familiarize the child with simple idioms presented in contextual narratives. The purpose of this approach is to help the child first identify an idiom, then try to use contextual clues in the narrative. The overall goal is to foster independence in the child so that they can eventually identify these expressions and their meaning in context on their own (Nippold, 1991). Although this strategy is not targeted at adult struggling readers, the method could be applied with this population. This strategy could be implemented within an adult literacy program, or speech-language therapy sessions. The reading level of the struggling adult reader, and how familiar they are with common idioms could determine the level and depth of the contextual narratives. If the adult is already participating in an adult literacy class, the idiom comprehension strategy could be worked into the existing coursework. Adults who are already part of a group designed for advancing their reading and literary skills may already have fostered independence for learning new material that they struggle with, so the strategy could be reduced to just expanding their knowledge of idioms. Ultimately, there needs to be more research done in order to enable more specific and targeted therapy for adults struggling with idiom comprehension.

V. CONCLUSION

The goal of this thesis was to determine if there is a connection between younger adults' level of reading comprehension and their ability to comprehend figurative language, specifically idioms. Current evidence suggests that there is a strong relationship between these two skills. Much of the research reviewed focuses on idiom comprehension in children, although similarities have been found in the way that child struggling readers and adult struggling readers interpret figurative language, which tends to be more literally. Further research needs to be conducted in order to more completely understand the connection between reading ability and idiom comprehension in younger adults. This thesis suggests a focus on adult struggling readers' ability to comprehend familiar, ambiguous idioms presented both with and without context.

REFERENCES

Abel, B. (2003). English idioms in the first language and second language lexicon: A dual representation approach. *Second Language Research, 19*(4), 329-358. doi:10.1191/0267658303sr226oa

Abkarian, G.G., Jones, A., & West, G. (1992). Young children's idiom comprehension: Trying to get the picture. *Journal of Speech, Language, and Hearing Research, 35*(3), 580-587.

Bryne, M.E., Crowe, T.A., Hale, S.T., Meek, E.E., & Epps, D. (1996). Metalinguistic and pragmatic abilities of participants in adult literacy programs. *Journal of Communication Disorders, 29*(1), 37-49. doi:10.1016/0021-9924(95)00025-9

Cain, K., Oakhill, J., & Lemmon, K. (2005). The relation between children's reading comprehension level and their comprehension of idioms. *Journal of Experimental Child Psychology, 90*(1), 65-87. doi:10.1016/j.jecp.2004.09.003

Cain, K., & Towse, A. S. (2008). To get hold of the wrong end of the stick: Reasons for poor idiom understanding in children with reading comprehension difficulties. *Journal of Speech, Language, and Hearing Research, 51*(6), 1538-1549. doi:10.1044/1092-4388(2008/07-0269)

Greenberg, D., Ehri, L.C., & Perin, D. (1997). Are word-reading processes the same or different in adult literacy students and third-fifth graders matched for reading level? *Journal of Educational Psychology, 89*(2), 262-275. doi:10.1037/0022-0663.89.2.262

Grindrod, C.M., & Raizen, A.L. (2019). Age-related changes in processing speed modulate context use during idiomatic ambiguity resolution. *Aging, Neuropsychology, and Cognition, 26*, 842-864.

Levorato, M.C., Nesi, B., & Cacciari, C. (2004). Reading comprehension and understanding idiomatic expressions: A developmental study. *Brain and Language, 91*(3), 303-314. doi:10.1016/j.bandl.2004.04.002

Levorato, M. C., & Cacciari, C. (1995). The effects of different tasks on the comprehension and production of idioms in children. *Journal of Experimental Child Psychology, 60*(2), 261-283. doi:10.1006/jecp.1995.1041

Libben, M.R., & Titone, D.A. (2008). The multidetermined nature of idiom processing. *Memory & Cognition, 36*(6), 1103-1121. doi:10.3758/MC.36.6.1103

Nesi, B., Levorato, M.C., Roch, M., & Cacciari, C. (2006). To break the embarrassment: Text comprehension skills and figurative competence in skilled and less-skilled text comprehenders. *European Psychologist, 11*(2), 128-136. doi:10.1027/1016-9040.11.2.128

Nippold, M.A. (1991). Evaluating and enhancing idiom comprehension in language-disordered students. *Language, Speech, and Hearing Services in Schools, 22*(3), 100-106.

Nippold, M.A. (2016). Idioms and slang terms. In Nippold, M.A., *Later language development.* Austin, TX: Pro-Ed.

Nippold, M.A., & Duthie, J.K. (2003). Mental imagery and idiom comprehension: A comparison of school-age children and adults. *Journal of Speech, Language, and Hearing Research, 46*(4), 788-799. doi:10.1044/1092-4388(2003/062)

Nippold, M. A., & Taylor, C. L. (2002). Judgments of idiom familiarity and transparency: A comparison of children and adolescents. *Journal of Speech, Language, and Hearing Research, 45*(2), 384-391. doi:10.1044/1092-4388(2002/030)

Nippold, M.A., Moran, C., & Schwarz, I.E. (2001). Idiom understanding in preadolescents: Synergy in action. *American Journal of Speech-Language Pathology, 10*(2), 169-179. doi:10.1044/1058-0360(2001/016)

Oakhill, J., Cain, K., & Nesi, B. (2016). Understanding of idiomatic expressions in context in skilled and less skilled comprehenders: Online processing and interpretation. *Scientific Studies of Reading, 20*(2), 124-139. doi:10.1080/10888438.2015.1092973

Oldfield, R.C. (1971). The assessment and analysis of handedness: The Edinburgh Inventory. *Neuropsychologia, 9*, 97-113.

Organization for Economic Cooperation and Development (2000). *Literacy in the Information Age.* Retrieved http://www.oecd.org/education/skills-beyond-school/41529765.pdf

Palmer, B. C., & Brooks, M. A. (2004). Reading until the cows come home: Figurative language and reading comprehension. *Journal of Adolescent & Adult Literacy, 47*(5), 370-379.

Palmer, B. C., Shackelford, V. S., Miller, S. C., & Leclere, J. T. (2006). Bridging two worlds: Reading comprehension, figurative language instruction, and the English-language learner. *Journal of Adolescent & Adult Literacy, 50*(4), 258-267. doi:10.1598/JAAL.50.4.2

Qualls, C. D., & Harris, J. L. (2003). Age, working memory, figurative language type, and reading ability: Influencing factors in African American adults' comprehension of figurative language. *American Journal of Speech-Language Pathology, 12*(1), 92-102. doi:10.1044/1058-0360(2003/055)

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (2003). *National Assessment of Adult Literacy*. Retrieved https://nces.ed.gov/naal/kf_demographics.asp

Whyte, J. (1983). Metaphor interpretation and reading ability in adults. *Journal of Psycholinguistic Research, 12*(5), 457-465.

Wiig, E. H., Semel, E., & Secord, W. A. (2013). *Clinical Evaluation of Language Fundamentals–Fifth Edition (CELF-5).*

Wiig, E.H., & Secord, W.A. (1991). *Test of Language Competence - Expanded Edition*. New York: Pearson.

Woodcock, R. (2011). *Woodcock Reading Mastery Tests III*. New York: Pearson.

APPENDICES

APPENDIX A: IRB APPROVAL

APPLICATION FOR APPROVAL OF RESEARCH WITH HUMAN SUBJECTS
Protection of Human Subjects Review Board, 400 Corbett Hall

PRINCIPAL INVESTIGATOR: Molly Brown **EMAIL: molly.brown@maine.edu**
FACULTY SPONSOR: Christopher Grindrod **EMAIL: christopher.grindrod@maine.edu**
TITLE OF PROJECT: Idiom Comprehension in Adults With and Without Reading Comprehension Difficulties
START DATE: December 9, 2019 **PI DEPARTMENT: Communication Sciences and Disorders**

STATUS OF PI: FACULTY/STAFF/GRADUATE/UNDERGRADUATE Undergraduate

If PI is a student, is this research to be performed:

- ☒ **for an honors thesis/senior thesis/capstone?**
- ☐ **for a doctoral dissertation?**
- ☐ **other (specify)**
- ☐ **for a master's thesis?**
- ☐ **for a course project?**

Submitting the application indicates the principal investigator's agreement to abide by the responsibilities outlined in Section I.E. of the Policies and Procedures for the Protection of Human Subjects.

Faculty Sponsors are responsible for oversight of research conducted by their students. The Faculty Sponsor ensures that he/she has read the application and that the conduct of such research will be in accordance with the University of Maine's Policies and Procedures for the Protection of Human Subjects of Research. REMINDER: if the principal investigator is an undergraduate student, the Faculty Sponsor MUST submit the application to the IRB.

****

FOR IRB USE ONLY **Application #2019-11-13 Review (F/E): E** **Expedited Category: I.I.3.d** & g
ACTION TAKEN:

- ☐ **Judged Exempt; category Modifications required? Accepted (date)**
- ☐ **Approved as submitted. Date of next review: by Degree of Risk:**
- ☒ **Approved pending modifications. Date of next review: by** n/a **Degree of Risk:** Minimal
  Modifications accepted (date): 12/9/2019
- ☐ **Not approved (see attached statement)**
- ☐ **Judged not research with human subjects**

FINAL APPROVAL TO BEGIN

Date 12/9/2019

10/2018

APPENDIX B: BACKGROUND QUESTIONNAIRES

NEUROLINGUISTICS AND APHASIA RESEARCH LAB
DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS

BACKGROUND QUESTIONNAIRE: YOUNGER ADULTS WITH READING DIFFICULTIES

1. Confidentiality Statement

As part of this research project, we are requesting that you provide information about your demographic background, language and reading development, education, and previous experience with speech and language therapy. Please answer the questions below as completely and accurately as possible. All information will be kept confidential. Thank you for your time and cooperation.

2. General Information

Participant Name: _____

Year and Month of Birth: _____

Gender: ☐ Male ☐ Female

Education (highest level achieved): ☐ High School ☐ College (BA) ☐ Graduate ☐ Other

Country of birth: _____

Race:
☐ White ☐ Hispanic/Latino
☐ African American ☐ Native Hawaiian/Pacific Islander
☐ American Indian/Alaska Native ☐ Mixed
☐ Asian ☐ Other

3. Language and Developmental History

First language learned to speak:

_____

Other language(s) learned:

_____

Language considered to be native language:

_____

Languages spoken at home during childhood:

_____

Did you reach all of your developmental milestones on time? ☐ Yes ☐ No

Are you currently part of a literacy group? ☐ Yes ☐ No

If so, where: _____

Have you had any previous speech therapy? ☐ Yes ☐ No

If yes, please described why:

_____

Please describe any previous history of speech-language therapy as best you can below.

Location	Date	Therapy Activities

Describe your history of reading disability. Do you have any other learning disability? If yes, please describe.

_____

_____

NEUROLINGUISTICS AND APHASIA RESEARCH LAB
DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS

BACKGROUND QUESTIONNAIRE: YOUNGER ADULT PARTICIPANTS

1. Confidentiality Statement

As part of this research project, we are requesting that you provide information about your demographic background, language and reading development, education, and previous experience with speech and language therapy. Please answer the questions below as completely and accurately as possible. All information will be kept confidential. Thank you for your time and cooperation.

2. General Information

Participant Name: _____

Year and Month of Birth: _____

Gender: ☐ Male ☐ Female

Education (highest level achieved): ☐ High School ☐ College (BA) ☐ Graduate ☐ Other

Country of birth: _____

Race:
☐ White ☐ Hispanic/Latino
☐ African American ☐ Native Hawaiian/Pacific Islander
☐ American Indian/Alaska Native ☐ Mixed
☐ Asian ☐ Other

3. Language and Developmental History

First language learned to speak:

_____

Other language(s) learned:

_____

Language considered to be native language:

_____

Languages spoken at home during childhood:

_____

Did you reach all of your developmental milestones on time? ☐ Yes ☐ No

Have you had any previous speech therapy? ☐ Yes ☐ No

If yes, please describe why:

_____

Please describe any previous history of speech-language therapy as best you can below.

Location	Date	Therapy Activities

APPENDIX C: CONSENT FORMS

CONSENT FORM: YOUNGER ADULTS WITH READING DIFFICULTIES
Research Project: Idiom Comprehension in Adults with and without Reading Comprehension Difficulties
Principal Investigator: Molly R. Brown, Undergraduate Student
Faculty Sponsor: Christopher Grindrod, PhD, Assistant Professor
Department of Communication Sciences and Disorders

PURPOSE

You are being asked to participate in a research project conducted by the above-named individuals. The purpose of this research is to compare understanding of idioms in younger adults with and without reading difficulties. The research is important to better understand the relationship between reading ability and the development of skills necessary for understanding figurative language. To participate in this study, you must be 18 to 30 years old, a native English speaker, right-handed, have good hearing and vision, have a history of reading difficulties, and no history of mental or neurological illness.

WHAT WILL YOU BE ASKED TO DO?

This study will take place in 1 session lasting approximately 60 minutes at the University of Maine Orono or at another mutually agreed upon location if you are unable to travel to campus. In the first session you will be asked to complete a background questionnaire and tests of your hearing, vision, and handedness. These tests will be used to determine your eligibility to continue in the study. If you are eligible to continue, you will be asked to provide a previous reading achievement score either from high school or from a literacy group. You will also be asked to complete a reading comprehension task, an idiom comprehension task, and an idiom familiarity task. Details about what you will be asked to do can be found below:

- **Background Questionnaire:** You will be asked to answer a series of questions about your language and reading, education and employment, your history, and whether or not you have had speech therapy.
- **Hearing:** You will be asked to raise your hand each time you hear a tone.
- **Vision:** You will be asked to read a series of letters from a distance.
- **Handedness:** You will be asked to answer a series of questions about which hand you prefer to perform different actions with.
- **Reading Comprehension Test:** You will be asked to complete a series of reading tasks, including responding to and reading passages.
- **Idiom Comprehension Test:** You will be asked to select the meanings of different idioms presented to you during the test.
- **Idiom Familiarity Test:** You will be asked to rate how often you have heard a certain idiom before.

RISKS

Except for your time and inconvenience, there are no risks for participating in this study. There is the possibility that you will become fatigued or frustrated while answering

some of the questions, to prevent this you may skip any tasks or questions that you do not wish to complete. Breaks will be taken between tasks to prevent discomfort, and if you wish to, the session can be stopped at any time and continued at a later date.

BENEFITS

This study will have no direct benefit to you, but this research may help to learn more about if having a developmental reading difficulty during the ages of figurative language acquisition significantly affects the comprehension of this type of language into adulthood. This is an area of study that is severely lacking in research.

COMPENSATION

You will be paid $10 per hour for participation in this study. You will choose to be paid with money or with an Amazon or Hannaford gift card. If you are unable to complete the study for any reason, you will be paid for the time that you completed ($2.50/15 minutes). You will be given your compensation at the end of your session.

CONFIDENTIALITY

All data will be collected through the use of computers and standardized scoring forms. Your name or any identifying markers will not be reported in any publications. To ensure your privacy and confidentiality, all of your data will be assigned a unique identification code corresponding to you. The electronic key used to link your name with the identification code will be saved using additional security on a password-protected computer different from the one used to store the data for this study. Only the investigator(s) will have access to the password-protected computers with the electronic key and data. All data will be kept in a secure location in a locked filing cabinet in the faculty sponsor's locked research lab. All data and the key will be destroyed by December 31, 2020.

VOLUNTARY

Your participation is completely voluntary. You are free to withdraw at any time and you will receive partial compensation for completing a portion of the study. You may skip any questions you do not wish to answer.

CONTACT INFORMATION

If you have any questions about this study, you may contact Molly Brown (207-581-2014; molly.brown@maine.edu) or Dr. Christopher Grindrod (207-581-2014; christopher.grindrod@maine.edu). If you have any questions about your rights as a research participant, please contact the Office of Research Compliance, University of Maine (207-581-2657; umric@maine.edu).

STATEMENT OF CONSENT

Your signature below indicates that you have read (or have had it read to you) and understand the above information and agree to participate. You will be given a copy of this form.

_____ _____

SIGNATURE OF PARTICIPANT **DATE**

CONSENT FORM: YOUNGER ADULT PARTICIPANTS

Research Project: Idiom Comprehension in Adults with and without Reading Comprehension Difficulties

Principal Investigators: Molly R. Brown, Undergraduate Student
Faculty Sponsor: Christopher M. Grindrod, PhD, Assistant Professor, Department of Communication Sciences and Disorders

PURPOSE

You are being asked to participate in a research project conducted by the above-named individuals. The purpose of this research is to compare idiom comprehension in younger adults with and without reading difficulties. The research is important for developing an understanding of the relationship between reading ability and the development of skills necessary for understanding figurative language. To participate in this study, you must be 18 to 30 years old, a native English speaker, right-handed, have good hearing and vision, have no history of reading difficulties, and no history of mental or neurological illness.

WHAT WILL YOU BE ASKED TO DO?

This study will take place in 1 session lasting approximately 60 minutes at the University of Maine Orono or at another mutually agreed upon location if you are unable to travel to campus. You will first be asked to complete a background questionnaire and tests of your hearing, vision, and handedness. You will then be asked to complete a reading comprehension task, an idiom comprehension task, and an idiom familiarity task. Details about what you will be asked to do can be found below:

- **Background Questionnaire:** You will be asked to answer a series of questions about your language and reading abilities, education and employment, and previous experience with speech therapy.
- **Hearing:** You will be asked to raise your hand each time you hear a tone.
- **Vision:** You will be asked to read a series of letters from a distance.
- **Handedness:** You will be asked to answer a series of questions about which hand you prefer to perform different actions with.
- **Reading Comprehension Task:** You will be asked to complete a series of reading tasks, including responding to and reading passages.
- **Idiom Comprehension Task:** You will be asked to select the most appropriate interpretation of an idiom presented in isolation and in context.
- **Idiom Familiarity Task:** You will be asked to rate how often you have heard a certain idiom.

RISKS

Except for your time and inconvenience, there are no other risks of participating in this study. If you become frustrated while completing any of the tasks, you may skip any questions that you do not wish to complete. You may take a break at any time during the session.

BENEFITS

This study will have no direct benefit to you, but this research may help us learn more about whether a developmental reading difficulty during the ages of figurative language acquisition significantly affects the comprehension of this type of language into adulthood.

COMPENSATION

You will be paid $10 per hour for participation in this study. You will choose to be paid with money or with an Amazon or Hannaford gift card. If you are unable to complete the study for any reason, you will be paid for the time that you completed ($2.50/15 minutes). You will be given your compensation at the end of your session.

CONFIDENTIALITY

All data will be collected through the use of computers and standardized scoring forms. Your name or any identifying markers will not be reported in any publications. To ensure your privacy and confidentiality, all of your data will be assigned a unique identification code corresponding to you. The electronic key used to link your name with the identification code will be saved using additional security on a password-protected computer different from the one used to store the data for this study. Only the investigator(s) will have access to the password-protected computers with the electronic key and data. All data will be kept in a secure location in a locked filing cabinet in the faculty sponsor's locked research lab. All data and the key will be destroyed by December 31, 2020.

VOLUNTARY

Your participation is completely voluntary. You are free to withdraw at any time and you will receive partial compensation for completing a portion of the study. You may skip any questions that you do not wish to answer.

CONTACT INFORMATION

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STATEMENT OF CONSENT

Your signature below indicates that you have read and understand the above information and agree to participate. You will be given a copy of this form.

_____ _____

SIGNATURE OF PARTICIPANT **DATE**

AUTHOR'S BIOGRAPHY

Molly Brown was raised in Bar Harbor, Maine by her parents Christopher and Rosalie Brown, along with her two younger sisters, Ruby and Bella. Molly graduated from Mount Desert Island High School in 2016 and committed to the University of Maine, Orono as a major in Communication Sciences and Disorders. While at the University of Maine, she minored in Studio Art, Childhood Development and Family Relations, and Interdisciplinary Disability Studies. Molly has varied interests and was involved with multiple organizations during her undergraduate years. She was a member of the National Student Speech Language Hearing Association, as well as the Horticulture Club, and she was the president of the Black Bear Beekeepers Club. Molly was a research assistant in the Neurolinguistics and Aphasia Research Lab under the supervision of Dr. Christopher Grindrod since her freshman year. Molly also studied abroad in a small city in Italy for a semester to study art. Finally, Molly has committed to Massachusetts General Hospital Institute of Health Professions to complete an M.S. in Speech-Language Pathology starting in Fall 2020.