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The Impact of Audio Books on Middle School Students with a  
Mild Intellectual Disability

**ABSTRACT**

The purpose of this research is to determine what types of interventions improve the basic reading skills of children diagnosed with a mild intellectual disability, which is defined as having an IQ score of 70 or below. Often these students struggle to keep up with the academic rigor in the middle and high school setting. They lack the basic reading skills necessary to complete coursework and pass their end-of-course tests, which often leads to them dropping out of school. This study is a start to seeing if specific interventions have the capabilities to improve basic reading skills for students with a mild intellectual disability. When we research interventions that work, it allows teachers that have students with special needs who may struggle with reading to implement said interventions. It was found that the majority of students in this study improved in fluency and comprehension when they followed along and listened to a book being read. Their sight word recognition improved over time, which impacted comprehension levels. Implementing audio books, along with other interventions, could improve the academic successes of students diagnosed with a mild intellectual disability.

## INTRODUCTION

### *Problem Statement*

Students in the special education program often find it difficult to navigate through life without the proper assistance to be successful. They find themselves struggling to keep up with the academic rigor so often seen in their classrooms. As they move up in grade levels and through high school, students with disabilities often fall further behind. In many instances, they struggle to earn the credits needed to pass from ninth to tenth grade, often becoming frustrated and dropping out of school.

Children are falling further behind because of standardized testing and not being provided interventions proven to be successful. Teachers are so worried about teaching the content of the test that they lose sight of providing individualized instruction, especially to children with a diagnosed disability. When we do not provide individualized instruction and meet the child at his or her grade level, frustration occurs, specifically when it comes to reading. Some studies (Carbo, 1996; Torgesen & Hudson, 2006) have looked to alleviate some of the frustration by examining audio books as an intervention that could assist in improving the fluency rate of children with a mild intellectual disability. (Boyle, Washburn, Rosenberg, Connelly, Brickerhoff, & Banerjee, 2002) described the benefits of using audio texts to increase grade level comprehension and fluency of children with disabilities. Fluency often refers to a student's speed, smoothness, and ease of oral reading (Boyle et al., 2002). Students are scored based on the number of words read correctly within a given time frame (Torgesen & Hudson, 2006). Being two middle school special education teachers, our hope is that if we start to provide this and other interventions early enough, it will quell some of the frustration and improve academic success in middle and high school. Classroom teachers struggle everyday with students who

come to school unprepared to meet the challenges of reading instruction. More and more children enter school without being read to regularly, causing a lack of exposure to written and oral language. When the necessary elements for reading are absent from a child's experience, it is the role of the educator to provide said elements. With an overcrowded curriculum and standardized testing, teachers are asked to do more with fewer resources. Many students struggle to keep up with the academic rigor. Carbo (1996) observed that only one-third of students in the United States read at levels that are likely to assure them academic success and good jobs and that nearly the same number of students cannot function at the most basic level of literacy. This paper will present the findings of our research and other researchers who have used interventions such as using audio books to improve comprehension and academic performance across the curriculum for students with mild intellectual disabilities.

#### *Rationale of This Study*

This study will examine the benefits of audio books for improving fluency because of its critical nature in developing important reading skills in a student's life. Proficient reading requires children to decode and comprehend as they move through difficult text (Figueroa, 2008). Since the reading process develops through our experiences with oral language, audio books simply provide another opportunity to increase the understanding of written word. Also, students' ability to hold information is very limited, and all of their cognitive processes are used when decoding, which makes it difficult to comprehend. Struggling readers who have failed to develop automatic skills continue to switch back and forth between decoding and fluency. This process becomes increasingly difficult and ineffective with the increase in the difficulty level of text. Students cannot comprehend what they cannot read. It is important to develop these skills, especially for children with a mild intellectual disability, so they can experience success in

school and throughout life. Carbo (1996) found that the most effective model for teaching reading is familiarizing students with the sound and sense of written language.

According to Allor, Mathes, Jones, Champlin, and Cheatham (2010), researchers are just beginning to scratch the surface when it comes to improving reading skills for students with intellectual disabilities. With the co-teaching model of instruction becoming the norm throughout school districts, students with disabilities require intensive instruction to prevent them from getting left behind. Earlier, Boyle et al. (2002) stated the benefits of using audio books to improve fluency. These and other types of interventions need to be used to assist children, specifically those with a mild intellectual disability, so they can further their educational pursuits (Ehri, 2005).

These students will continue to struggle until more research is conducted on individualized instruction that works. Minimal data exists about establishing effective individualized instruction in regards to reading fluency and children with intellectual disabilities (Rubie-Davies, 2010). That is because children with special needs have only been mainstreamed over the past twelve years. In the past, they were often in self-contained classrooms where the teacher could work with each individual child at his or her level. These children are now expected to learn the same grade-level content as their peers, and this is the reason why research is surfacing on interventions to improve academics. Historically, special education provides specialized instruction to students with disabilities to accommodate individual differences. Although individualized interventions epitomize clinical approaches to intervention with students with disabilities, few empirically based intervention studies use such techniques (Denton et al., 2011)

## REVIEW OF LITERATURE

A student with a mild intellectual disability is defined as having an average IQ score between 50 and 70 (Gaffney & Morris, 2011). These students exhibit characteristics of learning at a slower pace than most of their regular education peers because of cognitive deficits. They may have slower processing skills that can have an impact on learning in all academic classes if the proper accommodations are not provided. Some of these characteristics vary depending on the individual. Because the average IQ of a mild intellectually disabled student tends to decline over time, it is important for educators to utilize as many interventions as possible that will improve academic success.

Boyle et al. (2002) reported that 75% of children with intellectual disabilities spend an excessive amount of time decoding grade level text, which makes it difficult for them to utilize important comprehension strategies. When they are not able to utilize said strategies, the students fall behind their grade-level peers. Boyle et al. (2002) note that the only way audio texts can be effective is if the audio is broken into sections in a manner similar to how textbooks are formatted. That is, they must be broken into chapters along with reading any titles and/or subtitles that might be included in the text. Students need to hear breaks in the readings and chapter numbers because it makes it easier for children with disabilities to navigate through the material. Cognitive deficits may make it difficult for these children to remember large amounts of information at a time. Boyle et al. (2002) explained that audio texts alone do not improve fluency and comprehension. They need to be used in unison with a specific reading strategy such as chunking or paraphrasing in order to develop a thorough understanding of the content. For example, the student would listen to the audio text as he or she follows the content in the book. They would then have to paraphrase what they read in order for the teacher to know how much

of an understanding the child has grasped from the readings. Chunking also encourages students to read text in phrases or chunks of language that represent meaning rather than individual words (Camine, Silbert, Kame'enui, & Tarver, 2004). A student thus learns that he can understand meaning without having to read each individual word, a process that can slow down someone's reading ability (Fuchs, Fuchs, & Compton, 2004).

Designating time during the school day for using audio books is important. Teachers can develop reading circles and listening centers to encourage the development of important reading skills. It is important for students to have access to different varieties of audio books depending on their interests. When students are provided with a highly engaging text instead of required reading, they become more motivated in regards to school.

Boyle et al. (2002) set up a control group and an experimental group. The experimental group was given access to textbooks using audio texts, and the control group did not use audio texts. All of the students were required to read at least twenty minutes a day during an intervention period. The team found an increase in comprehension and fluency skills for the experimental group by comparing pre- and post-test results. The students' reading increased from 55 words correct per minute to 75 words correct per minute. The national average for an eighth grader is 120 words correct per minute. Although the students did not meet the national standards, they did show gains.

With audio texts, access to the curriculum can occur at any time (Boyle et al., 2002). Some teachers can set up listening centers in their classroom, or if it is a resource classroom then the audio texts can be used for whole group instruction. The students can use audio texts to complete independent assignments or self-selected readings. Students with disabilities reported being happier in class because they were able to use the same books as other the students in the

classroom (Boyle et al., 2002). They also did not feel singled out because the whole class was given the opportunity to listen to the selected text. The struggling “regular” education students have also been able to reap the benefits of using audio books.

Similar to other studies discussed previously, Gaffney and Morris (2011) conducted a case study with Luke, an eighth grader diagnosed with a mild intellectual disability. Luke was tutored for over a year because of his low reading skills, specifically his difficulties with fluency. Luke was reading at a third-grade level, so that was where the tutoring occurred. Luke would listen to books on tape, read the sections assigned silently or out loud, and then choose two or three passages to read to the teacher the next day. His teacher would score the words per minute read correctly. They also conducted guided readings, and repeated readings throughout the tutoring sessions. This format occurred throughout the entire year.

The findings of the study follow. Luke’s reading rates remained the same when he was working with biographies; however, his reading rates increased when he read more narrative texts. Also, his reading rates improved when it was a text that Luke was interested in reading, which is why his rates increased with narrative texts. This study demonstrates how important it is for educators to find literature that interests the student. If the text is not of interest, then the student will not work as hard, and as a result, develop a lack of motivation, which will produce inaccurate testing results (Gaffney & Morris, 2011). According to Traux (2010), reading must always have a purpose for students who struggle with an intellectual disability. Before starting a piece of literature, the teacher can discuss with the students what to expect and how the text relates to their lives. Also, a teacher can discuss the importance of reading for future success. The more students know why it is important to read, the easier it is to convince them to do so. Lastly, teachers must be a model of literacy for their students. Educators should model what it

means to truly love reading and how to become immersed in it when we find a book of interest (Traux, 2010).

In the end, Gaffney and Morris (2011) found that Luke's oral rate of reading increased by 27 words per minute on a third-grade level, which improved to 100. His reading rate increased by 25 words per minute on a fourth-grade level, which rose to 75. With the increase, Luke still fell short of the national average for both third and fourth grade, which are 115 words per minute and 120 words per minute respectively. He fell five words short in each of his goals. Some educators might say that this intervention was a waste of time considering that Luke is in the eighth grade. Yet, if Luke were tested on an eighth-grade level, then nothing would be accomplished except a lot of frustration.

To support a study conducted by Montgomery (2009), Gaffney and Morris (2011) claim that one of the most effective ways of teaching reading is through storytelling and reading aloud. These methods familiarize students with the sound and sense of written language. When a teacher provides these types of accommodations for struggling readers, they could potentially become more motivated to read and are less likely to misbehave in the classroom.

Listening to stories recorded at a slower pace has been found to increase fluency, specifically through the use of audio books. Audio books provide a type of scaffolding that allows students to gain access to difficult material, which in turn allows them to focus on meaning (Figueroa, 2008). Not only does comprehension improve, but fluency develops at a faster pace as well. If audio books are to be effective, students must follow along with the text. Teaching strategies for how to follow along are important. A student can use his or her finger as a guide while listening, or they can use a ruler to follow the sentences down the page. These methods provide less confusion and keep the student from getting lost while listening. It is also important for a student



with a mild intellectual disability to take breaks from reading when needed. Some are only able to focus for ten to fifteen minutes at a time before they become distracted.

What if teachers provide students with strategies, but do not have the ability to provide them with audio books from the publisher? With all of the technology available to teachers today, there are multiple ways of providing audio text to students with disabilities. If audio is not available from the publisher of a particular book, a teacher can use an MP3 recorder, record his or her voice onto a CD, or produce a podcast by reading it himself (Edyburn, 2000). Once recorded, a teacher can post a podcast to his or her website. Students can download a podcast, which is a file that is distributed over the Internet, with the simple click of a button (Skouge, Rao, & Boisvert, 2007). With these types of strategies, students are allowed access to stories that would otherwise be left on the shelves of a library (Skouge et al., 2007). Not only will these methods improve listening skills, but they will also improve the basic reading skills that some students with disabilities so desperately need.

Students with IQs that fall within the intellectually disabled range can improve reading skills over time with the proper interventions. Allor, Mathes, Roberts, Cheatham, and Champlin (2010) conducted a longitudinal study that measured students' phonemic awareness, fluency, and comprehension. Children were placed in either a control group or a treatment group. Those selected for the treatment group received comprehensive reading instruction on a daily basis for 40 or 50 minutes. The control group did not receive any extra reading instruction besides what they received during class. Allor, Mathes, Roberts et al. (2010) found a significant increase in oral fluency, phoneme segmentation, and phonics for the treatment group when compared to the control group. For educators to make improvements in reading skills for students with intellectual disabilities, years of intensive instruction must occur. On average, the students in this

study increased their words per minute correct by 44. They began reading an average of 75 words per minute and almost met the national average of 120 words per minute at an eighth-grade level. This occurred by using many different types of interventions, including audio books and repeated readings.

Denton, Barth, Fletcher, Wexler, Vaughn, Cirino, Romain, & Francis (2011) did explain that students with disabilities who lack proper reading skills need more than a one-year intervention to make any significant progress. The problem is finding the time to provide such an intervention in the inclusion setting, especially when these children are expected to learn grade-level content. Study sessions can be held after school, or a teacher can have remediation days where some children are given accelerated work while individualized instruction occurs. It is also good practice to consult administration or speak with other teachers to develop a plan for working with children who are behind at their grade levels.

Allor, Mathes, Roberts et al. (2010) have also reiterated the fact that more research is required for improving reading instruction for children with intellectual disabilities. They did explain how important it is for a teacher to maintain high levels of expectations for children with special needs. Just because a student may be behind his or her grade-level peers does not mean that they do not have the ability to learn. Also, for any growth to be made, teachers must give immediate feedback and provide scaffolding in a positive and motivating environment.

With the interventions discussed in this research, children with a mild intellectual disability should improve sight word vocabulary and decoding skills, which in turn should improve comprehension, by hearing someone else read. This research has the potential to help students with a mild intellectual disability become more independent readers.

## METHODOLOGY

### *Participants and Setting*

The sample of students was taken from one middle school located in Middle Georgia. All students diagnosed with a mild intellectual disability across sixth, seventh, and eighth grade participated in the study. Other students with disabilities participated as well because the intervention was a part of the curriculum, but for the purposes of this study only mild intellectual disabilities were analyzed. There were ten students in this study. The students were assigned numbers one through ten throughout the study for confidentiality purposes. The students' ages ranged from twelve to fourteen years old. There were five males and five females. The race of each student was African American except one Caucasian female student.

The reading class was a connections class and not part of their core subjects. They would either have class two days or three days a week, alternating based on an A day B day type schedule. Connections classes are not the four core subjects that all students are required to take, which are math, science, language arts, and social studies. These classes are electives such as physical education, computer applications, arts, and band. They have one elective for the first half of the year and then switch to a different elective for the last half of the year. Those children who need remediation are often placed in a math or reading enrichment. They often stay in this remediation (connections) class for the entire school year.

### *Research question*

What is the impact of audio books for students with a mild intellectual disability?

### *Instruments*

*News articles.* The students were able to choose a news article to read that was of interest to them. Most of the articles were selected from [www.macon.com](http://www.macon.com) and [www.cnn.com](http://www.cnn.com). All of the

articles were written on a 4<sup>th</sup>, 5<sup>th</sup>, or 6<sup>th</sup> grade level depending on the needs of each individual student. The students had one minute to read the article to their reading teacher and were told to stop once the time was complete. The number of words read correctly was scored.

*Teacher-made comprehension tests.* The tests were developed based on what was read in the chapters of the books (*Bud, Not Buddy*, and *The Watsons go to Birmingham – 1963*). All of the tests were developed based on the ability of the student to recall information by answering multiple choice questions. There were also two short answer responses given on every test administered. The questions were read to the students and they answered independently. The scores were taken for each test and analyzed through statistical analysis by the research team.

*Observations and Interventions.* Once a month, researchers went into the classroom where the reading intervention occurred and observed the students and their participation levels in the class activities. Random interviews were conducted with students to understand what their perceptions were of the audio books. Samples of questions (8 in all) asked were as follows: How do you feel about coming to reading class? What do you like or dislike about listening to a book on a compact disc?

#### *Research Design and Procedures*

This research was designed with a mixed methods approach, which means that it contains qualitative and quantitative research. The students were tested on fluency and comprehension skills using articles of high interest found on the Internet and teacher made tests. Students read two books that they had chosen during the intervention period, which occurred during the first forty minutes of reading class. The first book was Christopher Paul Curtis's 1999 book, *Bud, Not Buddy*, and the second book was Curtis's 1995 book, *The Watsons go to Birmingham - 1963*. The teacher conducted a mini-lesson on how to follow along in the text as they listened to the

audio book. The students either used a ruler, their finger, or some type of other device to follow the words as they were read. This occurred two to three times per week. The lessons were followed by comprehension checks along with fluency checks every two weeks. The researchers also conducted observations and interviews with some of the students about the benefits or non-benefits of the audio books.

### *Data Analysis*

A chart was created for the fluency rate and comprehension scores for each student. The graph shows a baseline score and the progress, or lack thereof, for each child. If the words per minute on the fluency test increased, then the intervention of audio books may have had a positive impact. Also, if the percentages on the comprehension assessments increase, then the intervention of audio books may have had a positive impact (Denton et al., 2011). On the other hand, a decrease may mean that the intervention was not an effective strategy to use in the classroom. The charts were then condensed and the results posted in Table 1. When all of the data was completed and charts were analyzed, the SPSS software program was used to see if there was any statistical significance in the findings.

## **FINDINGS**

### *Fluency*

In order to gauge students' reading fluency over the period of our intervention, fluency data was collected as measured by words per minute (wpm) at twelve different checkpoints. Baseline data was collected on September 14, 2011, and the last checkpoint was April 3, 2012. The changes of fluency computed in Table 1 were obtained by subtracting students' words per minute (wpm) at the last checkpoint from those obtained at the baseline checkpoint. One encouraging finding is that although the baseline wpm varied from student to student (ranging from 8 to 99),

the majority of the ten students did show similar rates of increase in reading fluency. In particular, students #1, #2, #8, and #10 showed the highest gains, ranging from 16 to 19 wpm. Students #4 and #5 gained 13 and 14 words respectively. Students #6 and #7 showed smaller gains of fewer than ten words. It was hypothesized that the differences in these three sets of students could have varied because of the class time. Some had class in the mornings, while others had class in the afternoon, but we concluded that these differences did not have an impact on the results. Also, even though these students were diagnosed with a mild intellectual disability, they came to the intervention reading on various levels which might have caused some to increase at a faster rate than others. It was also noted that two students (#3 and #9) exhibited some difficulties in regards to improving their fluency rates (more discussions later). One's (#9) reading fluency dropped from baseline to the last checkpoint; the fluency rate for the other (#3) stayed the same.

<i>Table 1</i>			
Descriptive Summary of Changes in Reading Fluency and Comprehension by Individual Student			
Student ID	Fluency (Unit: Words per Minute)	Comprehension	
		After 1 <sup>st</sup> Book	After 2 <sup>nd</sup> Book
#1	+16	+20	+25
#2	+19	+8	+15
#3	0	+5	+5
#4	+13	+2	+3
#5	+14	+15	+8
#6	+6	+15	+8
#7	+4	+15	-4
#8	+16	+30	+9

#9	-15	-13	-12
#10	+18	+12	+13

The trend data from the baseline to each of the checkpoints revealed more patterns of students' growth (or regression) on reading fluency. In particular, we were able to identify three significant patterns: steadily increase (#1, #2, #10), remain at a stable level with minor fluctuations but eventually show an upward increasing trend (#4, #5, #6, #7, #8), and remain stagnant or decline over time (#3 and #9).

As a group, the average fluency rate for these ten students was 69.9 wpm at the baseline checkpoint with a standard deviation of 25.23. The average fluency rate increased to about 79 wpm with a standard deviation of 25.37. This difference failed to reach statistical significance ( $t = 0.804$ ,  $df = 18$ ,  $p > .05$ ), but we attributed this finding mainly to our small sample size (low statistical power) and large standard deviations (a reflection of the ten students' wide range of reading fluency). However, focusing on a small number of students over a prolonged period of intervention is a common practice in special education research. We believe that the ten-point difference from the baseline to the last checkpoint represents *practical* significance to special educators, especially if we compare this increase in fluency to the stagnant level of fluency that these ten students had demonstrated in the previous academic years before they participated in our intervention. Figure 1 illustrates the average changes of reading fluency for the ten students as a group. In addition to the baseline data and the data at the last checkpoint (Probe L), we also included two additional checkpoints that we believe are significant. Checkpoint 6 (Middle Probe F) occurred on December 14, 2011 toward the end of the fall semester. Checkpoint 7 (Middle

Probe G) occurred on January 10, 2012 at the beginning of the spring semester. One promising result is that as a group, the ten students’ average fluency rate did not drop after the winter break, a typical reading loss phenomenon observed among students. In fact, their average reading fluency was slightly higher at the beginning of the spring semester.

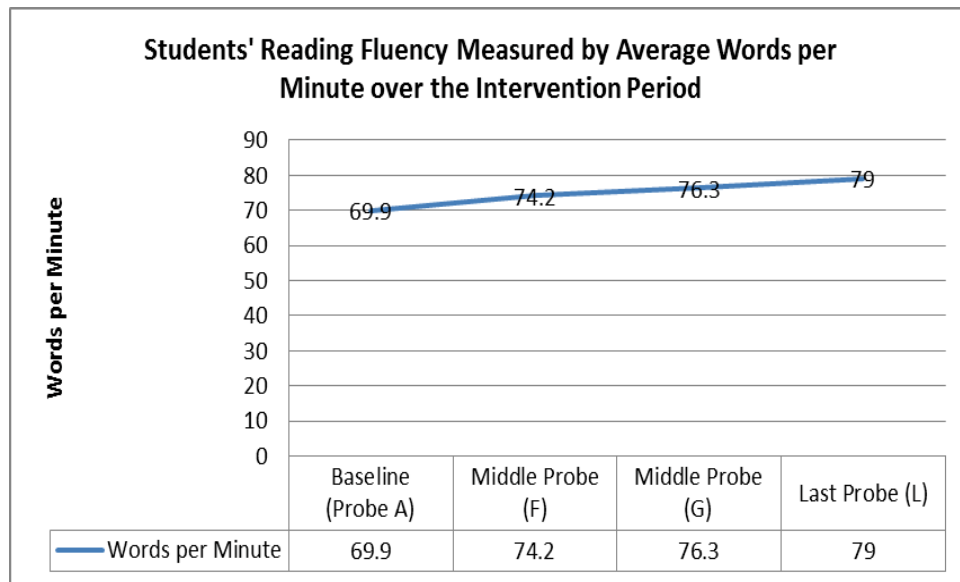


Figure 1. Students’ Average Reading Fluency over the Intervention Period.

The following qualitative results help us gain deeper insights about changes in these students’ reading fluency. First, we found that these students looked forward to coming to class and being able to read the books that they picked as a group. When we were able to observe them in class, these students were always attentively listening and following along in the books with their finger, a pencil, or a ruler that was provided by the teacher. When the teacher would ask questions, these students would participate with enthusiasm. Also, they worked diligently at completing various assignments that were given by the teacher related to the books. When we asked Student #1 about how he liked listening to the book, he said he liked it because it helped him pronounce words that he did not know when he reads by himself. He also said that he was



more interested in reading because he had a choice in picking the book (Interview #1, 10/28/11). Student #10 expressed some of the same ideas as the first student. She said the book was interesting and that is why she always paid attention and participated in class. “A lot of times the stuff in class is boring, it is about nothing that I like to read” (Interview #2, 11/30/11). High interest level books seem to play a role in participation rates which increased the fluency of these students discussed.

There were two students who exhibited some difficulties in regards to their fluency rate. Student #3 went from reading 63 wpm to 68 wpm during the first book *Bud, Not Buddy*. When she starting reading *The Watsons go to Birmingham - 1963*, her fluency rate dropped from 63 wpm to 59 wpm. When asked about the exercise, she said that she was not interested in reading the second book. She said she was also tired of the exercise and stopped of focusing and paying attention. When we asked her about raising her hand and asking the class to pick another book, she said that she did not want to go against what the class wanted to read (Interview #5, 1/31/12). Student #9 went from reading 75 wpm at the beginning of the year to reading 60 wpm at the end of the year. She was the only student who showed a steady decline throughout the entire school year. She never wanted to talk to us when we would come to the class to conduct observations. She would usually have her head down, or she would be looking around the room not focused on her book. Even after the teacher tried to redirect her several times, it still did not make much of a difference. Towards the end of the school year, the teacher shared some important information with us. She said that this student handed her a note saying that she was being abused at home and not being fed, which the teacher turned over to the proper authorities. This might have been a contributing factor for her decline and inability to focus at school.

*Comprehension*

As with the fluency data, we collected comprehension scores at twelve different checkpoints. Our baseline data was collected on September 28, 2011, and the last checkpoint was also April 3, 2012 (posttest for the 2<sup>nd</sup> book). Two additional intermediate significant checkpoints occurred on December 14, 2011 (posttest for the 1<sup>st</sup> book) and January 10, 2012 (baseline for the 2<sup>nd</sup> book). The first set of changes of comprehension computed in Table 1 was obtained by subtracting students' comprehension scores on December 14, 2011 (posttest for the 1<sup>st</sup> book) from those obtained at the baseline checkpoint. The second set of changes of comprehension was obtained by subtracting students' comprehension scores on April 3, 2012 (posttest for the 2<sup>nd</sup> book) from those obtained at the second baseline (1/10/2012).

The findings of changes in comprehension for each individual student are highly similar to those for fluency. In particular, regardless of the varied baseline performance, the majority of the ten students (except #9) gained in their reading comprehension over the period of our intervention (See Table 1). Trend data from the baseline to each of the checkpoints reveal similar patterns to those found on reading fluency. Three significant patterns again are steadily increase, remain at a stable level with minor fluctuations but eventually show an upward increasing trend, and decline over time (#9). But more students belong to the second category this time. For example, #1 and #10 experienced a drop in comprehension after the Christmas break. Student #1 in particular told us that he was still thinking about Christmas break and was not really paying attention to the first few chapters of the book (Interview #4, 1/13/12). However, his score improved for the remainder of the year.

As a group, the average reading comprehension score for these ten students was 63.9 at the baseline checkpoint with a standard deviation of 8.97. The average reading comprehension increased to 74.8 with a standard deviation of 11.36 after students' reading of the 1<sup>st</sup> book. The

average reading comprehension at the second baseline (1/10/2012) was 73.5 with a standard deviation of 9.50. An average comprehension score of 80.5 was observed with a standard deviation of 12.60 at the last checkpoint after students’ reading of the 2<sup>nd</sup> book. Despite our small sample size and low statistical power discussed earlier when we reported the fluency results, the difference in students’ average reading comprehension between the 1<sup>st</sup> baseline and the 1<sup>st</sup> posttest did reach statistical significance at the .05 level ( $t = 2.381, df = 18, p = .029$ ). The same holds if we compare students’ average comprehension score after reading the 2<sup>nd</sup> book and that at the initial baseline ( $t = 3.394, df = 18, p = 0.003$ ), a statistical significance at the .01 level. Figure 2 illustrates the average changes of reading comprehension for the ten students as a group. Similar to an earlier finding on reading fluency although slightly less desirable, the ten students’ average comprehension score did not drop significantly after the winter break, a typical reading loss phenomenon observed among students. Their average comprehension score at the 2<sup>nd</sup> baseline was about the same level as compared to their average score after they read the 1<sup>st</sup> book.

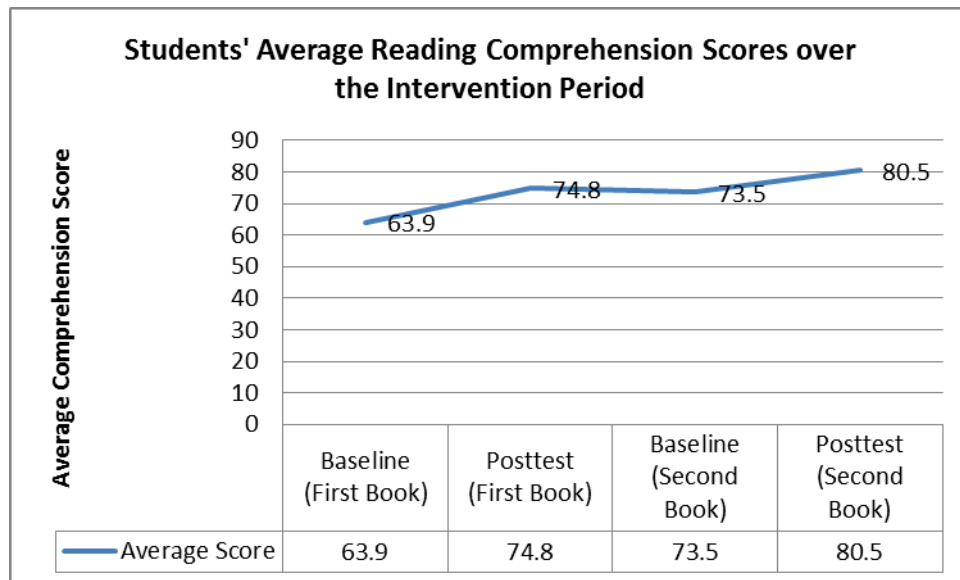


Figure 2. Students’ Average Reading Comprehension over the Intervention Period.

The following qualitative results further our understanding. Even though student #3 struggled with the fluency rate portion of the intervention, she seemed to perform well on the comprehension portion of this study. She might have still been listening to the audio even though she was not following along in the book. That alone might have been why she was able to answer some of the questions on the comprehension tests administered in class. The other students showed gains on their comprehension tests throughout the term of this research. When we asked them what they think made their test scores increase throughout reading the books, they simply said that it was because they were reading something that was interesting (Interview #8, 2/9/12). One of the students said that he stayed awake because he had a part in picking the book and it was something that he wanted to read. “This was better than other times when we are forced to read things that are boring” (Interview #10, 3/13/12). Similar to the fluency probes, student #9 continued to struggle with the comprehension tests as well. She showed a 13 point decrease on the first book, and a 14 point decrease on the second book. This student’s severe difficulties at home seem to have also affected her ability to comprehend these two texts.

### **DISCUSSIONS AND CONCLUSION**

With increasing high stakes testing and accountability initiatives such as Race to the Top and the Common Core Standards, students with a mild intellectual disability continue to struggle in their academic pursuits because they lack basic reading skills. Based on our findings and discussion, audio books offer an intervention that impacts fluency and comprehension positively for students with a mild intellectual disability. Their use helps reduce frustration if the student does not know how to pronounce a particular word (Wolfson, 2008). Also, these students increase their sight word recognition once they hear the correct pronunciation of a difficult word.

The findings can be synthesized into two categories of fluency and comprehension. In the fluency category, all students, except student #9, improved in fluency to a varying degree. Each student made gains in the average words read per minute. Although they were not reading at the national average rate, each student did show improvement. In the comprehension category, the students made gains in scores throughout the year. All of the students improved their comprehension skills to a varying degree except for student #9. Our findings are highly comparable to those of previous research interventions aimed at improving the reading fluency levels of students with mild intellectual disabilities (e.g., Boyle et al., 2002; Gaffney & Morris, 2011)

This particular intervention was successful because it was something that had never been used on a consistent basis when these students were in class. When a teacher would use an audio book, it would be sporadic, and the audio book would not be used for the entire length of one assignment. This type of implementation does not allow a student to build his or her sight word recognition skills to the highest levels. Our research has proven the potential success of this intervention when it is used consistently. Also, many teachers would assign reading material to these students and expect a majority of them to read on their own, causing frustration and an inability to focus (Wolfson, 2008). When we provided audio books for these students, they were able to complete assignments and maintain focus because they heard a voice pronounce difficult words, which also helped them comprehend the material. Overall, we saw increases in comprehension and fluency, while these students' previous teachers saw their scores as being stagnant over the years.

### *Limitations*

Overall, nine of the ten students' learning outcomes can be considered quite satisfactory, although some things need to be pointed out as concerns. There are many factors that could have also impacted the results such as time of day, whether the children ate breakfast or not, or how much sleep they had the night before (Rubie-Davies, 2010). Also, not all of the students were interested in the books that were selected, which impacted their level of participation, or they had circumstances occur outside of school that impeded their ability to perform during classroom tasks. Although the students listened to the audio books and followed along with their finger, there is no way to know if the students actually read along as the audio version was playing. Because reading an actual book allows one to focus on the material, when you are listening to it your attention is split and focus on the material is compromised. It is difficult to keep your attention on the book so you tend to miss out on certain important details in the material.

It was not take into consideration other reading interventions that these students may have been receiving at the time of the study. There is a possibility that other interventions might have impacted our results. In the future, it is important to discuss other interventions being used in the classroom so the reader knows exactly what the students are receiving.

The levels of fluency and comprehension were different for the students at the start of the study, another potential limitation of this study. The rate of fluency increase could have been impacted by their initial abilities.

### *Implications*

Regardless of the limitations, this study provides some frame of reference for future research. Our ultimate goal was to see if audio books had an impact on reading fluency and comprehension. It is important to know that using this intervention, along with researching other interventions that work, will ultimately improve the academic success of students diagnosed with

a mild intellectual disability. This particular intervention may not help every special education student that a teacher works with in his or her classroom. It is important that they look at other interventions as well to find out what is best suited for the students they teach.

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