To “Achieve” or Not to “Achieve”

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To “Achieve” or Not to “Achieve”

A Research Paper

Submitted to the Special Education Faculty of the
Marshall University Graduate College
In Partial Fulfillment
Of the Requirements for the Degree of Master of Arts

By

Jodi Nicole Sergent

April 30, 2015
Abstract

Reading levels can be assessed through lexile measures, which determine and calculate growth through goals set by Individualized Education Programs (IEPs). IEPs are based on specific Content Standard Objectives (CSOs) of each student set by national and state mandates. Objectives listed in each student’s IEP can be met through specialized instruction with the use of specific strategies in an effort to increase student learning. Achieve 3000 is a technology-based reading comprehension program that focuses on specific needs of students in order to provide reading material at each student’s reading level. Students have the opportunity to read the same material as their peers but have it tailored to their own personal reading ability. Direct instruction, repetition, and practice using skills to improve reading comprehension are modeled by the special education teacher. Strategic lessons are scaffolded to provide support when needed but gradually allow the students to take responsibility of their own learning while practicing specific skills needed to close the achievement gap of learning deficits. Reading comprehension is a needed skill for all academic settings, but most importantly, all aspects of daily living.

Key words: reading comprehension, lexile measures, technology
Acknowledgements

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Chapter 1

Rationale

Reading comprehension is the ultimate goal of reading. Through observation, both in the general education classroom where the researcher co-teaches and in the special education resource room, many students are below average in reading ability and struggle to keep up academically with peers who are reading at the average through above average range. Achieve 3000 is being offered in many elementary, middle, and high school settings throughout Kanawha County. However, this program is only offered to students in the special education classrooms at the middle school where the researcher is employed. Achieve 3000 is geared to helping students with vocabulary development and reading comprehension. Improved lexile growth of eighth-grade students in the special education resource setting will be measured.

This study is important because statistical research indicates numerous students are struggling with reading assignments in the eighth-grade general education and special education classroom settings. According to the National Center for Education Statistics (2009), “Recent National Assessment of Educational Progress data indicates that 70% of eighth graders in public schools perform at or below the basic level in reading comprehension nationally” (p.35) as cited by Fagella-Luby and Wardwell in 2011. Reading is an integral part of the everyday classroom, but more importantly, an integral part of everyday life. Thus, comprehension is the ultimate goal of reading instruction (Morrow & Gambrell, 2011).
The researcher teaches reading to a small group of students who are struggling overall with basic fundamentals. The frustration from students when it is time to read literary and informative texts has been observed. Even though students usually perform at higher levels when text is read to them, they are not able to fully understand more than the basic plot, setting, and basic character information. Students at this grade level should be able to describe the exposition piece of information, foreshadowing, conflict, irony, turning point, resolution, climax, characteristics of characters and reasoning behind their actions, author’s purpose, etc. Students also struggle to use strategies to determine unknown vocabulary. Students in eighth-grade should be able to use context clues as well as Greek and Latin root words, prefixes, and suffixes to identify vocabulary meaning.

Achieve 3000 is a computer-based program that allows all students to read the same article, but at each student’s lexile ability. Students are given a level-set assessment to determine their initial lexile. Differentiated instruction is much more manageable with Achieve 3000. The teacher can prepare a lesson based around specific topics. Lessons can be based upon building on prior knowledge, introducing vocabulary, and allowing students to practice independent reading of an article based on individual reading ability. The students take a short assessment after reading the article, which evaluate content standards, allowing teachers to see specific areas that students show weakness and develop lessons around content standards with which students need assistance. Achieve 3000 provides a weekly progress report that the researcher can review, and a final level set assessment at the end of the school year.

Because students who are struggling readers are typically not motivated to read, reading will not seem important to them. Students who are struggling readers need to be in an environment that is conducive to learning and a place where they feel like they have support and
encouragement. Teachers need to know what interests the students have and choose articles accordingly as students are generally more motivated when the reading topic is of interest to them. This is a difficult task in classrooms that have many students, but is manageable in a classroom consisting of four students, similar to the researcher’s classroom. Achieve 3000 can deliver motivation for students who struggle to read by providing them with interesting reading topics at a level that is based on their lexile ability. Because the achievement gap between general education and special education needs to be closed, Achieve 3000 could be a solution to increasing lexile growth in order to close the achievement gap in the eighth-grade special education classroom.

**Purpose**

The purpose of this research study is to measure lexile growth when Achieve 3000 is taught in the eighth-grade special education classroom. This research will be successful if lexile growth increases.

**Research Questions**

- What will the effects of Achieve 3000 be on student lexile scores?
- How will lexile growth of students who use Achieve 3000 compare to that of special education students in the general education setting that includes support from a special education teacher?
- How will lexile growth of students who use Achieve 3000 compare to that of general education students?
Hypothesis

Initially, there are two research questions to be answered. The researcher is convinced that lexile growth will increase in the eighth-grade special education classroom. Students will benefit from Achieve 3000 being utilized in the classroom with the researcher. The Achieve 3000 program is designed to help student’s lexile increase by 150 lexiles if students average two articles/lessons per week and if activities are passed with a score of 75% or higher. In addition to the eighth-grade general education classroom, the researcher will explore how this small special education classroom of four compares to the lexile increase of the larger eighth-grade general education classroom that is supported with a special education co-teacher in conjunction to a general education teacher. The researcher predicts that all three classroom settings will produce an average lexile increase. However, the researcher expects noteworthy lexile increase within the small resource classroom that utilizes the Achieve 3000 program.
Chapter 2

Literature Review

After review of several articles, it is evident that teachers need to know how to meet the needs of each student in the classroom. Based on No Child Left Behind (NCLB), children with learning disabilities should receive the same education as their regular education peers in the same setting. Because middle school students are still cognitively developing, they have the ability to continue to learn literacy skills that will improve academic success. Students in eighth-grade would be in the formal operational stage according to Piaget’s Stages of Cognitive Development (Woolfolk, 2013). At this stage, thinking becomes more scientific and abstract problems are solved in a more logical order.

Middle school students who struggle with literacy comprehension will continue to struggle through high school years until adulthood if interventions are not continued through this stage of learning (King-Sears & Bowman-Kruhm, 2010). Additionally, King-Sears and Bowman-Kruhm expressed that “secondary students would benefit from instruction that focused on increasing their reading levels” (p. 31). Reading levels can be assessed through lexile measures and by determining and calculating growth through goals set by Individualized Education Programs (IEPs). IEP goals are based on specific Content Standard Objectives (CSOs) set by national and state mandates. Goals and objectives listed in each student’s IEP can be met through specialized instruction through the use of specific strategies in an effort to increase student learning.
Lexile

According to Ardoin, Williams, Christ, Klubnik and Welborn (2010), a lexile score is a quantitative measure of readability that is determined by word frequency and sentence length. The Lexile Framework for Reading is a common scale used to measure reading and comprehension ability. The Lexile Framework is a tool that can assist teachers, parents, and students in book selection that is based on forecasted reading comprehension skills. Once a student’s lexile is measured, the student will have a better understanding of which books will be matched to their reading ability and level of complexity.

Furthermore, teachers can use the Lexile Framework as a tool to design and guide instruction. Likewise, students will find reading materials that are challenging but not frustrating (Stenner, 1999). When students read books based on their lexile level, the student should be able to comprehend the reading material with 75% accuracy (MetaMetrics, 2007). For example, if a student reads a book on their Lexile level, the probability of student response is expected to be 75% correct.

Measurable Content Standard Objectives

Content Standard Objectives are a main focus with special education students. It is crucial that children with disabilities receive appropriate instruction to meet their individual needs. Specialized reading instruction for students with mild intellectual disabilities and specific learning disabilities are recorded in the student’s IEP. The Individuals with Disabilities Education Improvement Act (IDEA) of 2004 requires that all students’ IEPs include annual goals that are measurable according to present levels of achievement (Capizzi, 2008). All teachers are
responsible for following IEPs to ensure that students are successful with mastering goals. Stenner (1999) states, “Schools can use lexile scores of students to measure the results of interventions designed to improve reading skills. Measurable goals can be clearly stated in terms of lexile measures” (p. 2).

Achieve 3000 lessons are based on CSOs in areas of reading, writing, and language. Teachers should utilize reports within the program when needed to see how individual students are achieving toward specific goals and objectives. Mini-lessons can be taught if specific weaknesses are detected from observing reports. For example, West Virginia State Department Next Generation CSOs reading objective ELA.8.R.C1.4 states that students at the eighth-grade level should be able to cite textual evidence that most supports an analysis of what the informational text says explicitly as well as inferences drawn from the text can be viewed to see which students have mastered this skill, need additional practice, or need aggressive intervention. The program allows the teacher to review this skill and choose articles where this specific standard can be practiced until mastery is achieved.

**Strategies for Reading Comprehension**

In a comprehension study by Fagella-Luby and Wardwell (2011), three strategy suggestions to improve comprehension through supplemental instruction were noted: content area-related strategy, generic components of comprehension instruction, and sustained silent reading. The downfall of each strategy is deciding who is qualified to teach. For example, a highly qualified content-specific teacher should be the only individual teaching content-area related strategy, while a reading specialist would be the only individual able to practice the generic components of comprehension instruction. However, through training, special education
teachers are highly qualified to administer Achieve 3000, which includes mini lessons involving generic components of comprehension instruction. The teacher can see in exactly which elements of comprehension each student shows weakness after formative assessments are observed. According to Watson, Gable, Gear and Hughes (2012), it is crucial for teachers to know problem areas of students before selecting the strategy for intervention.

Focusing on prior knowledge before an article is read is a key component to Achieve 3000 being successful (Keck & Kinney, 2005). Students will be more motivated when reading the article if direct vocabulary instruction is taught. Also, showing relevance of the article on daily life is important to motivate student interest. Through observation in the classroom, lack of student motivation is apparent. A study by Melekoglu and Wilkerson in 2013 that involved struggling readers with and without learning disabilities were observed where the students were in a classroom environment similar to the researcher’s Achieve 3000 classroom. The students participated in a whole-group environment where direct instruction was delivered by the teacher. This study required students to rotate through three stations; a technology-based program, a small teacher-led group, and independent reading. Achieve 3000 could be set up similarly, but does not have specific independent reading material. However, sustained silent reading could be substituted for similarity. This study noted through survey generated results that student self-concept improved for both struggling readers with and without learning disabilities.

Several studies (Palumbo & Sanacore, 2009; Watson, Gable, Gear & Hughes, 2012) give suggestions to help struggling middle school students achieve success with reading comprehension. Vocabulary development, repeated readings for fluency, reading multiple texts on the same subject, and direct instruction are all essential components of successful reading comprehension. Specific suggestions were mentioned as successful strategies: building prior
background knowledge, using graphic organizers as a visual aid, finding the main idea, and summarizing the major points with the text. In addition, students should be taught the skill of self-monitoring when reading. Since mastering strategies takes time and practice, they should be modeled so that students can develop skills on a personal level.

Unless the reading material has been rehearsed, Fair and Combs (2011) suggest avoiding the round robin method for all students when reading in the classroom. Independent silent reading is a skill that is more beneficial to students than reading aloud. Suggestions for transitioning from reading aloud to independent silent reading are: reading partners, think-pair-share, literature circles, and think alouds. Think aloud lessons model the reading experience for the students. As the teacher reads aloud, the student has an opportunity to listen to fluent reading as well as the teacher’s personal thoughts concerning the material. The teacher should stop occasionally during the text that is being read and address confusing material, ask questions, and make predictions. These techniques will demonstrate “fix-up” strategies that mature readers use when reading.

While implementing evidence-based strategies, this research study will measure lexile growth of eighth-grade students in the special education classroom when Achieve 3000 is taught. This study will prove successful if lexile growth increases. The Achieve 3000 curriculum is designed to increase student lexile by 150 measures in one school year. The researcher predicts lexile increase for students who utilize Achieve 3000.
Chapter 3

Research Design and Methodology

The researcher has one year of experience in the classroom working with middle school children. This research will examine the effects of the Achieve 3000 reading program on the lexile scores of four eighth-grade students identified with either mild intellectual disabilities (MID), learning disabilities (LD), or other health impairments (OHI). Achieve 3000 will be taught in the special education classroom. An additional goal of this study is to compare the lexile scores of the four eighth-grade students who are receiving Achieve 3000 instruction to the lexile scores of four special education students who are in the general education co-taught classroom and to four general education students who are in the general education classroom.

Subjects

Subjects selected for this study consists of 12 children in Kanawha County Schools who are in eighth grade, both male and female, and range in ages 13-15. The first group of four students will receive instruction in the special education classroom using Achieve 3000. Subject A is identified with other health impairment (OHI). Subject B is identified with a specific learning disability in reading comprehension (LD). Subject C is identified with mild intellectual disability (MID). Subject D is identified with mild intellectual disability (MID).

The following students, both male and female with ages ranging from 13-15, receive special education services and instruction in a general education classroom that is supported with a co-teacher, who is the researcher. Subject E is identified with a learning disability (LD). Subject F is identified with other health impairment (OHI). Subject G is identified mild intellectual disability (MID). Subject H is identified with a learning disability (LD).
The following students do not receive special education services but do receive instruction in a general education classroom. Subjects I, J, K, and L are general education students who are both male and female with ages ranging from 13-15.

The school in which research is being conducted has a total enrollment of 721 students. It is noted by the West Virginia Department of Education that 98.5% of the student population are White, while the other 1.5% consists of Black, Hispanic, Asian, and Indian. The whole-school consists of 47.3% males and 52.7% females. Students with exceptionalities and disabilities make up 11.8% of the whole-school population and 45.2% of the student body are considered low socioeconomic status.

Demographics of the 12 students included in this research study are 92% white and 8% black. There are 58% males and 42% females participating. Students with IEPs due to their disabilities make up 67% of this study. Participants who are considered low socioeconomic status and receive free lunch account for 75% of individuals included in this study.

**Procedures**

Articles about lexile scores, measurable content standard objectives, and reading strategies were reviewed by the researcher. Permission to do research with students in the school chosen was given by the principal. After the researcher became CITI certified, an application was completed and submitted to Marshall’s International Review Board (IRB) so the researcher could begin working with students in the classroom setting for the research.

The first group of students attends the Achieve 3000 special education reading class 5 days per week for 52 minutes. The students’ lexile scores are calculated by the Achieve 3000 software after students took an initial lexile level set. Reports indicating an increase or decrease
of lexile scores are documented weekly and monthly from August 2014 through December 2014 based on instruction and the use of Achieve 3000 with the researcher. The researcher will provide mini-lessons on specific learning goals. The students will practice these skills by reading informational articles based on their reading level, followed by a short assessment. At least two articles will be read weekly. The researcher reviews vocabulary with students prior to reading the daily article. The student is directed to a Before Reading Poll question, which is to gain the interest of the student. The researcher reads the article with each student, while stopping periodically to check for understanding. The student is instructed to reread the article. Once the article has been read, the student is to answer 8 Activity questions. Students are urged to refer to the article when answering the 8 questions. If time allows, students can answer a thought question, related math problem, read a stretch article (which is one level above their current reading level), and answer questions related to the stretch article.

The second group of students attends a general education reading class that is supported with a co-teacher 5 days per week for 52 minutes. Likewise, the third group of students attends a general education reading class 5 days per week for 52 minutes. Students from both groups 2 and 3 read a fictional novel chosen by the general education teacher. Students read one to two chapters daily, alternating methods chosen by the general education teacher. Methods include round-robin, popcorn, partner, silent, or by the teacher. Students discuss key points after reading each chapter. Students write a summary after daily reading. Formative assessments are performed by whole-class discussions. Students are given quizzes on vocabulary development.

In addition, students in Groups 2 and 3 take the Scholastic Reading Inventory (SRI) benchmark tests three times per year during the English Language Arts class period. The SRI test is similar to the Achieve 3000 level set test, measuring reading comprehension and vocabulary
development, and then calculated by the SRI computer software. This test is given at the beginning of the school year, midyear, and at the end of the school year.

**Instrumentation**

The first group of students will take a level set pretest prior to starting the Achieve 3000 program to identify their initial lexile score. Students are assessed on skills such as: vocabulary usage, indicating the main idea, citing evidence, inferential reasoning, and sequencing. The goal is for students to score a 75% or better during the activity. Scoring a 75% or better indicates lexile growth. The Achieve 3000 software calculates lexile increase or decrease based on percentages during assessment.

Students from groups 2 and 3 will take a computer-based pretest through Scholastic Reading Inventory (SRI) similar to the Achieve 3000 level set that will measure initial lexile level. There are approximately 35 questions to assess comprehension levels which students read a short scenario and are then asked questions relating to vocabulary development, author inference, main idea, and characterization. Students will take a midyear assessment test. Initial and final lexile scores will be calculated by Scholastic Reading Inventory for students from Groups 2 and 3.

**Date Analysis**

The researcher will compare Achieve 3000 lexile scores from August 2014 through December 2014 to identify the progress that was made by each student. The researcher will compare lexile scores of age-equivalent students in two other settings mentioned previously. Gains or losses will be determined at the conclusion of the study using a formula noted by Archer (2010):

\[
\Delta = T_{\text{End}} - T_{\text{Baseline}}
\]

where $\Delta$ is growth in lexile points, $T_{\text{End}}$ is the best lexile
score throughout the study, and T_{Baseline} is the initial lexile score (p. 285). Lexile scores of the
other two eighth-grade classroom settings will be calculated using the same formula. However,
comparisons between the other three eighth-grade classroom settings will be shown in averages
and percentages.
Chapter 4

Results

The purpose of this research study is to measure lexile growth when Achieve 3000 is taught in the eighth-grade special education classroom. Many students who are placed in the special education classroom have difficulties with reading comprehension, which can be measured in lexiles. These students must be taught strategies that will assist in the development of comprehension. The components of the computer-based Achieve 3000 reading program, such as vocabulary development and the repeated practice of specific comprehension elements, are strategies used to increase reading comprehension, which is the ultimate goal of reading.

Achieve 3000 was used to increase reading fluency of the four students in Group 1. Students in this group were identified with either a specific learning disability in reading comprehension (LD), mild intellectual disability (MID), or other health impairment (OHI). Participants in Group 1 received reading instruction in the special education classroom due to needs specified within their Individualized Education Program (IEP). The researcher began the study by giving each student a pretest assessment, which measured his/her initial lexile level. Students had the test administered in a group setting, but were tested individually using the computer-based program (Achieve 3000) in order to calculate lexile levels. Students read articles on a daily basis based on their personal lexile level, and then answered eight questions to measure understanding of the material that was read. All data was calculated through the Achieve 3000 software. This method was followed five days per week. Individualized lessons were taught on specific reading skills when weaknesses were noted.
Table 1 displays that all students in Group 1 increased lexile by at least 10% over the four-month observation period. Student A produced an initial lexile of 455 in August 2014 and had a post lexile of 525 in December 2014, which resulted with a total lexile increase of 70 lexiles (13.3%). Student B started with an initial lexile of 405 in August 2014 and finished with a post lexile of 520 in December 2014. The total lexile increase for Student B was a 115 lexiles (22.1%). Student C’s initial lexile was 310 in August 2014 and concluded with a post lexile of 490 in December 2014. The total lexile increase for Student C was 180 lexiles (36.7%). An initial lexile for Student D was measured at 295 in August 2014 but rated a final lexile in December 2014 of 410. The total lexile increase for Student D was 115 (28.0%). Group 1 had an average initial lexile level of 366 in August 2014 and had increased to an average of 486 lexiles by December 2014. The average lexile increase for Group 1 was 120 lexiles (25%).

Table 1

*Group 1 Results*
Students from Group 2 were given a lexile assessment in August 2014 through Scholastic Reading Inventory (SRI) to determine initial lexile level. This group of four students was identified with either a specific learning disability in reading comprehension (LD), mild intellectual disability (MID), or other health impairment (OHI). Participants in Group 2 receive special education services in the general education classroom according to their IEPs. The researcher began the study by giving each student a pretest assessment, which measured his/her initial lexile level. Students had the test administered in a group setting, but individually using a computer-based program, which calculated lexiles through Scholastic Reading Inventory (SRI) software. Students attended a general education classroom that was supported with a co-teacher on a daily basis. Students in Group 2 were reassessed in December 2014 to measure lexile growth. All data was calculated through the Scholastic Reading Inventory (SRI) software.

According to the data, the majority of students in Group 2 displayed a decreased lexile as shown in Table 2. Student E produced an initial lexile of 758 in August 2014 and had a post lexile of 812 in December 2014, which resulted with a total lexile increase of 54 lexiles (6.6%). Student F started with an initial lexile of 958 in August 2014 and finished with a post lexile of 727 in December 2014. The total lexile decrease for Student F was a 231 lexiles (31.7% decrease). Student G’s initial lexile was 823 in August 2014 and concluded with a post lexile of 805 in December 2014. The total lexile decrease for Student G was 18 lexiles (2.2% decrease). An initial lexile for Student H was measured at 1141 in August 2014 but rated a final lexile in December 2014 of 1106. The total lexile decrease for Student D was 35 (3.2% decrease). The Group 2 average initial lexile was 920 in August 2014 and average Lexile in December 2014 was 863. The average lexile decrease for Group 2 was 57 lexiles (6.2% decrease).
Likewise, the Scholastic Reading Inventory (SRI) was used for students from Group 3 in August 2014 to measure initial lexile level. This group of four students was not identified with any disability or exceptionality. The researcher began the study by giving each student a pretest assessment, which determined his/her initial lexile level. Students had the test administered in a group setting, but individually using a computer-based program, which calculated lexiles through Scholastic Reading Inventory (SRI) software. Students received typical grade-level instruction in a general education classroom. Students in Group 3 were reassessed in December 2014 to measure lexile growth. All data was calculated through the Scholastic Reading Inventory (SRI) software. The majority of students in Group 3 displayed an overall increase in lexile.

The data, presented in Table 3, reveals that most of the students in Group 3 displayed an increased lexile. Student I produced an initial lexile of 1168 in August 2014 and had a post lexile of 1251 in December 2014, which resulted with a total lexile increase of 83 lexiles (6.6%).

Table 2

Group 2 Results

![Graph showing Group 2 Pre-Test vs. Post-Test](image)
Student J started with an initial lexile of 1046 in August 2014 and finished with a post lexile of 992 in December 2014. The total lexile decrease for Student J was a 54 lexiles (5.4% decrease). Student K’s initial lexile was 1251 in August 2014 and concluded with a post lexile of 1290 in December 2014. The total lexile increase for Student K was 39 lexiles (3.0%). An initial lexile for Student L was measured at 968 in August 2014 but rated a final lexile in December 2014 of 1029. The total lexile increase for Student L was 61 (5.9%). The Group 3 average initial lexile was 1108 in August 2014 and average post lexile in December 2014 was 1141. The average lexile increase for Group 3 was 36 lexiles (2.8%).

Table 3

*Group 3 Results*

<table>
<thead>
<tr>
<th>Group 3 Results</th>
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<td>Student L</td>
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</tr>
<tr>
<td>Group 3</td>
<td><img src="image.png" alt="Graph" /></td>
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</table>

Group averages were considered in each of the three groups in terms of percentages of lexile increase or decrease. Group 1 displayed a remarkable average of 25% increase in lexile levels. The least amount of increase in the group was 13.3% and the greatest was 36.7%. Group 2 demonstrated an average of 6.2% decrease of lexile levels. The greatest decrease in lexile level was 31.7% and the greatest increase was 6.6%. Group 3 revealed an average of 2.8% increase in
Based upon the results of the study, the hypothesis has been accepted. Students in Group 1 demonstrated the greatest increase of lexile in comparison to the other two groups who do not receive instruction with Achieve 3000. The majority of students in this study experienced an increased lexile over the course of the observation period. However, there is a marginal difference between students who use Achieve 3000 and those who do not. Achieve 3000 has been exposed as a successful tool in helping eighth-grade students increase lexile and comprehension skills in the special education classroom.
Chapter 5

Discussion

Reading comprehension is the ultimate goal of reading. Not only is reading an essential function of the everyday classroom, it is a basic necessity of everyday life. Every student needs to be able to comprehend what is read for success in life. Whether the goal is to read a manual to complete a task, the newspaper or a magazine article to gain information, or a recipe to cook a meal, reading is used in all aspects of life. Students whose reading comprehension increases will have more confidence in the classroom, which will likely improve their outlook in the school setting.

Implications of the Study

The results of this study concerning the first group showed that the first hypothesis appears to be true: there was a significant positive change (increase) in lexile scores over a four-month time period for students who attended the Achieve 3000 special education reading class. This suggests that the Achieve 3000 intervention will guide students’ reading comprehension skills in a positive direction, which should assist student success in all academic settings. These results are consistent with the established research discussed in the review of literature section; strategies including prior knowledge of students, vocabulary development, repeated readings, and practicing specific skills are all methods that prove to be effective for improving student comprehension skills.

The second hypothesis, that all three classroom settings would produce an average lexile increase, does not appear to have a conclusive result. The results varied greatly among the
groups. While Group 1 did produce a dramatic positive lexile increase, group 2 produced an overall decrease in lexile measures, and group 3 exhibited a slight lexile increase.

**Limitations**

The school in which the participants of this study were conducted is in a suburban community that does not exhibit much diversity. There were only 12 participants whose scores were examined. More accurate results could be obtained if all participant categories were more even in categories. For example, 92% of participants in this study were white, while only 8% were black. Likewise, 75% of the participants were considered in the category of low socioeconomic status. Finally, the study examined the change in lexiles over a four-month time period rather than an entire school year.

Participants in Group 1 appeared to enjoy the Achieve 3000 classroom environment. The students participated in group discussions when developing prior knowledge, were attentive during direct instruction, followed along while the material was being read to them, actively read with partners, took assessment activities seriously, and put forth much effort. Students within this group understood the importance of reading and strived to increase comprehension, not allowing their reading skills to be a barrier to learning. The four students in this group were interested in learning what strategies are helpful to them and worked diligently to improve in specific areas of weakness. The participants in this group are still reading below grade-level but have achieved progress toward closing the reading gap between themselves and their grade-equivalent peers. This group of students provides evidence that hard work and dedication to learning new skills can make great strides in improving reading. These four students were motivated to continue to practice skills learned and have said they are committed to reading over the summer in order to increase lexile levels and be more prepared for the high school setting next year.
Participants in Group 2 did not seem quite as motivated about learning as students in Group 1. These four students appeared to be satisfied with their current lexile levels and not interested in learning new strategies to develop better comprehension skills. The students in this group struggled during class – reading aloud, classroom discussions, and written summaries. Group 2 displayed an evident outlier within this group. Student F had a 31.7% decrease in lexile from August 2014 until December 2014, which had a major influence on the entire Group 2 results. Student F experienced major life-changing events within the home environment. This student’s attitude about the importance of school and academics plummeted drastically. The student needed outside counseling and no longer attends the school where research was being conducted.

Participants in Group 3 mostly had increasing lexiles. These students are reading at grade level. No limitations were noted within this group.

**Recommendations**

Based on the limitations noted above, several recommendations for future studies are suggested. First of all, choosing a school with more diversity would make the study more useful to a larger population. Also, using more participant scores could provide further evidence demonstrating the benefits of utilizing Achieve 3000 to aid in reading comprehension. Due to time restraints and trying to keep groups even in numbers, only 12 participant scores were used out of a pool of over 225 students in the eighth-grade. Likewise, the research would yield enhanced results if all participants were exposed to the same curriculum since Achieve 3000 can be used for students with special needs and general education students. Lastly, results could be different if more time was allowed to examine scores over an entire school year, rather than over
a four month time frame. Overall, more accurate data could be obtained using more diverse participants over a longer span of time.

Conclusion

In conclusion, the results of this study prove that there is evidence in which students have an opportunity to increase lexile scores, which is a tool used in measuring comprehension skills. Students are required to read in all academic classes and in everyday life. Comprehension is important so directions can be followed, information can be obtained, and skills can be assessed. It is also important to note that the student can read for pleasure and develop a lifetime love of reading. The researcher feels that educators are responsible for using proven research based techniques and strategies with all students, including struggling readers. Achieve 3000 has been revealed as an effective method in helping students to improve comprehension skills.
References


Appendices
Appendix A

IRB Approval Letter
March 3, 2015

Jane Bogan, PhD
Special Education, MUGC

RE: IRBNet ID# 718532-1
At: Marshall University Institutional Review Board #2 (Social/Behavioral)

Dear Dr. Bogan:

Protocol Title: [718532-1] Jodi Sergent - To Achieve or Not To Achieve
Expiration Date: March 3, 2016
Site Location: MUGC
Submission Type: New Project
Review Type: Exempt Review

APPROVED

In accordance with 45CFR46.101(b)(4), the above study was granted Exempted approval today by the Marshall University Institutional Review Board #2 (Social/Behavioral) Designee for the period of 12 months. The approval will expire March 3, 2016. A continuing review request for this study must be submitted no later than 30 days prior to the expiration date.

This study is for student Jodi Sergent.

If you have any questions, please contact the Marshall University Institutional Review Board #2 (Social/Behavioral) Coordinator Bruce Day, ThD, CIP at 304-696-4303 or day50@marshall.edu. Please include your study title and reference number in all correspondence with this office.
Appendix B

Sample Achieve 3000 Pre-Test
Some U.S. schools are using a new kind of desk. The new desks allow students to move more in class. The desks move up and down. This allows students to sit or stand during class. Students can also swing their feet. The desks also have footrests that move. Scientists have many questions about these new desks. They want to know if the desks help students be more active. This could help students be more fit.

The new desks help students stay _______.

- comfortable
- quiet
- neat
- serious

**Question 1**

Luis Uraza went to work as usual on August 5, 2010. He was the shift commander at the San Jose Mine in Chile. Uraza started his workday trying to shake off the misfortunes of his crew of 32 men. Before the workers’ shift was over, the earth shook above them and rocks blacked their only way out. Luckily, the men had Uraza. Uraza wanted to help his own men stay calm. The shift commander examined the way out. When he saw the cave-in, Uraza knew they were in for a long wait.

The men were _______.

- trapped
- guessed
- transferred
- claimed

**Question 2**

In the southern part of Ecuador, two companies have paid the government so that they can drill for oil. Native people are upset, they will not let the drilling take place. The two companies have not been able to drill. The government argues that it needs those contracts. It says that without them, Ecuador’s poverty problem will just get worse. To the native people, though, the drilling is not worth the money.

The government and the native people _______.

- rude
- celebrate
- disagree
- migrate

**Question 3**

In 1952, John Downey and Richard Foster, spies for the Central Intelligence Agency, flew into communist China. They were on their first international mission. They planned to fly low over a meeting point. They would then receive an agent working for the Americans. However, something went wrong. The Chinese took down the plane in a surprise attack. Chinese leaders put the spies in prison. For two years, there was no word about Downey or Foster. Eventually, the Chinese admitted the two men were being held. Yet, Downey and Foster were not released until the early 1970s.

The mission was _______.

- strain
- honor
- audition
- failure
In 2010, a mine in Chile collapsed unexpectedly. Thirty-three miners were trapped below the surface. One of the miners, Luis Urza, warned the other men to remain calm. Knowing that rescue would take some time, he rotated their emergency supplies. Two days of food were stretched over 216 weeks. He kept the men occupied by having them dig for water. Rescuers were eventually able to drill a narrow borehole through the rock. The small hole was used to pass food down to the miners. Urza used the hole to send maps of the tunnels and the large open area where they were located. After 69 days underground, the miners were finally rescued. Urza was the last to leave the mine.

**Question 5**

Urza's ______ helped the men survive.

- leadership
- machinery
- expedition
- address

**Question 6**

Seventy-three-year-old Rosetta Handy is an Experience Corps (EC) tutor. Handy is in her fifth year with EC. The program trains citizens over age 55 to tutor young students. The tutors usually work with one to two students at a time. They help students with their mathematics and reading. One study found gains for students who worked with EC tutors. The tutored students did better in the reading-out of new words than other students. The tutored students also better understood what they read. Roughly 2,200 volunteers currently tutor for the EC program.

The results of the program are ______.

- astounding
- honest
- eager
- encouraging

**Question 7**

Andrea Giancoli is a nutrition expert. She says that food labels can be confusing. They are designed to get people to buy food. Companies pick certain words to make buyers think that the food is healthy. People use the words "wheat flour" and think the bread is healthier. But if the company wants to make the bread softer, they change it to wheat flour. This takes out a lot of nutrition. Then, the bread is no better than white bread. How can a buyer find healthier bread? The label should say "100-percent whole wheat."

The labels are often ______.

- unclear
- plain
- loose
- banned

**Question 8**

The British government attempted a new approach to fighting obesity: offering financial rewards to citizens for healthful behavior. For example, some $400 million in discount coupons enticed consumers to choose more healthful foods. Movie tickets and shopping vouchers convinced some teens to walk instead of ride the bus. Simply paying people to lose weight proved remarkably effective. However, experts are not sure how to pay for these programs on a large scale. They do not think people will continue these new habits without the rewards.

The government ______ its citizens.

- motivated
- impressed
- classified
- disregard
Lazy is a 6-year-old terrier with a very important job. She works at John F. Kennedy Airport in New York City. Every day, she sniffs briskly around the baggage carousels where luggage from international flights awaits pickup by passengers. She is sniffing for prohibited items, vegetables, or fruits. Many people believe that foreign plant matter is harmless. Some want to keep the plants for their personal gardens. However, plants can have diseases or pests that could be disastrous to domestic agriculture.

When Lazy detects offending material, she sits. Then, handler Meghan Cafferty steps in to deal with the passengers.

---

**Question 9**

Artificial turf is composed of blades of fake grass. Between each blade, there is often sand or ground firn. This material is known as "crunch rubber." Some people are concerned that crunch rubber may be dangerous. Recycled tires contain metals and toxic chemicals. Tires also contain materials known to cause health problems. However, artificial turf provides players more options than grass because it is less affected by weather conditions. Also, it does not get as muddy as grass fields when it rains, allowing for year-round play.

The turf could be

- fragrant
- harmful
- fireproof
- watered

---

**Question 10**

There is little known about the man credited with being the first European to use moveable type for printing. Johannes Gutenberg is presumed to have been born in 1400. He grew up in Mainz, Germany. Later he moved to Strasbourg, Germany. He was a trained goldsmith, but in 1438 he began working with paint. Gutenberg collaborated with Johann Fust. Fust helped finance Gutenberg’s press in 1450. It is thought that Gutenberg began work on his famous Latin Bible, known now as the Gutenberg Bible, during this time. He also printed many pamphlets and leaflets. Gutenberg’s invention was used as the basis for our current printing technologies and practices.

Gutenberg’s _______ was influential.

- invention
- father
- company
- poetry

---

**Question 11**

Taylor Miller is fifteen. She drives tractors and tends livestock on her family’s farm. However, if the government approves new safety rules for kids working in agriculture, thousands of young people across the United States will not be allowed to perform these tasks. Officials say that the proposed regulations are needed to protect children. They would forbid young people from tasks that are dangerous. Many farmers, however, worry that such rules could stifle interest in agriculture for younger generations. They could make farms less productive, too.

The government is concerned about

- techniques
- objections
- necessities
- injuries
Sarah Emma Edmonds was a Union soldier during the Civil War. The army did not allow women to join. Edmonds dressed as a man and changed her name to Frank Thompson. During her time in the army, Edmonds completed several successful spy missions. For one, she pretended to be an African-American slave. She was able to spy on Confederate soldiers this way. Eventually, Edmonds became ill with malaria. She knew that her gender would be discovered if she went to the hospital. She had no choice but to desert the army. Years later, she published the U.S. War Department for her pension. In 1886, she was awarded her pension for military service.

Edmonds was very good with ______.

- businesses
- weapons
- oranges
- diagonals

Question 13

In the United States, students have two options for gaining an education. They can go to either public, government-run schools or privately run schools. There are many discussions about which schools to support. Recently, students in urban Pakistan have also been introduced to these two options. Many parents in both countries are considering what type of school to choose. Those who select private schools are hopeful that their children will receive a better education. Other parents express concerns about those schools. They worry that the increasing popularity of private schools will threaten the public school system.

School choice is being ______.

- advertised
- delayed
- debated
- researched

Question 14

Humpback whales have been on the endangered species list since 1970. Though populations are increasing, not everyone thinks that they should be removed from the list. Michiko Sakashita is the leader of a conservation group. She pointed out that although humpback whales are no longer hunted, they face other threats. The temperature and conditions of the oceans are changing. This may hurt the animals. "Ocean conditions are changing so rapidly right now that it would probably be hard to detect the humpbacks," Sakashita said.

Sakashita is still ______.

- active
- upstanding
- protective
- powerful

Question 15

The Karstik: Machine Orchestra is the invention of Dr. Ajay Kapur. Kapur is an electrical engineer and a trained musician. He came to the California Institute of the Arts four years ago with a mission: to create an orchestra composed of people and robots. He wanted students to operate and instruct the robots. So Kapur joined forces with Michael Darling. Darling runs the theater arts program at the university. Kapur, Darling, and some students began building the robots. They created the robots out of everything from leftover theater props to broken bits of furniture. The robots "brains" are computers. After the robots were built, students entered code instructing the robots how to play music.

The project was ______.

- dopey
- endless
- crucial
- elaborate

Question 16
Today, Egypt's wealthy elite go to Marsa to play on the immaculate beaches of the Mediterranean Sea. However, 2,000 years ago, this resort town was the site of a thriving port known as Leukasius. In the fourth century, it was nearly wiped out by a tsunami. The city remained hidden for 2,000 years. Recent engineers uncovered ancient tombs and houses while building a coastal road in 1986. They realized that they had stumbled upon the buried ruins of a city founded in the second century BCE. Leaders set aside 200 acres of the terrain for archaeological preservation. Gradually, a picture of Leukasius developed through its remains.

Question 17

New construction _____ the old city.

a. rebuilt
b. revealed
c. uncovered
d. renovated

Question 18

Free television stations have been _____.

a. preserved
b. suggested
c. struggling
d. returning

Question 19

The incandescent bulb has been a mainstay for over a century. The bulb produces light by heating a wire until it glows. Although bright, 90 percent of the electricity used by incandescent bulbs is lost as heat. Newer technologies, such as light-emitting diodes (LEDs), compact fluorescent bulbs, and halogen bulbs are less wasteful. They convert nearly all of the electricity they use into light. Eager to save money, officials have passed laws to phase out the older bulbs.

The new bulbs are more _____.

a. radiant
b. durable
c. efficient
d. focused

Question 20

Over time, Alice Walton has gathered a remarkable collection of artwork. She carefully selected works that represent the whole of American history. In 2011, Walton opened Crystal Bridges Museum of American Art. The museum is in Bentonville, Arkansas. Art experts have called Crystal Bridges the nation's most important new art museum in a generation. It offers the type of exhibits commonly found in New York.

Walton _____ art.

a. exports
b. appreciates
c. investigates
d. manufactures
37

Read 10:
The Anasazi settled in the Four Corners region of the United States over 2,000 years ago. The Four Corners region is the area where New Mexico, Colorado, Utah, and Arizona meet. The Anasazi are thought to be the ancestors of the Hopi, Zuni, and Pueblo Native American tribes. They were the first to build impressive stone dwellings in which to live. They would even leave a hole in the roof for smoke to escape, so they could cook indoors. The Anasazi also made elaborate pottery and developed the use of the bow and arrow. It is not known what became of the Anasazi. After 1300 CE, they had largely abandoned their communities and seemed to have disappeared.

Read 11:
The Anasazi were ________

A. lazy
B. possessive
C. industrious
D. Starving

Question 21

Read 12:
Most people think that crops need to be grown outdoors. But what if crops could be grown without sunlight? Researchers in the Netherlands think this might be possible. They believe that the perfect crop field could be grown inside of a windless building. It would have carefully controlled light, temperature, humidity, and air quality. With this invention, crops would no longer be at the mercy of unpredictable weather or disease. Farms could be established in the middle of a city or a desert. Supporters say that these indoor farms could be the answer to the world’s food problems.

Read 12:
This is a(n) ________ farming method.

A. revolutionary
B. organic
C. guaranteed
D. inexpensive

Question 22

Read 13:
Almost two million species of plants and animals have been discovered on Earth. However, scientists believe that even more species exist and have not been identified yet. Until recently, estimates of the number of different species on earth ranged wildly—from 3 million to a staggering 10 million. Now, the new working number is a fairly stable 8.7 million. A research team used complex mathematical models and considered how quickly discoveries are taking place. According to their results, 7.4 million species are animals. About 600,000 are fungi, and 300,000 are plants. Nearly 6.5 million species live on land. About 2.2 million live in the ocean.

Read 14:
The estimation methods have been ________.

A. refined
B. obvious
C. random
D. charming

Question 23

Read 15:
President Barack Obama tackled many issues during his first term in office. Transportation was near the top of that list, with policy changes to enhance highway, air, and rail travel. The president believed that improving the nation’s transportation system was crucial to economic recovery, energy independence, and environmental protection. President Obama wanted policies that would build and repair more roads and rails. This would put people to work, reduce unemployment, and improve the economy. He reasoned that it could also result in safer, less congested highways and more people using mass transit.

Read 16:
President Obama wanted to ________ transportation.

A. critique
B. manipulate
C. revitalize
D. repair

Question 24
TeenBiz3000: The Leader in Differentiated Instruction

In the Prado Museum in Madrid, Spain, there is a painting that looks like the famous Mona Lisa. The work was almost certainly painted by one of Leonardo da Vinci’s apprentices. In fact, it was probably painted while Leonardo himself worked on the original. There are many similarities between the two paintings. The background is similar to that of the Mona Lisa. Tests also showed that the artist had made changes to the painting similar to the changes Leonardo had made as he worked on the Mona Lisa.

The artist likely ________ Leonardo da Vinci.

- notified
- surpassed
- admired
- imitated

Question 25

One version of the acoustic guitar is the six-string guitar. When properly tuned, each string sounds at a specific pitch. The standard tuning for a guitar allows the guitarist to strum the chords that are learned from chord books or in lessons. However, a guitar does not have to be kept in this standard tuning. Each string can be tuned to different notes. It is even possible to tune a guitar so that, when strummed openly, it sounds a desired chord.

_______ tuning may be used.

- Vocal
- Alternate
- Circulatory
- Experimental

Question 26
Appendix C

Achieve 3000 Report
# How has Lexile performance changed over time?

**August 1, 2014 - December 31, 2014**

**Track changes in Lexile/Reading activity performance**

<table>
<thead>
<tr>
<th>User Name</th>
<th>Grade</th>
<th>August 2014</th>
<th>September 2014</th>
<th>October 2014</th>
<th>November 2014</th>
<th>December 2014</th>
<th>Growth</th>
<th>Initial Expected Test Score</th>
<th>Current Expected Test Score</th>
</tr>
</thead>
</table>
| Student A | 8     | 4 activities²  
Pre-test: 8/15 (Time: 40/20 items)  
 Lexile: 400L | 15 activities  
 Adjustment on 8/30  
 Lexile: 510L | 9 activities  
 Leveled: 500L | 6 activities  
 Adjustment on 11/30  
 Lexile: 500L | 7 activities  
 Adjustment on 12/31  
 Lexile: 520L | +70L | 555L (482L) | 560L (4132L) | 45 |
| Student B | 8     | 3 activities  
Pre-test: 8/14 (Time: 40/20 items)  
 Lexile: 400L | 12 activities  
 Adjustment on 8/30  
 Lexile: 460L | 11 activities  
 Leveled: 480L | 10 activities²  
 Adjustment on 11/30  
 Lexile: 500L | 7 activities  
 Adjustment on 12/31  
 Lexile: 520L | +115L | 515L (482L) | 570L (4132L) | 45 |
| Student C | 8     | 4 activities  
Pre-test: 8/14 (Time: 40/20 items)  
 Lexile: 400L | 17 activities  
 Adjustment on 8/30  
 Lexile: 375L | 9 activities  
 Leveled: 420L | 9 activities²  
 Adjustment on 11/30  
 Lexile: 470L | 8 activities  
 Adjustment on 12/31  
 Lexile: 490L | +180L | 410L (482L) | 570L (4132L) | 45 |
| Student D | 8     | 2 activities  
Pre-test: 8/15 (Time: 40/20 items)  
 Lexile: 295L | 12 activities  
 Adjustment on 8/30  
 Lexile: 350L | 10 activities  
 Adjustment on 10/31  
 Leveled: 370L | 6 activities  
 Adjustment on 11/30  
 Leveled: 390L | 7 activities  
 Adjustment on 12/31  
 Lexile: 410L | +135L | 420L (482L) | 450L (4132L) | 56 |

http://portal.achieve3000.com/options/reports/performance/lexile_over_time.php?section=4...

3/9/2015