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Using Accelerated Reader to Compare the Amount of Reading with Reading Growth

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California State University, San Marcos

August 10, 2012
Abstract

The purpose of this research is to determine a level of correlation between the use of accelerated reader and the amount of reading growth of a student in one school year. Research conducted on a 4th and 5th grade combination class of high achieving students was the sample of this research. To determine the level of correlation, STAR assessment was used and comparison was made to beginning and end results. Growth was measured in two areas: independent reading level and Grade level equivalency. In this research, the average grade level equivalency growth exceeded one year as well as the independent reading level exceeded one level. The amount of words read by individual students was also recorded by Accelerated Reader and compared to the growth made in the school year. A degree of growth was recorded in all students sampled and varied as compared to the amount of words read in the school year.

Key words: Accelerated Reader, reading growth, independent reading levels.
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Chapter 1

Introduction

From the time I was very young, hearing the statement, “You are such an incredible reader,” resonated with me for years. As a young child, I learned to read quickly and continued advancing my reading as I grew. I can still remember my favorite book as a child, Socks, by Beverly Cleary. I read that book over and over. I was proud of myself as a reader, and I will always remember how that felt. As I moved on into junior high school, reading was not an easy task. I found myself struggling as a reader. I was not able to understand the content I was reading nor was I able to retell a story from what I had already read. For years, I wondered what went wrong. How did I go from being an avid reader to a struggling reader? Why was content so difficult for me to understand? Thinking back, I am constantly reflecting on my reading practices as a child. Did I challenge myself with my choices for reading? Did someone ever ask me what my story was about? Did a teacher ever tell me to read a book at a higher level? I would have to answer “no” to all of the above.

Having difficulty as a reader is very frustrating, and I know this firsthand. My reading comprehension has disabled me in many ways. I felt teachers did not understand and labeled me, when all the while I knew I was smart. I understood many things, but I just could not get that reading comprehension component to turn on. Looking back, I feel like I was a product of a system that had no measure in place to assess independent reading comprehension, determine a child’s level, and adequately provide support for reading growth.
As an adult, these struggles became profound, especially the first time I attempted the CBEST. Since that time, I feel like it has been my personal mission to figure out how to comprehend difficult text, and I had to acquire test taking strategies to gain the skills necessary to get through the many required tests to become a teacher. There is not a label that we put on children that says “one size fits all,” and reading programs should not be a “one size fits all” either.

Assessing a student’s reading ability should be aimed toward each individual student’s reading level. As an adult, one of my biggest struggles is thinking about how I was such an avid reader as a young child and how I slowly became average and then worse, below average. As a result, I found that I did not enjoy reading and basically stopped reading once I was in high school. I feel this could have been prevented. Because I was a high achieving reader, teachers felt I did not need to be monitored or told what to read and how to read it. I continued to read what I liked and what was fun, and I found myself reading the same books as a 5th grade student as I had read when I was in 3rd grade. I was missing a key component in reading, which was learning reading skills that are necessary to be a successful reader.

**Statement of Problem**

Children in our schools are required to read many different sorts of text for many purposes. Students are taught specific reading skills such as making inferences, finding the main idea, drawing conclusions, etc. When a student reads independently, it is difficult to assess if they are retaining those necessary reading skills. A recent report in *Education Week* discusses how reading methodology has shifted in the last 40 years...
from phonics-based instruction to the whole-language philosophy to the balanced-literacy approach, yet reading scores on the National Assessment of Education Progress have not significantly improved. Successful reading, by itself, increases word knowledge, world knowledge, syntactic awareness, and cognitive function. Over a 12-year school period, the student who reads an hour or so a day deals with as many as 40-50 million more words than the child who reads very little or not at all. As each year goes on, the gap between the reader and non-reader widens (Palumbo, 2012). A problem clearly exists in monitoring a student’s independent reading levels and providing the support necessary to ensure proper growth that will be sustained as they progress through the years. It is difficult to assess whether or not a student is actually reading during independent reading time. It is also difficult to know what is an appropriate level for a student to read in order to challenge them to grow as a reader. School districts have required summative assessments that determine if students are meeting the state standards. These assessments measure specific standards and do not allow the freedom for students to be truly assessed on their reading skills. As in my case, reading the book *Socks*, had there been some measure of accountability, I might have moved on to a different book. There was not. Teachers loved to hear me tell the story and therefore, I continued to do so. If there is not an adequate method of measuring what a student reads and how much, then a child could read the same book for three years.

Educators believe that students who read more are better readers. However, the National Reading Panel (NRP) report questioned this assumption. The summary of the NRP report (2000) states: “The panel was unable to find a positive relationship
between programs and instruction that encourage large amounts of independent reading and improvements in reading achievement, including fluency. In other words, even though encouraging students to read more is intuitively appealing, there is still not sufficient research evidence obtained from studies of high methodological quality to support the idea that such efforts reliably increase how much students read or that such programs result in improved reading skills. Given the extensive use of these techniques, it is important that such research be conducted” (p 12).

**Accelerated Reader**

Renaissance Learning Company is a provider of technology-based assessment programs for K-12 schools. One program they offer to assist in assessing and monitoring independent reading is a computer based reading program called Accelerated Reader (AR). As noted from the Renaissance Learning website, “The benefits from using AR is that is makes essential reading practice more effective for every student through personalizing reading practice to each student’s current level and assesses students’ reading with four types of quizzes: reading practice, vocabulary practice, literacy skills, and textbook quizzes.” Students read books of their choice and take short quizzes on the computer. Every book for which there is an AR quiz has a reading level and point value based on the readability and length. For example, a book with the level 4.2 would equate to fourth grade, second month. Longer books that are written at a higher level would have a higher point value as opposed to a book written at a lower level.

In order for Accelerated Reader to be most beneficial, Renaissance Learning created the best practices for Accelerated Reader to ensure the program is
implemented with integrity. Reading practice does not necessarily lead to growth. “To be effective, practice must have certain attributes: It must be at the right level of difficulty, cover a sufficient amount of time, be guided by instructor, and be enjoyable enough to sustain” (Renaissance Learning, 2012). Renaissance Learning’s best classroom practices component provides teachers with a set of suggested principles on the use of Accelerated Reader and recommends how to best direct student interactions with text during independent reading.

How Does Accelerated Reader Work?

Renaissance Learning’s best classroom practices component provides teachers with a set of suggested principles on the use of the Accelerated Reader program. In order to best direct student interactions with text, it is essential to identify a student’s reading level. The reading levels can be obtained through the Standardized Test for the Assessment of Reading (STAR). The STAR data consists of a reading pre-test and post-test to track and monitor student progress to measure reading growth. STAR data determines each student’s independent reading level (IRL), grade level equivalency (GE), and zone of proximal development (ZPD). With the data obtained from STAR, Renaissance Learning has two measures to determine how much a student should read in order to attain the maximum benefits of the Accelerated Reader program. The online AR goal calculator (Figure 1.1) gives the option to individually type in each student, the GE, and the amount of time for the goal period. It will calculate this information and give a point goal. Another method to obtain point goals is from the AR goal calculator chart (Figure 1.2).
AR Goal Calculator

Quality of practice (as evidenced by 85% or higher comprehension averages), quantity of practice (as measured in points), and difficulty of practice (as guided by ZPD) each have significant impact on student growth and achievement in reading. This calculator recommends a ZPD and point goal based on GE. Use your judgment to adjust as necessary.

Goal Period: 6 Weeks

<table>
<thead>
<tr>
<th>Student (optional)</th>
<th>GE</th>
<th>Daily Reading Practice</th>
<th>ZPD</th>
<th>Point Goal</th>
</tr>
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Calculations are not saved, so please print before closing the browser window.

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Figure 1.1. Renaissance Learning web version of Accelerated Reader goal calculator.

Figure 1.2. At a glance Accelerated Reader goal chart calculator
Once a reading level and point goal is established, students read books at their
reading level and take Accelerated Reader quizzes on the computer. Renaissance
Learning best practices recommends using the TOPS report (Three Opportunities to
Praise Students), which is a report to communicate goals, identify problems, and
celebrate success with students.

**Benefits of Accelerated Reader**

Renaissance Learning claims Accelerated Reader’s advanced technology helps
the teacher make essential reading practice more effective for every student by
identifying and personalizing independent reading levels and providing goals for
students to achieve. The program also personalizes reading practice to each student’s
current level and assesses students’ reading with four types of quizzes: reading
practice, vocabulary practice, literacy skills, and textbook quizzes. Teachers who use
AR have the ability to print reports to check progress on students’ amount of reading
and levels of understanding.

Renaissance Learning’s best classroom practices component provides teachers
with a set of suggested principles on the use of Accelerated Reader. The
recommendation for teachers is on how to best direct student interactions with text,
during independent reading, by holding them accountable for reading at their level.
Renaissance Learning provides instructional strategies on their website to maximize the
benefits for each student based on their individual needs. Individual needs can be
identified through reports such as a TOPS report and literacy skills report. Both reports
identify areas of strengths and weaknesses.
Student reading goals are based on their grade level equivalency and therefore goals for individual students vary depending on their need (Renaissance Learning, 2012). This tailors student success based on the individual reader. According to Renaissance Learning (2009), Students who read books within their reading range zone (zone of proximal development, or ZPD) show reading growth because they are reading books that are challenging, not frustrating. Books that are too easy prevent students from building their vocabulary and comprehension abilities. Books that are too difficult can cause frustration, which in turn leads to a decrease in reading amount.

**Concerns of Accelerated Reader**

During this time of serious budget cuts to our education, many schools struggle financially and at the same time, they try to keep current with the most up-to-date technological trends. Accelerated Reader claims it is one of the most cost efficient computer-based reading assessment programs, starting at $1500.00 for the software and an additional $10.00 per student per year.

Implementation of Accelerated Reader in the classroom ranges vastly within all schools using the program (Renaissance Learning, 2011). Implementation falls directly upon the classroom teacher and the teacher’s dedication to the use of Accelerated Reader. Factors that contribute to the proper implementation of Accelerated Reader in the classroom are time allotment, teacher training, and incentives. Since Accelerated Reader is a computer-based assessment, each student needs time on the computer to complete the quiz. Without formal training on Accelerated Reader, the program’s implementation in the classroom ranges from loose to strictly regimented, which makes it difficult to obtain consistent reports of growth. A large concern over the use of
Accelerated Reader is that it induces a mindset that reading is a chore. Using Accelerated Reader tends to replace the intrinsic motivation with extrinsic rewards.

**Purpose of Study**

The purpose of this research study is to evaluate the success of the implementation of AR at Flyers Elementary School. To do so, data will be examined to compare the quantity of reading with the amount of reading growth made throughout the school year. This evaluation study will help determine if the AR program is a valuable asset for the school, and to inform decisions to continue funding.

**Limitations**

This study is limited to an elementary school conducted on one fourth/fifth grade combination class consisting of students who have been selected as accelerated learners by their previous year teacher. This class consists of 14 fifth grade students (7 boys and 7 girls) and 18 fourth-grade students (9 boys and 9 girls). The vast majority of students in this class are considered high achieving, and ten of those students are in the Gifted and Talented Education (GATE) program at the school. It is also important to note that many students in this class are reading at least one grade level ahead of their physical grade and therefore growth could be limited. As a fourth grade student reading at a sixth grade level, the growth will be less than a student who is a fourth grade student reading at a third grade level. Results may not be indicative of a typical classroom based on student selection for this class.

Teacher implementation ranges vastly throughout this school site, which indicates a limitation based on this classroom setting. No formal training was provided to this classroom teacher, and therefore implementation is based solely on research
obtained from the Renaissance Learning website. Implementation is a key component to using the Accelerated Reader program effectively,

**Delimitations**

The effect motivation plays on the role of reading was not included in this study. Motivation is a significant factor in student reading achievement, however, this study was to determine if there is a relationship between quantity and quality of reading. A further study could be performed to assess the motivational effects of the amount of reading and the amount of growth a student achieves.

**Summary**

The purpose of Accelerated Reader is to enable powerful practice by providing data that helps the teacher monitor and personalize reading practice. It also encourages substantial amounts of reading practice according to the guidelines based on research. Implementation of this program has changed since it was initially purchased at this school site, and the need for assessing its advantages exists to provide evidence for funding to an updated online version at this school site.

With many best practices of teaching, determining the effectiveness of the Accelerated Reader program is needed to continue implementation in the classrooms and to address the need for further professional development and training. With the claims from the NRP, and other research conducted by Renaissance Learning, few other studies have been conducted to test the program’s effectiveness.

Data will be collected using the Renaissance Learning website through the use of Accelerated Reader and STAR to track student data. This data will be analyzed to answer the question if there is a correlation on how much a student reads and their
academic reading growth, using the Accelerated Reader program. Chapter 2 will review
literature that already exists on Accelerated Reader and provide a clear picture on the
further research necessary.
Chapter 2

Review of Literature

Computer-based assessments such as Accelerated Reader (AR) are intended to assess levels of reading comprehension through independent reading. Minimal research has been conducted to assess independent reading and the impact it has on reading growth in elementary school children. One of the issues teachers find with independent reading is the ability to monitor students’ progress in reading. It is also difficult to assess whether or not a student is motivated enough to independently read. I will review literature that studies independent reading in the form of sustained silent reading (SSR), motivation and the role of the teacher, and the computerized reading assessment program, Accelerated Reader, to see if there are connections among the topics that may inform efforts to improve independent reading levels. Implementation of this program has changed since it was initially purchased at this school site and the need for assessing its advantages exists to provide evidence for funding to an updated online version at this school site.

Independent Reading

Topping, Samuels, and Paul (2007) pose the question, “What works" to determine if reading practice makes perfect, or is reading achievement related to the quality of practice as well as the quantity?” To investigate this question, they devised a study to determine if there is a correlation between implementation quality and the effect it has on computerized assessments. This study included approximately 45,000 students in grades 1-12. These students participated in the AR program to keep track
of the quality and quantity of reading. They read over 3 million books during the course of the one school year long study. Reading achievement was measured by the STAR Reading Enterprise assessment, a computerized standardized reading test that continually tailors the student’s test to his or her achievement level based on his or her responses to previous test items. The test was administered once at the beginning of the school year and again at the end. Accelerated Reader (AR) was also used to track the amount of reading of each student and the success each student has toward growth. This study aimed to determine whether reading achievement gain resulting from independent student reading within a computerized assessment program varied according to the quality of teacher implementation and to determine whether a relationship was influenced by the grade level of the student. The researchers used engaged reading volume (ERV) results, which is an indicator of the amount and difficulty of words read successfully to compare with the Accelerated Reader average percent correct (APC) on quizzes to find a correlation between quality and quantity of reading. It was noted that gains in achievement were found only with the combination of higher ERV and higher APC. The APC threshold for gain was the 80-84% range, which yielded the highest achievement gains. It is noted that the APC range of 75-79% did not yield any gains, even with a higher ERV. This indicated that quality of reading is substantial for achievement gains. The ERV due to the teacher ranged from .101 in eleventh grade to .590 in first grade. The R-squareds were substantially higher than those for initial reading achievement, which the researchers suggest that classroom placement accounted for more of the variance in reading achievement than initial student achievement. The researchers conclude there is a positive relationship
between reading achievement gains and quality of reading. They report that effective implementation involves not only the monitoring of reading practice, but also implies the need for action to guide students toward successful comprehension of text.

There are many misconceptions about the role Sustained Silent Reading (SSR) should play in reading instruction and assessment (Garan & DeVoogd, 2008). At the forefront of the SSR controversy is the accountability piece or lack thereof. As previously stated, the NRP’s report from 2012 does not either confirm or deny the practice of sustained silent reading, or independent reading, in the classroom due to the lack of data-based research done thus far. The misinterpretations and opinions regarding SSR stem from research done by the National Reading Panel (NRP, 2000) that claim its findings do not support SSR in the schools, however, Garan and DeVoogd (2008) argue that members of the NRP did not reach a consensus on the role SSR should play in reading instruction. The NRP report states that literally hundreds of correlational studies find that the best readers read the most and the poor readers read the least. These correlational studies suggest that the more children read, the better their fluency, vocabulary, and comprehension. NRP also states that these findings are correlational and correlation does not imply causation. They conclude that it could be that the more children read, the more their reading skills improve, but it is also possible that the better readers choose to read more. The NRP was unable to find a positive relationship between programs and instruction that encourage large amounts of independent reading which lead to improvements in reading achievement (NRP, 2000). Research can seldom draw definitive conclusions on the validity of SSR due to the
complexity of human characteristics such as motivation, disabilities, and other uncontrolled variables.

**Assessing Reading Achievement**

A recurring trend in many studies examining reading achievement is the use of the STAR Reading test to initially assess a student’s reading comprehension level. The STAR Reading test has served multiple purposes, including screening, standards benchmarking, and progress monitoring, and also provides reports of skills attainment with aligned instructional planning and resources. The STAR Reading assessment aids in accurate reading level placement, so each student works at their own independent, highest level of ability. The STAR assessments dynamically adjust to each student’s unique responses through extensive item calibration, which determines each test item’s difficulty in relation to thousands of real students, applying advanced principles of Item Response Theory (IRT) and computer-adaptive testing (Renaissance Learning Website, 2012). STAR and AR can be used simultaneously in the classroom to assess students’ current levels and track progress. The use of the STAR test gives teachers and students a starting point for a reading level, based on each student’s individual test report. If a teacher’s plan is to use STAR merely to assess a student to put into a “reading group”, the benefits you will see will not reflect the purpose of the program (Renaissance Learning, 2000). Using the STAR to assess each student’s reading ability to implement an appropriate reading plan with the student can help foster a positive learning environment that promotes reading for many purposes (Renaissance Learning 2012).
The Accelerated Reader (AR) program was designed by Renaissance Learning to increase students’ motivation to read and students’ overall achievement in reading. Studies conducted on the effectiveness of AR, a program created to assess, monitor, and track a student’s independent reading level of fiction and non-fiction books through quizzes taken on a computer, have shown varied results (Renaissance Learning, 2010).

**Motivation**

When measuring motivation in reading, one must consider the extrinsic and intrinsic values of motivation. Motivation is defined in terms of characteristics of individuals, such as their goals, competence-related beliefs, and needs that influence their achievement and activities (Guthrie, Wigfield, Metsala, & Cox, 1999, p. 233). Goals refer to the purpose individuals have for doing different activities. Guthrie et al., define intrinsic motivation as referring to an emphasis on curiosity and interest in the activity one is doing and a mastery of orientation toward tasks. Extrinsic motivation for learning and reading was defined to consist of effort directed toward obtaining external recognition, rewards, or incentives. In their 1999 study, the researchers’ goal was to examine whether motivational factors and the amount of reading students performed by students correlated to growth in comprehension. These researchers conducted two studies two years apart to determine effects of motivation on achievement. Taking into consideration the reading amount being predicted by motivation, past achievement, prior knowledge, and reading efficacy, the researchers completed Study 1, which was a quasi-experimental research on a group of 247 third and fifth grade students and for study 2, they examined 17,424 older students in grades 8th and 10th. Study 1 revealed reading motivation and reading efficacy correlated at 0.64 (p<001), and both reading
motivation and efficacy correlated with passage comprehension at .25 (p<.001). Intrinsic motivation showed a significant contribution and the correlation was .327 and extrinsic motivation showed a correlation of .364 indicating that both contribute significantly to the amount of reading. In study 2, it is noted that text comprehension in Grade 8 and 10 correlate at .20 (p<.0001) with each other. In study 2, students were given a reading passage and surveys on reading motivation and efficacy to determine a level of correlation. Passage comprehension was predicted by reading amount showing a correlation of .12, (p<.001). Reading motivation also predicted passage comprehension .42 (p<.001), which confirms the findings of reading amount on comprehension from study 1.

A longitudinal study was conducted on the effects of motivation on reading performance growth in grades 5 and above (Retelsdorff, Koller, & Moller, 2011). Sample size is 1508 students from 10.88 years to 13.94 years from 60 schools and was measured in three intervals over the course of 18 months. As in the Guthrie et al. (1999) study, these researchers identify the intrinsic and extrinsic values in reading motivation. In addition, they take into consideration reading self-concept. Self-concept is how the individual views him/herself and his/her abilities. This area of emotional development is extremely important to young children. Further analysis of intrinsic motivation shows that reading for interest is related to personal topic interest (Retelsdorff, Koller, & Moller, 2011), which is defined as an individual’s relatively stable orientation towards a certain topic. Interest leads to more frequent use of adequate strategies and more deep-level learning. For reading motivation, interest is a driving force that leads people to read (p.551). Long-term effects of extrinsic motivation are
quite different. Extrinsic motivation is indicated by competition, the desire to outperform others which enhances students' self-worth. Extrinsic motivation had a long-term negative association for reading amount (Retelsdorf, Koller, & Moller, 2011). This in turn motivates poor readers to only read when they have to, which leads to poor reading skills. Retelsdorf et al. suspect this negative association is likely due to extrinsically motivated students' focus on social rewards rather than on the text and as a result are distracted from the actual reading task. Motivation frequently makes the difference between learning that is temporary and superficial and learning that is permanent and internalized, which these researchers corroborate in their findings, demonstrating the positive correlation between reading enjoyment and reading performance. They did note the negative correlation with reading competition (extrinsic) and reading performance with a -0.10.

In each research article reviewed, a commonality exists in reading motivation. Students read for many purposes. Highly interested readers have feelings of involvement, stimulation, or enjoyment during reading, and tend to possess knowledge in the domain of their interest. High interest topics have been shown to correlate with a deeper processing and retention of information (Guthrie et al., 2006, p. 283). For the typical student, this means they enjoy reading a topic of interest and their intrinsic motivation allows them to develop a higher sense of comprehending the text.

A driving force consistent in each article reviewed was the implementation of reading in the classroom and the role the teacher plays in monitoring and assessing reading levels. What role should the teacher play in motivating students to read, choosing what they read, and how much? McKook and Gespass (2009) found a
correlation between teachers’ personal views on reading and their implementation of reading in their classroom. This study indicates that teachers who are readers themselves are more likely to engage in instructional practices that reflect their own love of reading. The study also indicates that teachers who tend to read aloud to their students also engage in conversations about books. Teachers “give students greater choice in reading materials and provide time frequently for students to read during the school day more than teachers who do not read for pleasure” (p. 265). Children need good role models for reading. A teacher who reads aloud with a class provides the children with hearing phrasing, inflections, and expressions that good readers use. Demonstrating good reading practices allows you to expose students to good literature. It also gives them the opportunity to be engaged in actively making predictions. A positive self-concept is one of the most valuable gifts a teacher can give a child. Instilling an “I can” attitude can lead a child down a path of success and accomplishment. Teachers can empower this self-concept and provide the means necessary to meet all diverse learners’ reading needs.

One theorist, Alfie Kohn, author of "How to create nonreaders: Reflections on motivation, learning, and sharing power," (2010) believes teachers can actually “kill” (p. 16) motivation. Kohn argues that motivation is something you have inside of you. “You can command writing, but you can’t command good writing." (p. 16) His idea is to create a classroom culture, climate, and curriculum that will nourish and sustain the fundamental inclinations that everyone starts out with. Intrinsic motivation is something to be supported or “revived” (p. 18). Kohn’s theory on motivation stems from the basic, do this and you will get that. The extrinsic factor that drives us is the rewards. Kohn will
argue that by providing these rewards, we are killing off long-term motivation (Kohn, 2010). Many factors in a classroom can lead to the destruction of motivation and reading. Basically, when a teacher quantifies a reading assignment, makes students write reports, isolates reading choices, focuses on skills, offers incentives, prepares for tests, or restricts student choices, that teacher loses a key component of teaching reading effectively, motivation. Kohn’s suggestions to help improve the intrinsic motivation is to allow the students to participate in decision making. A teacher should “strive to take pleasure and pride from how you help students to learn and become excited about learning, not just from the curriculum itself” (p. 19). Empower students to take control of what they learn (Kohn, 2010).

By the time a student reaches 4th grade, they have a good grasp on the types of books they like to read and the type of books they are able to read. Limiting their reading choices could be detrimental to their long-term overall reading growth and motivation. On the other hand, not assessing students’ reading levels and guiding them in book choices, could lead to high frustration levels in selecting material above their own. Whether a student is reading for pleasure or reading for a purpose, there must be an intrinsic motivation in them (Kohn, 2010). This does not always come easy and therefore, a teacher plays a huge role in how they implement reading in their classroom. A 6-month research study of two groups of students with similar demographic backgrounds compared a low-dose reading group (reading 15 minutes a day) and a high-dose reading group (reading 40 minutes a day) (Topping, Samuels, & Paul, 2007). The high group significantly outperformed the low group in reading comprehension and
vocabulary. This study validates the importance of teachers in implementing programs that help foster a student’s reading ability.

**Accelerated Reader**

The Renaissance Learning website lists 168 research studies on Accelerated Reader. Of those 168, 143 were led independently, 31 are experimental or quasi-experimental, and 25 research studies have been published in peer-reviewed journals (Renaissance Learning, 2012). This present evaluation study focuses on identifying the benefits and concerns of using Accelerated Reader and determining if this is an effective tool is measuring student academic growth in reading.

In reviewing previous studies, Melton et al. (2004) noted many deficits that emerged in research conducted to identify benefits of AR. For example, they found that the AR program may encourage kids to read for some poor reasons, such as for a tangible reward rather than reading because they enjoy it. Melton et al. also cited literature that noted teachers were often not trained properly in implementing AR, and therefore it was not being used properly to maximize benefits for the students.

In their study, Melton et al. (2004) examined the effects of AR on fifth-grade students by comparing two groups of students, those who participated in the AR program for one school year and those who did not. When the researchers conducted the reading inventory with students, they noted that students felt very limited on book choices due to lack of availability at their school site. Furthermore, many students reported they would not be reading after they were done with the program.

The researchers also found positive impacts of the AR program on students. They compared the results of a subgroup of at-risk readers who used the AR program
for a year against at-risk students who did not use AR. They state that even though the program was not being implemented to the fullest, the at-risk readers using AR showed gains in their overall reading levels.

Although overall reading level gains were obtained by students who used AR for the school year, it was also found that students who did not participate in AR for the year showed gains in reading levels as well. Melton et al. (2004) suggested that in order to gain additional knowledge on the long-term effectiveness of the program, longitudinal studies were necessary.

As noted, the title of the article is about assessing students’ reading growth by using the AR program and the findings showed that the addition of the Accelerated Reader program to the existing program did not result in a significant increase in reading achievement between the group who did participate and the group that did not. To better determine the validity of this research, further information on the “non” AR classrooms is necessary to compare the reading growth accurately.

Motivation comes with a multitude of complexities. Does intrinsic and extrinsic motivation differ so much in a way that one could be harmful to reading comprehension growth? Is the ability to be a life-long reader an innate quality or learned quality? Can you impose motivation on a student who struggles in the area of reading? Can a teacher help facilitate a child’s self-concept? In this day and age of technology advances, computerized reading assessment programs offer simple, convenient, and preferred forms of assessing students’ abilities. Computerized assessments will never replace the need for good, strong teachers who possess the ability to motivate their young students into becoming life-long readers, but evaluation of teachers’ choice for
implementing reading assessments to evaluate independent reading levels for the students in their classrooms warrants further investigation.

**Conclusion**

In the several research articles reviewed, no study establishes the need for a regimented independent reading program that provides students with ability-appropriate guidelines for reading material, provides intrinsic motivation through teacher preparation, and still hold that piece of accountability to assess a students’ comprehension of the text and the growth they have achieved over a period of time.

Review of current literature reveals the need for further studies into the effects of Accelerated Reader on reading growth and motivation (Topping, Samuels, & Paul, 2007). With the many research studies out there that prove quantity and quality of reading are necessary for reading growth and motivation (Retelsdorf, Koller, & Moller, 2011), then why not provide the students with the necessary resources to help achieve this goal? Chapter 3 presents the research questions and protocol to evaluate the effectiveness of the Accelerated Reader program at Flyers Elementary School.
Chapter 3

Methodology

Research has been conducted on various aspects of reading, motivation, the use of computerized-based assessments, and reading achievement. Assessing the effectiveness of Accelerated Reader at Flyers Elementary School is necessary to continue with program implementation and further program funding and staff development opportunities. This evaluative study draws on quantitative data to determine if a relationship between the amount of reading and reading growth as measured through the Accelerated Reader program exists. The research design is correlational, utilizing data collected twice during the school year.

Participants

Participants for this study were taken from a 4th and 5th grade combination class. This class is made up of 32 high achieving students, 10 of which are in the Gifted and Talented Education (GATE) program. Students were assigned prior to the start of the 2011-2012 school year to this combination class based on their academics, and thus it was created to be a rigorous-paced class for high performing students. The students that make up the class consist of 18 fourth-grade students of which there are 9 boys and 9 girls, and 14 fifth-grade students of which 7 are boys and 7 are girls. Demographics include 6% African-American, 44% Hispanic, and 50% White.

Setting

This school has been open for nine years. It lies just outside of the main city, in a smaller suburb. There are 35 general education classrooms, 5 special education
classrooms, two speech pathologists, and one school psychologist. The school has one computer lab with 40 computers. Classes are scheduled to attend the computer lab once a week for 45 minutes. It is at the discretion of the teacher to utilize the computer lab during this 45 minute block.

Library time is scheduled once a week for each class. This is a 45-minute block led by the librarian. The librarian reads to the students for approximately 20 minutes during this time, and the remainder of the time is for student book selection. Books in the library are color coded based on reading levels according to Accelerated Reader. Students are able to check out two books for the week. One book must be checked out within the ZPD range, and the other book is any choice. Not all books in the library have Accelerated Reader quizzes to accompany them, which is the reasoning for two books per week.

In this specific classroom, there are two computers accessible to students. Accelerated Reader tests can be taken anytime throughout the day, except during direct instruction. There is a sign-up sheet for AR tests. Students are responsible for reading 60 minutes per day, thirty minutes at home and thirty minutes at school. The home reading is recorded on a reading log, which the teacher checks on a daily basis. This reading log includes the choice of reading, time read, brief summary, and parent initials. Student seating arrangements were carefully considered to ensure students are working with another student with similar reading interests and reading levels. At the end of the independent reading block, students have one minute to share with a buddy what they have read. Classroom independent reading occurs in two blocks throughout the day, approximately 15 minutes each. Overall reading grades are determined by district
assessments, classroom assessments, and other assignments. Accelerated Reader was not used to determine overall reading grades.

**Measures/Data Analysis**

Students were given a pre and post assessment using the STAR Reading test, once in September 2011 and again in May 2012. The STAR Reading test summary report provided an initial independent reading level (IRL), grade level equivalency (GE), and zone of proximal development (ZPD). This report was generated after all students had completed the initial STAR Reading test in September 2011. Information from this report was used to create reading goals for each student based on the Renaissance Learning Goal Calculator (Figure 1.1). Students were given a bookmark with their independent reading levels, point goals for the goal period, and book level range of proximal development. Each goal level ranges from four to six weeks. Each Friday, an Accelerated Reader goal report and TOPS report was printed to track progress toward reaching reading goals for the goal period. This report contained the goal amount, percent toward goal, average percent correct on AR quizzes, and identifies students who are not achieving 80% accuracy on reading quizzes and the types of questions they are having most difficulty with.

At the end of each goal marking period, an Accelerated Reader goal report was printed to track student goal achievement. Each student was given a TOPS report (Figure 3.1) to guide student/teacher conference. The TOPS report consisted of two items. First, it shows information about the books on which the student has tested (book level, points, etc.) and also the student’s test results on the books. As recommended by
AR, a goal has been set of 85% or higher on all tests taken. Secondly, the TOPS report summarizes the student’s progress for the selected time period (4-6-weeks). The TOPS (figure 3.1) report shows if the student is reading within his ZPD range; it shows if the student is on track in meeting his point goal; and it shows if the student is averaging 85% or higher on all tests taken within the marking period. Once the conference is complete, students take the TOPS report home to share with their parents. Students who do not meet goals are given suggestions on what they can do to be successful. Once the report is returned, new goals are given for the next marking period.

Figure 3.1. TOPS Report. This report is shared with students weekly.
In May 2012, a STAR Reading test was administered to the students once again. A STAR Reading growth report was printed. This report contains initial independent reading levels (IRL), grade equivalency (GE), and the zone of proximal development (ZPD) as well as a final IRL, GE, and ZPD. This report is used to measure reading growth in independent reading levels and grade level equivalency by calculating the difference between initial reports and end reports to determine the level of growth in both independent reading levels and grade level equivalency. A word count report was printed through Accelerated Reader, which identifies the total word count read throughout the five reporting periods, as calculated by Accelerated Reader. This does not include books read outside the realm of Accelerated Reader. To establish a correlation between reading amount and reading growth, information taken from the word count report, growth report, and TOPS report will be used to determine the degree of relationship in this sample class.
Chapter 4

Analysis of Data and Findings

The goal of this research was to evaluate the effectiveness of the use of Accelerated Reader in a 4th and 5th grade combination class at Flyers Elementary School. Effectiveness was determined by the degree of correlation between the amount of reading and the amount of reading growth in students. Data was obtained for all 32 students enrolled in the class to determine the amount of words read in the year, independent reading levels (IRL) in September 2011, independent reading levels in May 2012, Grade level equivalency (GE) in September 2011, and Grade level equivalency in May 2012. Tests of correlation between the amount of words read and the independent reading level growth and the amount of words read and the grade level equivalency were run to answer the S-RQs, does the amount a student reads contribute to the amount of reading growth. The results of this data analysis will be reported in this chapter.

Raw Scores

Data obtained is displayed in Table 4.1, includes initial grade level equivalency, initial independent reading levels, end grade level equivalency, end independent reading levels as well as growth in both areas. This table also includes the amount of words read in the school year as reported from Accelerated Reader.
Table 4.1

Student Data

<table>
<thead>
<tr>
<th>Student</th>
<th>Words Read in one school year</th>
<th>IRL 9/2011</th>
<th>IRL 5/2012</th>
<th>IRL Growth</th>
<th>GE 9/2011</th>
<th>GE 5/2012</th>
<th>GE Growth</th>
<th>Student Actual Grade Level</th>
</tr>
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<td>6.6</td>
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<td>5.9</td>
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<td>4</td>
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<td>7.5</td>
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<td>7.9</td>
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<td>4.4</td>
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<td>4</td>
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<tr>
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<td>4.9</td>
<td>0.4</td>
<td>5.1</td>
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<td>4</td>
<td>4.6</td>
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<tr>
<td>Student</td>
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<td>11.6</td>
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<td>12.9</td>
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<td>4</td>
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<td>9.9</td>
<td>3.4</td>
<td>7.6</td>
<td>10.6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Student</td>
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<td>4.9</td>
<td>1.6</td>
<td>3.3</td>
<td>5.6</td>
<td>2.3</td>
<td>4</td>
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<td>Student</td>
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<td>6.2</td>
<td>0.7</td>
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<td>Student</td>
<td>459,663</td>
<td>5.4</td>
<td>6.3</td>
<td>0.9</td>
<td>6</td>
<td>7.1</td>
<td>1.1</td>
<td>5</td>
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<td>Student</td>
<td>1,970,183</td>
<td>6</td>
<td>6.1</td>
<td>0.1</td>
<td>5.9</td>
<td>6.6</td>
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<td>8.2</td>
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<td>5.1</td>
<td>8.8</td>
<td>3.7</td>
<td>4</td>
</tr>
<tr>
<td>Student</td>
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<td>5.1</td>
<td>1.3</td>
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<td>8.8</td>
<td>4.8</td>
<td>4</td>
</tr>
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<td>Student</td>
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<td>4.4</td>
<td>0.1</td>
<td>4.8</td>
<td>5</td>
<td>0.2</td>
<td>4</td>
</tr>
</tbody>
</table>

**AVERAGE**: 845,863 4.97 6.10 1.13 5.43 6.91 1.48 4.44

**SD**: 553,638 1.58 2.04 1.29 1.51 2.31 1.53 0.50

**Margin of Error**: 199,608 0.57 0.74 0.47 0.54 0.83 0.55 0.17
Different aspects of this table were analyzed to determine the level of correlation between the use of Accelerated Reader, amount of reading, and reading growth. The amount of words read throughout the year ranged from 93,000 words to 2.1 million words, with an overall class average of 845,863 words and a standard deviation of 553,638.

When a comparison is made with the amount of words a student read and the overall reading grade, it is noted that students who read more received higher grades in the final marking period.

<table>
<thead>
<tr>
<th>Words Read</th>
<th># Students</th>
<th>Reading Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 2 million</td>
<td>2</td>
<td>2 A’s</td>
</tr>
<tr>
<td>Between 1 million and 2 million</td>
<td>8</td>
<td>8 A’s</td>
</tr>
<tr>
<td>Between 100,000 and 1 million</td>
<td>21</td>
<td>15 B’s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 C’s</td>
</tr>
<tr>
<td>Under 100,000</td>
<td>1</td>
<td>1 D</td>
</tr>
</tbody>
</table>

**Grade Equivalency**

The participants of this study began the year with a reading grade level equivalency ranging from 2.6 to 7.6, with an average reading grade equivalency of 5.4 and a standard deviation of 1.5 based on STAR assessment. When the class was reassessed in May 2012, the reading grade equivalency ranged from 3.0 to 12.9+, with an average of 6.9 and a standard deviation of 2.3. Based on the overall comparison of average scores, there was a calculated grade level equivalency growth of 1.48 years. Looking at individual students, the growth ranged from 0.2 years to 6.9 years growth. It
is noted in the scatter plot in Figure 1 that there is a degree of correlation between the amount of words read and grade level equivalency growth. Table 4.3 demonstrates the trend when comparing the amount of words read in a school year to the individual grade equivalency growth. The trendline shows a positive correlation (r-squared 0.14) between the words read in the school year and the grade equivalency growth. Table 4.3 demonstrates a positive correlation showing the amount a student reads does in fact lead to grade equivalency growth, which presents strong evidence to answer the sub research question establishing the relationship between amount of reading and reading growth.

*Table 4.3*

*Scatter plot comparing the amount of words read to GE growth*
Independent Reading Level

Independent reading levels were assessed through the STAR assessment in September 2011 and again in May 2012. Independent reading levels in September ranged from 2.7 to 11.5 with an average of 5.0 and standard deviation of 1.6. In May, independent reading levels ranged from 3.1 to 11.6 with an average of 6.1 and a standard deviation of 2.0. Confidence interval for independent reading levels is 0.44 with 95% confidence. There is a correlation between the amount of words read and the independent reading growth as noted below in Figure 4.4. The trendline shows an positive correlation ($r^2 = 0.14$), which confirms the relationship between the amount of words read and the independent reading level growth among the research subjects.

Table 4.4

Scatter plot comparing the amount of words read and the IRL growth

![Words Read vs. IRL Growth](attachment://chart.png)
Motivation

Motivation is the most difficult factor to consider when establishing the use of Accelerated Reader. As previously noted, monthly goals were assigned to students and progress toward those goals were updated through a TOPS report. Based on these results, a conclusion can be made on motivation by the amount of the monthly goal that was met. Comparing the grade level equivalency with the average percent of goal completion helps to interpret reading growth as related to motivation. Figure 4.5 displays data on each student including the grade equivalency growth and percent toward meeting each marking period goals. A measure for assessing student reading amount is to determine if reporting period goals are met throughout the school year. Of the 32 students in this study, 66% averaged more than 100% of their reporting period goals for the school year. With eleven students not reaching an average of 100% of reporting period goals, four students were in the 90th percentile, two students were in each of the 80th, 70th, and 60th percentile rank. One student averaged 32 percent of the reporting period goals. It is also noted in Figure 4.5 students who met or exceeded reporting period goals. Of the 21 students who met or exceeded the reporting period goal, 17 students were in the 100th percentile, 3 students in the 200th percentile, and 1 student exceeded goals by 316%. The correlation between the amount of time spent reading and the grade equivalency growth demonstrates a positive relationship (r squared = 0.17) confirming the relationship does exist.
Table 4.5

Student achieved goal percent for each marking period

<table>
<thead>
<tr>
<th>Student</th>
<th>GE Growth</th>
<th>Goal % 1</th>
<th>Goal % 2</th>
<th>Goal % 3</th>
<th>Goal % 4</th>
<th>Goal % 5</th>
<th>Goal % 6</th>
<th>Average % of goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>1.9</td>
<td>246.7</td>
<td>334.4</td>
<td>314.7</td>
<td>293.3</td>
<td>510</td>
<td>199.6</td>
<td>316.45</td>
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<td>Student 2</td>
<td>2</td>
<td>165</td>
<td>242.1</td>
<td>205.3</td>
<td>168</td>
<td>290.7</td>
<td>520.5</td>
<td>265.2667</td>
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<td>Student 3</td>
<td>0.5</td>
<td>32.5</td>
<td>162.9</td>
<td>41.9</td>
<td>28.6</td>
<td>108.6</td>
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<td>233.3</td>
<td>68</td>
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<td>90.6</td>
<td>106.7</td>
<td>79.6</td>
<td>110.4</td>
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<td>na</td>
<td>na</td>
<td>na</td>
<td>30</td>
<td>102.5</td>
<td>111.7</td>
<td>81.4</td>
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<td>43</td>
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<td>86.5</td>
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<td>40</td>
<td>116.7</td>
<td>41.3</td>
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Summary

To accurately assess the data obtained in this research, a relationship was established to determine if a correlation exists between the amount a student reads and reading achievement. Different measures were used to establish this correlation and to what extent. Different factors should be considered when determining the level Accelerated Readers role plays in the relationship between the amount read and the reading growth. In order to accurately assess the amount a student reads and the success the student has with reading, Accelerated Reader provides the tracking, monitoring, and assessing tools necessary to provide this for teachers based on the data obtained from this research.
Chapter 5

Discussion

A recent trend in our school systems is the demand for schools to respond to external accountability measures, which challenges teachers to create systems that use data to guide the practices of teaching and learning. With many methods of accountability, determining the need for a program that is conducive to the purpose of providing the necessary feedback teachers need to ensure student achievement in reading is at the forefront of discussion at Flyers Elementary School. The purpose of this study was to use data from Accelerated Reader to determine if a correlation exists between the amount a student reads and the amount of reading growth to assess the need for further implementation proceedings at Flyers Elementary School.

Summary of Findings

Different methods were used to analyze data in this research to determine a level of correlation between the amount a student reads and the amount of growth achieved in reading. To assess the level of correlation, it was necessary to determine how much the time spent reading affected reading achievement gains. When establishing the relationship between words read and reading growth, there was a positive correlation and to confirm this correlation, another method of establishing a relationship between average percent of reporting period goals and reading achievement was done, which also proved the correlation does exist. As expected, the accountability measures used by Accelerated Reader and STAR Reading were profound in establishing this
correlation. Without the use of Accelerated Reader and STAR Reading, tracking progress of the students would not yield data necessary to making this correlation.

**Additional Insights**

Did this growth occur as a result of Accelerated Reader? There are many factors to take into consideration when comparing the amount of words read to the reading growth. One consideration would be to look closely at the entry level of the student. Is this student already reading above their grade level? If the student is reading above their grade level, then should the growth be excessive? Should a student who is reading below grade level have a higher reading growth rate?

For example:

- **Student 19**: Words read in the school year was 1,793,072, exceeded monthly reading goal (average 166.85%), initial grade level equivalency of 7.9 and end of 8.5, indicating a 0.6 growth.
- **Student 26**: Words read in the school year was 801,718, exceeded monthly reading goal (average 178.8), initial grade level equivalency of 3.3 and end of 5.6, indicating a 2.3 growth.

Student 19 entered the school year above average in reading by a minimum of two school years. Student 26 entered below average by two years. Student 19 read more than twice the amount of words in the school year and only had a half of year growth whereas student 26 read half that amount and had a 2.3 year growth.

Many factors can be explored for the reasons on why a higher achieving student has less of a gain than a low achieving student. Possibilities could include, but are not limited to the lack of availability of reading material at that higher level. As we look at
this achievement gain in both students, it is significant. Student 19 is a fourth grade
student and therefore, beginning the school year with a reading grade equivalency of
7.9 and ending with 8.5 is a significant growth.

Another example is Student 10. This student began with a grade level
equivalency of 2.6 and ended with a 3.0, which is a 0.4 gain. This student is still
considered far below grade level in reading. When analyzing data on this student,
student 10 read 93,752 words in the year, had a gain of 0.4, and average percent of
meeting monthly goals was 32%. Again, we can clearly see this student did not read as
much as the other students, did not meet monthly goals on all six reporting periods, and
is severely below grade level in reading, ending the school year with a reading level of
3.0 as a 5th grade student.

Discussion of Findings

The degree of which the role of Accelerated Reader plays in this growth is up to
interpretation of this data and the necessity for a method of assessing student reading
growth. This researcher believes the use of Accelerated Reader in the classroom did
provide opportunities for the students to be challenged in independent reading with
accountability measures to ensure success, which is what needed to be established to
continue implementation of Accelerated Reader at Flyers Elementary School. As
schools become data driven and constantly analyze their data to make improvements,
having the ability to track and monitor reading growth through Accelerated Reader
provides the data feedback schools need to make data-driven decisions on the
education goals of their students.
The data obtained during this research did show growth in all students who participated in this study, but this does not answer the question of the role Accelerated Reader played in facilitating this growth. There are many factors that lead to reading growth as noted in previous chapters of this research. With the review of previous literature, it is noted that motivation plays a key role in reading.

Assessing the five claims from Renaissance Learning that Accelerated Reader provides, the data collected in the evaluation study support four of those claims. Accelerated Reader does make essential reading practice more effective for every student by tracking the progress students make through independent reading levels and grade equivalency growth. Accelerated Reader also personalizes reading practice to each student’s current reading level by providing STAR Reading test, results, reading levels, amount of reading to ensure success, and feedback through TOPS reports. Accelerated Reader manages all reading activities and provides the feedback necessary to make academic decisions to promote reading growth. What we are not able to assess through Accelerated Reader in this research is whether or not it builds a lifelong love of reading and learning. A further study could be conducted on this same group of students by tracking them and surveying their reading with a reading inventory. This would be one method to assess Accelerated Reader’s claim that it builds a lifelong love of reading and learning.

Conclusion

The implications of this research study would indicate the positive role Accelerated Reader plays in facilitating reading growth at Flyers Elementary School. Accelerated Reader provides the means necessary to track, monitor, and assess
students independent reading as well as provide the necessary feedback students need to progress as young readers. Although this study was limited to a class of accelerated students, the growth in reading these students achieved can be used to determine the necessity of a program that implements reading on a daily basis and provides accountability measures, monitoring, and assessing students. The possibilities of this program being used in other classrooms and with students of various needs are countless. At a time when Response to Intervention (RTI) is in high demand, a program such as Accelerated Reader can provide a school such as Flyers Elementary with the data needed to make decisions that provide the maximum possible potential for students.
References


Wang, S., Jiao, M., Young, M. J., Brooks, T., & Olson, J. (2007). Comparability of computer-based and paper-and-pencil testing in K-12 reading analysis: A meta-