Reading Achievement Scores of Youth Incarcerated in a Juvenile Detention Center.

A Special Project

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ABSTRACT

The purpose of this study was to gather descriptive data for students in a juvenile detention school and to determine if reading fluency was related to reading comprehension. Seventeen students were given a one minute fluency test and a STAR comprehension test. The Pearson r correlational coefficient was .67, which was significant at p = .05 and .01, but not at p = .001. Based on 86/111 students given a STAR test, students in this setting were 2.55 years below expected reading levels for their age. It was concluded that because a segment of this population was well below expectations for reading achievement, increased reading interventions were needed and that one factor to focus on was instruction in reading fluency.

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CHAPTER 1

Introduction

Background for the Project

President George W. Bush set aside September 18, 2006 as Literacy Day, stating that, “The ability to read is the gateway to educational excellence and a key to success in any democratic society.” (Bush, 2006) No aspect of education has likely been as hotly debated or promoted as the ability to read. Under the No Child Left Behind (NCLB) mandate, all states were required to test their students’ ability to read at grade level. In many states, Washington included, passing these tests of basic skills, with literacy as a key component, was required for high school graduation. Washington State Governor Christine Greqoire, in responding to concerns regarding students potentially failing to graduate due to failing the Washington Assessment of Student Learning (WASL), declined to back down from this requirement, stating, “I want all our kids to have an equal shot at a better life, and I know their parents do, too. I’m not

willing to give up on one high school student." (Woodward, Curt, 2005)

Traditionally, students from lower socioeconomic backgrounds scored lower in tests of reading ability than their more fortunate age peers. Students in juvenile detention centers overwhelmingly came from this social stratum, and often had learning or behavioral disabilities which further impacted their educational progress. In addition, while many youngsters may have had brief contact with the court systems, those who were repeat offenders were more likely to have poor literacy skills. Literacy was also a predictor of recidivism in adult prisons, which made effective reading instruction for juvenile offenders an incredibly important factor in their futures.

One method of increasing reading comprehension was by increasing reading fluency. This has been defined as the ability to read with speed, accuracy, and expression (Staubitz, Cartlege, Yurick, & Lo, 2005). Fluency was shown to create a bridge between

decoding words and comprehension (Thierrien & Kubina, 2006). It has been extrapolated that increased reading fluency led to increased comprehension. In fact, one study showed that fluency was a better predictor of comprehension than questioning, retelling, and Cloze technique (Thierrien & Kubina, 2006).

Statement of the Problem

Students in detention centers, as a group, scored well below grade level in reading. If this did not change, these students would be at a much higher risk for recidivism. Teachers in the County Detention School needed data to indicate whether or not their students' reading achievement matched national norms for this population. They also needed to know whether their unique student population had similar correlations between reading comprehension and reading fluency as indicated in the United States student population. Finally, they wished to identify and experimentally implement an effective instructional technique that provided opportunity for immediate,

measurable reading growth, and that was effective in an instructional environment consisting of relatively short, irregularly spaced, and repeated stays by most students.

Purpose of the Project

The researcher needed data comparing the detention center school to national averages regarding reading achievement. In addition, information regarding implementing a reading intervention program compatible with the environment was needed. One instructional technique that appeared to fit this criterion was paired repeated readings. The purpose of this project was to determine if repeated readings increased the reading fluency scores of students and was a feasible method of instruction.

Delimitations

All subjects were incarcerated at the County Juvenile Detention Center during their testing and instruction. Students were male and female, and ranged in age from twelve to seventeen. Graded reading selections were from the Specific Skills Series (SSS)

booklets entitled Getting the Facts. Besides the incarcerated students, participants in the study also included the author and two classroom paraprofessionals.

Hypothesis

Students with reading comprehension scores between grade levels 2.0 and 6.9 were given a reading fluency test with scores expressed as words correct per minute (WCPM). There was a positive relationship between comprehension scores and reading fluency scores. This correlation was significant at levels of .05, .01, and .001.

Null Hypotheses

There was no relationship between reading comprehension and reading fluency scores. This was true at .05, .01, and .001 levels of significance.

Significance of the Project

The Juvenile Detention School had a limited budget and a high need for curriculum that was effective within this unique setting. Before purchasing an expensive commercial reading fluency

program such as Read Naturally, only to find that it was unnecessary or ineffective within the parameters of detention education, it was important to conduct a study of the detention student population's actual reading achievement levels, and the efficacy and feasibility of a repeated reading program.

Procedure

All incoming students were given a STAR reading test. These scores were then compared to expected achievement scores based on age. In addition, those who scored between the 2.0 and 6.9 grade level were given a one-minute reading fluency test to determine their word correct per minute (WCPM) score based on their achievement level. These students read an unfamiliar passage at their STAR grade level, and their words correct per minute (WCPM) was recorded. Some students were placed in a paired, repeated reading program for fifteen minutes per day, three days per week. During instruction, these students read a passage several times with a peer partner, and/or with an adult. When they reached their fluency goal

for that passage, they repeated the process with another passage at the same grade level. They were allowed to move on to a higher grade level when they reached their goal over three consecutive attempts. Each cold, or non-practiced reading, and each hot, or practiced reading, was recorded on a chart. After one calendar month of instruction, final cold scores were recorded and compared to initial cold scores to measure growth.

Acronyms

AR. Accelerated Reader

NCLB. No Child Left Behind

SRA. Scientific Research Associates

SSS. Specific Skills Series

WASL. Washington Assessment of Student Learning

WCPM. Words correct per minute

CHAPTER 2

Review of Selected Literature

Introduction

Young people who were incarcerated often shared common characteristics regarding their background and academic progress. Recognition of these characteristics helped educators design an educational program most likely to assist these students in obtaining academic skills, including literacy.

Once youth and young adults had been incarcerated, they often became repeat offenders. The rate of return to a correctional facility following an initial placement was referred to as the recidivism rate; one factor in predicting recidivism was literacy. Students who were literate were much less likely to be re-incarcerated, which made literacy education one of the paramount goals of corrections education.

Unfortunately, detention centers, where many students attended school on a revolving-door basis, were not necessarily conducive to consistent learning.

By their nature, they were short-term facilities where learning was often secondary to security and court procedures which were disruptive to the classroom.

One promising method of improving reading comprehension was through increasing oral reading fluency. This method appeared well-suited to the detention school setting because it was easily individualized, feedback was immediate, and the process was easily returned to when students left the facility and then returned at a later date. Furthermore, students who were only at the facility for a short time might still see that their skills had improved by charting their fluency scores on a graph.

Characteristics of Incarcerated Youth

Incarcerated youth often dealt with a constellation of risk factors, including parents in prison, drug addiction, witness to or perpetrator of domestic violence, poverty, mental health diagnoses, and poor educational (Cannon, 2006). While a true program of rehabilitation must undoubtedly address all

of these issues, it was the primary job of the corrections educator to address academic deficiencies.

Few have argued against the need for all American students to achieve higher levels of literacy; this subgroup of students has perhaps illustrated this need more than any other. Juvenile delinquents, defined as those students who have spent any period of time in a lock-up facility, had, as a group, reading scores well below grade level. By junior high school, 50% of this group had been characterized by delays in all academic areas (Sheridan & Steele-Dadzie, 2005). This was especially important because many studies have pointed to a high correlation between academic failure and juvenile delinquency (Sheridan & Steele-Dadzie, 2005). In fact, poor academic progress as early as first grade has been used as a predictor for later behavioral problems, with a correlational relationship of .46 (Montague, Enders, Castro, 2005).

Unfortunately, this record of academic distress coupled with societal stressors often manifested itself in behaviors even more likely to lead to

failure, such as truancy, drop-out, and expulsion. It was no wonder that many students, having suffered academic failure for several years, had developed behavioral problems that eventually led to incarceration.

Given the broad spectrum of educational interventions required in public schools, an assumption was made that these young people must have been identified, and interventions attempted, at some point in their school careers. This was found to be true; students in special education were overwhelmingly overrepresented in corrections facilities. While the rate of students identified with a disability requiring special education services was placed at 10.8% in regular schools, the number of identified students in detention facilities was estimated at 30 – 50%. A study of Wisconsin's juvenile detention facilities placed this figure at 60.46% (Zenz, Langelett, 2004). There was no reason to believe that this number was misrepresentative of national statistics.

In addition to negative environmental factors and disabilities, many incarcerated students, even those with grade-level or above skills, shared common learning styles. A study by M. Sheridan and T. Steele-Dadzie (2005) indicated that many delinquent youth shared high scores for creativity, and a learning style characterized by the need for hands-on experiences. Also, these young people often were more successful learners when they were able to work with a partner, or within a small group. Conversely, a typically undeveloped skill area for these students was symbolic learning, which was highly related to word decoding.

Literacy and Recidivism

There was a clear connection between reading ability and recidivism in the literature. Studies since 1990 have shown that “educated [adult] prisoners are less likely to find themselves back in prison a second time if they . . . . are taught skills to successfully read and write” (Vacca, 2004). A study

of 220 inmates in a New York prison revealed that 79% had not earned a high school diploma (Vacca, 2004).

In terms of financial costs associated with housing adult prisoners, it made fiscal sense to address the literacy needs of youthful offenders in order to prevent a lifetime of costly incarceration. Although the initial outlay of monies to provide life-changing services to delinquent youth was prohibitive, it was much less costly than housing an adult inmate for even a few years. An article in the Juvenile Justice Digest noted that Colorado, for instance, spent $68,000 on each of its 225 most violent juvenile inmates. A key component of the program was developing literacy skills. This program slashed expected recidivism rates by 50% (Anonymous, 2005), a truly significant number given the expected paths these most at-risk young people were pursuing. When compared with an average cost of $23,000 for housing an adult inmate for one year (Lewis, 2006), it made even more sense, as the average sentence for those young people who did not successfully complete the program was 24 years.

Gaining literacy skills led to a snowball effect on the path to success. Students released from juvenile correctional facilities with increased literacy were more likely to return to their home high school. Students who returned to their high school were more likely to pursue and attain a diploma, and of course, students with a diploma were more likely to maintain a job and less likely to return to criminal activity (Blomberg, Blomberg, Waldo, Pesta, & Bellows, 2006). While these numbers were impressive in terms of savings to taxpayers, they were even more impressive to those young people who were able to lead productive adult lives due in large part to obtaining usable literacy skills.

The Correctional Education Environment

The data supporting a cause and effect relationship between literacy and reduced recidivism did not go unnoticed by the federal government. The No Child Left Behind Act included specific language requiring youth corrections schools to meet the same criteria as other schools (Gehring, 2005). Challenges

to meeting NCLB mandates were great, however, including small size, short lengths of student stay, and a disproportionate number of students with disabilities (Blomberg, Blomberg, et al. 2006).

With the benefits of increased literacy for juvenile offenders clearly established, it was necessary to understand the unique setting of the juvenile detention facility in order to determine instructional techniques most likely to be effective. These facilities housed young people for relatively short periods of time compared to long-term youth prisons or reformatories. Students were released to home or transferred to other facilities or placements at any time, making consistency within a group setting highly unlikely. In one study, students were available for a reading intervention for a range of from five to 48 sessions (Coulter, 2004). Of course, in a typical public school, the teacher would have had a much greater timeframe and essentially the same students for the duration of that time.

Juvenile detention schools tended to have smaller per-student budgets than regular schools (Coulter, 2004), and this, coupled with small student populations, made the purchase of costly educational materials prohibitive. In addition, many students entering these facilities were disconnected to education and the positive consideration of their own futures. They may have spent a lifetime, albeit short, experiencing school failure and devising ingenious methods to avoid more pain, most of which were not conducive to learning. “The [typical] delinquent student enters the juvenile justice system with a personal history of failure that has been established and reinforced” (Sheridan & Steele-Dadzie, 2005).

Clearly, a successful reading curriculum for juvenile detention centers needed to include multiple approaches to teaching skills, be effective in the short-term, provide immediate, positive feedback to students, be implemented one-to-one, and not be prohibitive in cost. One instructional method that

appeared promising for this population and setting was paired, repeated reading to increase reading fluency.

Reading Fluency

Mather & Goldstein (2001) defined reading fluency as “The ability to read connected text rapidly, smoothly, effortlessly, and automatically with little conscious attention to the mechanics of reading. . . .” In order to provide a more operational definition, Archer, Gleason, and Vachon (2003) defined fluency as rate plus accuracy. Regardless of the specific definition, reading fluency was widely recognized as a critical reading skill and a necessary component for grade level comprehension. (Al-Otaiba, Rivera, 2006).

One explanation of the close relationship between fluency and comprehension was the information processing theory. This theory posited that humans have limited cognitive resources for attention and short term memory. If a reader’s attention was focused on recognizing single words, they did not have enough short-term memory to comprehend the selection; therefore, little cognitive energy was available for

comprehension (Archer, Gleason, & Vachon, 2003). While much research and current brain theory have been dedicated to reading fluency and its relationship to comprehension, this concept has been recognized for at least one hundred years. In 1908, Huey compared reading to psychomotor activities such as tennis in that both skills improved with practice. Huey stated that, “Repetition progressively frees the mind from attention to details, and makes facile the total act, shortens the time, and reduces the extent to which consciousness must concern itself with the process.” (Chard, Vaughn, & Tyler, 2002).

This observed connection between automaticity in reading and comprehension of the text led to a plethora of research on the subject, which, while shedding light on the factors leading to acceptable levels of reading fluency, produced very few results detracting from the original findings of late nineteenth century educational psychology. Given the overwhelming evidence supporting the benefits of high rates of reading fluency, many in the educational

community concluded that if acceptable was good, above average must be better. This line of thought was a contributor to a small backlash against instruction in reading fluency, often seen as a detractor to the overall goal of deeper comprehension of text. These researchers concluded that, while there was a relationship between reading fluency and comprehension, it could not be definitively construed as a causal relationship; therefore, fluency should not be practiced as a stand-alone skill, but may be more naturally incorporated into reading instruction (Marilyn Manning, 2004). Interestingly enough, one of the foremost current researchers on reading fluency, Jan Hasbrouck, also weighed in against all-school instruction and practice on reading fluency.

In a presentation to educators at the 2007 Office of the Superintendent of Public Instruction (OSPI) January conference, Jan Hasbrouck firmly stated that instruction in reading fluency, in addition to phonics, phonemic awareness, vocabulary, and comprehension strategies, was crucial to reading

comprehension. However, Hasbrouck also stated that, regarding fluency instruction, “Enough is good enough,” meaning that students who reached the words correct per minute norms for their grade did not benefit from further instruction. There was no evidence that moving students from the fiftieth percentile to the seventy-fifth percentile for grade level reading fluency had any positive impact on reading comprehension (Hasbrouck, 2007).

Using Repeated Reading to Increase Reading Fluency

Repeated reading as a means of increasing fluency rates has been used and studied over the past thirty years (Staubitz, Yurick, & Lo, 2005). In some cases, repeated oral reading was achieved by involving students in dramatic interpretation of literature (Goodson & Goodson, 2005). Other innovative techniques required students to read aloud repeatedly in order to record children’s books on tape for younger students, learn and perform songs or poetry, and participate in poetry slams (Rasinski & Padak, 2005). These techniques were often successful in

motivating students whose history of poor reading ability had undermined their interest in continued effort.

The most prevalent form of repeated reading was an instructional technique in which students read a graded passage aloud without practice, and were given a words correct per minute (WCPM) score. Then the students read the passage several times, by themselves or with assistance. After reading the selection multiple times, students were then timed again, and received new scores for accuracy and WPM (Rasinski & Padak, 2005). Students did not continue on to the next reading passage until they had met individual fluency goals. This was a foundation of commercial reading programs such as Read Naturally, and a component of remedial programs such as SRA's Corrective Reading. In these programs, there was little interaction among students; rather, the teacher took the lead role as timer and corrector, while the student practiced independently or with the assistance of taped selections.

One study involved using peer-mediated repeated reading with a very small population set of six emotionally or behaviorally disturbed (EBD) students in third through fifth grades, all of whom were at least one year behind their expected reading level, with the mean being two years below grade level. Students in the treatment group were paired with another student at their approximate reading level and received sixty minutes of training on peer mediated instruction. After this training, they participated in paired, repeated reading instruction with their peer partner.

The variables measured were oral reading rate, accuracy, and comprehension. The control was having students silently read a passage several times and then reading it aloud to a teacher. No evidence of improvement was noted for students in the control group. For students in the treatment group, average comprehension scores went up eight months for treatment spans of one and one-half to four months. Accuracy increased from 86.2% to 93.2%, while WCPM

increased from 71 to 133. (Staubitz, Yurick, & Lo, 2005).

Summary

Literacy has been in the national spotlight for years; it was a commonly held belief that learning to read was one of the foremost jobs of modern childhood. The No Child Left Behind Act required school systems to recognize low-performing populations and implement interventions to assist these identified groups in achieving grade level reading skills. One group of students who consistently scored below grade level on reading skill assessments was juvenile delinquents. These incarcerated youth had many common characteristics including low levels of academic achievement, a history of over-representation in special education programs, school failure, and high drop-out rates. Of particular concern were the low literacy rates of incarcerated youth. Since literacy and recidivism were closely linked, one clear way to decrease recidivism was to increase literacy. Research in this area supported efforts to change

lives through literacy, and the preponderance of illiterate inmates and high-school or earlier drop outs in our nation's prisons was a testament to the need for reaching these most at-risk youth with intensive literacy interventions.

For many juvenile delinquents, detention center schools may have been their primary source of secondary education, as they had often exhausted other options due to expulsion, drop-out, or repeated moves. Unfortunately, these detention schools by their nature were not necessarily conducive to academic achievement because of the transitory nature of the population. Individualized, short-term literacy interventions were needed to best utilize the short periods of time most of these students were present in the classroom. One facet of literacy, reading fluency, seemed a good fit to this unique educational environment. Reading fluency was clearly connected to increased comprehension, and methods of instruction favored a one-to one, time-limited approach.

One method of increasing reading fluency was identified as repeated readings, in which the student was timed while reading an unfamiliar passage, and then given time to read the selection aloud several times to another person, with instant feedback regarding errors. The student was then retested on the same passage. This process was repeated until the student was reading within acceptable limits for their grade level. This method appeared to be a good fit for both the transitory nature of the detention school environment and for the low-achieving population attending therein.

CHAPTER 3

Methodology and Treatment of Data

Introduction

In an effort to greater identify reading abilities of students in the detention center, STAR reading levels for students who had taken the test in the past calendar year were collected. These scores were computed in order to identify the mean reading levels of students in relation to age and age-adjusted grade assignments, then compared to national norms. In addition, between December 2006 and March 2007, a one minute reading fluency test was administered to students with scores between 2.0 and 6.9 on the STAR test. Selected students from this group were then given reading fluency instruction and practice time, and their achievement was analyzed.

Methodology

The study was primarily descriptive in nature. Within the study, correlational scores were computed in order to better understand and describe the targeted population. In addition, the mean and

standard deviation for grade level and reading levels were compared. The progress and backgrounds of two students selected for reading fluency instruction were described in a case study format.

Participants

Participants were students ages twelve to seventeen who were incarcerated in the County Juvenile Detention Center during this study. Regardless of age or grade in school, students who scored between grade level 2.0 and 6.9 on the STAR reading test were also given a reading fluency test. The STAR-tested students were comprised of 57 males and 29 females; this gender discrepancy was representative of the detention population and was not a condition of placement in the control or treatment groups. Twenty-eight percent of the students in the study were in special education with qualifying categories of learning disability, health impairment, mild mental retardation, or emotional-behavioral disability. A racial analysis of the sample group indicated that 75 were Caucasian, nine were Native American, eight Hispanic, and four

were other or unknown. Ethnicity was not used as a criterion for further testing or program inclusion.

The researcher was a teacher at the juvenile detention school who possessed a degree in special education and had sixteen years of classroom experience, with more than ten years experience teaching reading to students with learning or behavioral disabilities. The researcher had taught in the detention school setting for five years.

Two classroom paraprofessionals also participated in this study. One woman had seven years of experience in the detention school setting. This person had been trained to use the STAR reading program, and was responsible for testing all students using STAR, and listing all students who qualified for reading fluency testing based on their scores. The second paraprofessional had sixteen years of experience working with students in special education, and one year experience working in the detention setting. After training, this woman timed students on one-minute reading fluency tests, and listened to and

assisted students during repeated reading fluency practice.

Instruments

The computer-based STAR reading test was used to measure students' reading achievement and to qualify students for fluency testing. This program was tested for reliability and validity in 1999 with a sample group of 30,000 students in grades one through twelve.

The sample was selected from 269 schools in 47 states. In three reliability tests consisting of test-retest, alternate forms, and generic reliability, grade level reliability scores ranged from 0.79 to 0.92. Validity was tested with a sample group of 12,000 by comparison to the California Achievement Test and the Iowa Tests of Basic Skills. Probability of a positive relationship between these two tests and the STAR reading test was greater than 0.70(Renaissance Learning, 2001.)

Design

The mean reading score and mean grade based on chronological age were compared for a random sampling

of students in the detention center. In addition, grade level reading achievement scores and words correct per minute (WCPM) scores were correlated and compared to national norms based on percentile ranking. Finally, selected students' progress when given reading fluency instruction and practice were analyzed using a case-study design.

Procedure

The paraprofessional who assisted with timings and repeated reading practice was trained by the researcher. After initial instruction on error identification, the paraprofessional and researcher timed several students simultaneously. Results were compared and technique refined until both timings were within five words correct per minute of each other. After initial training, the researcher also intermittently observed the paraprofessional and timed students immediately afterward to assure that the correct method was being followed and that highly similar results were being recorded. All figures collected by the paraprofessional were double-checked

by the researcher, and all data was recorded only by the researcher.

Once this training was completed, all incoming students were given the STAR test to determine their reading grade level. Students already in the facility who had completed the STAR test within one month were also considered for the study. Those that were already in the facility but had not been tested within one month were retested on STAR to determine their eligibility. Of these students, those with STAR test scores between 2.0 and 6.9 were considered eligible for the reading fluency portion of this project.

Once placed into the reading fluency test group, the appropriate reading selections based on grade level were determined for each subject. Reading selections were taken from the Specific Skills Series booklets titled Getting the Facts. This booklet provided 25 one-page, graded reading selections from pre-primer through grade twelve. Because the researcher's previous experience with this publication indicated that students were generally able to

successfully read this publication at two grade levels above their STAR test scores as indicated by achieving 80% or better on factual comprehension questions, this information was used as a guide for placement.

Each student was then given a reading fluency test at the selected level. This test consisted of two one-minute readings of a one page selection. The researcher recorded the number of words read, and the number of errors made. Errors included omitted words, misread words, repetitions, and requests for help. Words that were misread more than once were counted as one error, unless the student misread them differently each time. Self-corrections of the above errors were counted as errors. The formula used to determine words correct per minute (WCPM) was number of words read minus number of errors. The WCPM scores of both one minute tests were averaged to obtain a reading fluency score. Students who had a high discrepancy between the two one minute baseline scores were retested, and the two closest scores were averaged.

For selected subjects, instruction and practice in reading fluency was implemented. This consisted of 10 minutes of one-to-one instruction each day in which students read a novel selection at grade level to obtain an unpracticed WCPM score. The students then read the selection to a paraprofessional several times, with immediate feedback given for all errors. After practice, the student read aloud for one minute, obtaining a practiced WCPM score. If this score met or exceeded the WCPM target based on national percentile rankings for that student's reading level, they were allowed to continue to the next selection; otherwise, they continued to practice the same selection until reaching their target WCPM score. The resulting data was recorded on a line graph in order to better illustrate individual growth as students progressed through the instructional phase (Appendix A).

Treatment of the Data

A random sample group of all students in the facility who had taken a STAR test in the detention facility within the past calendar year was selected.

Table 4.2 in the Educational Research text was used to identify the sample size required for the given population. From Appendix A of the same text, table A.1, Ten Thousand Random Numbers, was used to select the students whose STAR scores would be averaged. After the sample group was selected and STAR testing dates and scores were recorded, the students' ages at the time of testing were calculated. Since so many of the students had been retained in earlier grades or had not attended school for some time, a grade level based on age was assigned (Table 1).

Table 1

Grade Based on Chronological Age at Time of Test

Age	11	12	13	14	15	16	17
Grade	6	7	8	9	10	11	12

The Statpak statistics software was then used to find the mean assigned grade level of students, the mean reading achievement level, and the standard deviations for both data sets. This information was then compared to arrive at a discrepancy score based on actual versus expected reading achievement scores.

In addition to this, STAR grade levels and WCPM scores were correlated using the Pearson r product moment correlation coefficient test. The Statpak software program was again used to obtain this number. Finally, the degrees of freedom based on values computed by Statpak software was used to identify minimum correlation coefficients based on levels of significance using Table A.2 from the Educational Research textbook. These numbers were then compared to the Pearson r correlation coefficient score at .05, .01, and .001 levels of significance (Gay, Mills, & Airasian, 2006).

Summary

Data were collected in the County Juvenile Detention School in order to provide a clear description of the reading abilities of students in the center. The researcher and two classroom paraprofessionals collected data and provided instruction to selected students. Students in the study ranged in age from twelve to seventeen, and were

placed in the study with no consideration given to gender, special education status, or race.

Tools used to collect information and provide instruction included the STAR computerized reading achievement test, and selections from the Specific Skills Series (SSS) Getting the Facts books for grade levels three through eight. Reading fluency scores were collected using the method endorsed by Jan Hasbrouck based on her study of fluency scores for the past 80 years. (Tindal & Hasbrouck, 2005).

A random sample of students who had taken the STAR test within the past calendar year was selected. This was done by ordering the population of 111 students from 000 to 110, then using the random number chart found in the textbook Educational Research (Gay, Mills, & Airasian, 2006) to select a sample of 86 names. Those students' scores and chronological-age adjusted grade in school at the time of the test were collected. The means of these two data sets were then computed using the Statpak statistics software program, and the expected achievement for grade level

was then compared to actual achievement levels. In addition, students' whose STAR scores were between 2.0 and 6.9 were given a reading fluency test, and a few selected students were also given instruction and practice on reading fluency using the repeated reading instructional technique.

CHAPTER 4

Analysis of the Data

Introduction

Data collected during this study was analyzed in several ways. A list of the 111 students who had taken a STAR test within the past calendar year was collected. Then, a random sample of 86 of those students was selected using the random number chart located in the appendix of the textbook titled Educational Research: Competencies for Analysis and Applications (Gay, Mills, & Airasian, 2006). Chronological age at time of testing was used to determine grade level. This was compared to reading achievement scores by mean and standard deviation for each.

A group of seventeen students with STAR scores between grade level 2.0 and 6.9 was given a reading fluency test with scores recorded as words correct per minute (WCPM). These scores were correlated to grade level and also given a percentile ranking based on

winter WCPM from the Tindal & Hasbrouck reading fluency chart (2005).

Finally, two of these students were given instruction and practice in reading fluency for one calendar month. Their progress, scores, and backgrounds were analyzed through case studies.

Description of the Environment

This study took place in the County Juvenile Detention Center School, which was a lock-up facility for juveniles involved in the court system. Students in the study ranged in age from twelve to seventeen during the 2006-2007 school year. Commercial materials used in the study included the STAR reading achievement test and the Specific Skills Series booklets entitled Getting the Facts, levels C-H. In addition to the students, participants in the study included the researcher, who was a teacher in the facility, and two paraprofessionals.

Hypotheses

Students with reading comprehension scores between grade levels 2.0 and 6.9 were given a reading

fluency test with scores expressed as words correct per minute (WCPM). There was a positive correlation between comprehension scores and reading fluency scores. This correlation was significant at levels of .05, .01, and .001.

Null Hypothesis

There was no correlation between reading comprehension and reading fluency scores. This was true at .05, .01, and .001 levels of significance.

Results of the Study

Based on a random sampling of 86 out of the 111 students who had taken a STAR test in the past calendar year, the average age was 15.51 years old. This number was slightly lowered due to the presence of three twelve year-olds, the typical lowest student age. When adjusted by chronological age, the students' mean grade level was 9.66, or mid ninth-grade. As the grades had already been adjusted to account for repeated grades and drop-outs, the standard deviation for grade level was very close to that for age. (Appendix A) This was clearly not the

case for reading achievement levels. In fact, the mean reading level as measured by the STAR test was 7.51, a difference of approximately 2.2 years. Although this number was a cause for concern, the standard deviation for achievement level, at 3.29, was perhaps more so (Table 2.) This indicated that while some students in this setting were in fact reading above grade level, a considerable portion was reading well below expectations for their age.

Table 2

Mean and Standard Deviation for Grade and STAR Scores

Statistic	by Grade	by STAR Score
No. of Scores (N)	86	86
Sum of Scores	831	645.60
Mean	9.66	7.51
Sum of Squared Scores	8199	5776.42
Sum of Squares (SS)	169.22	929.92
SD for a Population	1.40	3.29
SD for a Sample	1.41	3.31

All students who scored between 2.0 and 6.9 on the STAR test between December 4th and March 8th, 2007 were given a reading fluency test, with scores

consisting of words correct per minute (WCPM). STAR scores and WCPM scores were then correlated for these seventeen students. A Pearson r Product Moment Correlation of .64 resulted (Table 3).

Table 3

STAR Scores and Words Correct per Minute

Statistic	Values
Number of Items	17
Sum of X	73.10
Sum of Y	1516
Sum of Squared X	361.25
Sum of Squared Y	156378
Mean of X Scores	4.30
Mean of Y Scores	89.18
Sum of XY	7154.50
Pearson’s r	.64
Degrees of Freedom	15

This number was significant at .05 and .01, but not at .001. The null hypothesis was rejected at .05 and .01 levels of significance, but accepted at the .001 level (Gay, Mills, & Airasian, 2006). In this case, the hypothesis was supported at .05 and .01 levels of significance, but not at .001 (Table 4)

Table 4

Significance of Pearson's r Correlation

	p		
Df	.05	.01	.001
15	.4821	.6015	.7246

(Gay, Mills, & Airasian, 2006)

A percentile ranking was identified for the seventeen students who were given STAR and WCPM scores (Appendix B). This was based on the 2005 Hasbrouck & Tindal Oral Reading Fluency Chart for winter (Hasbrouck, 2007). The mean percentile ranking for adjusted grade levels was 41.35. A relatively large standard deviation of 22.53 for a population of only 17 indicated that there was a wide range of scores. Since the mean percentile ranking was below 50, many students scored well below the fiftieth percentile (Table 5).

Table 5

Mean and Standard Deviation of Percentile Rankings

Statistic	Values
No. of Scores	17
Sum of Scores	709
Mean	41.35
Sum of Squares (SS)	37699
SD for a Population	22.53
SD for a Sample	23.22

(Tindal & Hasbrouck, 2005)

Of the thirteen students initially placed in the reading fluency instruction phase of this study, only two remained in the facility long enough for any meaningful data to be collected. While both students made gains, the data collected from both was quite different.

Renee was a sixteen year old Hispanic female incarcerated with drug, assault, and theft charges and was awaiting a bed in a treatment facility. This student had not regularly attended school since the sixth grade, and had never started high school. While

in school this young woman had not been identified as having any disability. Based on an informal interview, reasons for the girl's non-student status included drug use, lack of parental support, incarceration at varying facilities, and frequent moves. Although during class discussions Renee seemed to grasp new concepts and learn at a normal rate, this student never scored above the upper fourth grade level on the STAR test, despite repeated attempts. In addition, while Renee did gain new knowledge easily, placement attempts in grade level texts were met with great frustration. Because of the student's age and lack of high school credits, a GED pretest was administered to this young lady. All subtests were at or below 350, which was far below the minimum standard of 450 points.

Interestingly, this student became very proficient at reading fluency through the eighth grade level during the month of practice and instruction. Renee's first unpracticed reading yielded a WCPM score of 115, with 140 being the goal at level H in the

Getting the Facts booklet. The student surpassed this goal and went on to read fluently up to 240 WCPM, although her prosody was poor at this point. When instructed to read at a natural pace with good inflection, this student was able to do so. The final WCPM score was 156, well above the goal of 140 (Appendix D).

Positive changes attributed to practice and instruction included a professed willingness to read longer books, a higher rate of volunteered reading in the classroom setting, and clearly improved oral reading in that setting. Renee was very proud of these scores and delighted to have achieved an academic goal.

While instruction had obvious positive benefits, it did not result in increased comprehension scores, the eventual goal of any reading fluency program. This was unusual in that only 10% of readers fluent at a grade level have poor comprehension at that grade level (Hasbrouck, 2007). However, given the results of the STAR and fluency correlational study, this lack

of correlation may be more typical in the detention setting.

The second student, Jim, was a thirteen year old white male in the seventh grade. This boy had been identified as mildly mentally retarded as a young student, and received special education services consistent with this diagnosis. While the student also lived in an impoverished home, the parents were involved in Jim's education to the point of assuring that school attendance was regular. This young man had no history of drug abuse. Jim was incarcerated for indecent liberties involving a minor child, which may have been partially attributed to diminished capacity to understand the consequences of these actions. Jim had no other criminal charges.

This student's STAR test score was grade level 2.5. At this grade level, the initial, unpracticed WCPM score was 76. A WCPM goal was set at 85, and Jim then received one-to-one instruction and practice on reading fluency for approximately one calendar month. The final WCPM score was 87 (Appendix D).

While Jim’s improvement was less remarkable on paper, there was a significant leap from reading each word separately to reading with good prosody for the target reading level. During Jim’s stay, this boy began reading the Boxcar Children Series which were written at the upper second to third grade level. Jim showed a consistent ability to pass comprehension tests on these books at scores of 80% or better. This was Jim’s first foray into reading chapter books, and the student was pleased with an increased ability to read the books faster and with good comprehension.

Findings

Based on a random sampling of students who had taken the STAR test in the last calendar year, students in the County Juvenile Detention School scored a mean of 2.55 years below their expected achievement level, based on chronological-age adjusted grade.

When STAR test scores for students scoring between grade level 2.0 and 6.9 were correlated with WCPM scores, the correlational coefficient was .64.

This was significant at the .05 and .01 levels of significance, but not at the .001 level.

The two students who remained in the school long enough to complete a one month program of reading fluency instruction and practice were able to exceed fluency goals based on the 50th percentile for their reading achievement level. Comprehension scores, however, were commensurate only for the lower-achieving student who had regular school attendance.

Discussion

Based on research literature, the finding that County Detention School students were on average 2.55 years behind in reading achievement was an expected result. Past studies indicated that this subgroup of students consistently performed well below grade level (Sheridan & Steele-Dadzie, 2005; Coulter, 2004; Blomberg, Blomberg, Waldo, Pesta, & Bellows, 2006). Because literacy has been closely linked to reduced recidivism rates for juvenile and adult offenders (Blomberg, Blomberg, Waldo, Pesta, & Bellows, 2006; Vacca, 2004; Coulter, 2004), increasing reading skills

was considered of high importance in both published studies and this project.

In available research literature, the correlation between reading fluency and reading comprehension was extremely high (Rasinski & Padak, 2005; Strong, Wehby, Falk, & Lane, 2004), with one study finding a correlation coefficient of .91. (Hasbrouck, 2007). While no levels of significance were stated for this study, the sample was very large, and the high coefficient would lead to a logical conclusion that this number was significant through .001. In the County Juvenile Detention Center, this score was only .67, which was considered significant at levels of .05 and .01, but not at .001. A possible explanation of this difference was the lack of background or content knowledge possessed by the incarcerated juvenile population (Sheridan & Steele-Dazie, 2005; Anonymous, 2004; Cannon, 2006). Since many of these students had not attended school regularly since their elementary years and came from impoverished and often neglectful backgrounds, it would seem to follow that these

students had learned the tool skills of decoding and word recognition, but could not comprehend texts commensurate with this ability once they had moved past the levels at which their regular schooling had declined or ended.

The data collected on the two students who had completed one month of reading fluency instruction and practice, while very limited, seemed to support this position. The student who had attended school regularly had commensurate fluency and comprehension scores, while the student who had dropped out could not comprehend text at the attained level of fluency.

Summary

Results from this study mirrored other studies involving incarcerated youth. Reading scores were over two years below national norms. Although some students were at or above grade level, a large group of students was achieving several years below grade level. A correlation of .64 was noted for STAR reading scores and WCPM, which, although significant, was not as strong as numbers cited in some studies,

where correlational coefficients up to .91 were recorded (Hasbrouck, 2007)). This may have been due to the lack of formal education for many of these students, along with backgrounds which included poverty, low exposure to printed material, and low verbal interaction in the home. Of the two students who participated in reading fluency instruction and practice, only the student with consistent school attendance had closely matched comprehension and fluency scores, lending some credence to this theory.

CHAPTER 5

Summary, Conclusions, and Recommendations

Introduction

A description of reading achievement for students in one county juvenile detention school was developed based on students' age, grade level adjusted by age, and reading fluency scores. Case studies for two students who participated in reading fluency instruction and practice were developed, and a theory explaining these students' progress and deficits was introduced, based on data analysis, case studies, and research literature.

Summary

This study was intended to provide a description of reading achievement levels for students in a county juvenile detention school in order to better design reading intervention programs that were effective and a good fit for this unique setting. Based on available research literature, the author posited that students in the detention center would score below expected reading achievement targets. It was hypothesized that

these students' reading comprehension and fluency scores would be positively correlated. Finally, the author proposed that students who received reading fluency instruction and practice would increase scores for this skill.

Information was analyzed in a process using several statistical methods, as well as by case study. A random sample of students was identified, and grade level was compared to reading levels, yielding a mean difference of 2.2 years below expected achievement. The author's assumption that the students' average reading achievement level would be below the national average was verified. When STAR reading scores and WCPM scores were correlated, a Pearson r of .64 resulted. The null hypothesis was rejected at levels of .05 and .01, but accepted at the .01 level of significance. This correlational coefficient was considered significant and supported the hypothesis at levels of .05 and .01, but not at .001.

Students given instruction in reading fluency did increase their WCPM scores to the 50th percentile for

their reading level. Only one of the two students, however, showed a close match between reading comprehension and reading fluency scores, perhaps a consequence of background and exposure to formal education.

Conclusions

Results of this study showed the mean reading level for students in this setting was 2.55 years below expectations for age; therefore, the need for intensive reading intervention was clearly evident. The subgroup of students whose reading scores were below seventh grade was considered most in need of this intervention. For these students, the hypothesis that reading fluency was positively related to reading comprehension at a .64 correlation supported the use of reading fluency as a means to increase overall reading ability. This did not indicate that improved reading fluency scores would necessarily lead to improved comprehension scores; however, it was a necessary component to overall reading development. The experiences of the two students involved in

reading fluency instruction illustrate the concept of relationship versus cause-effect.

Although Renee was able to decode with ease and use punctuation to read with prosody, this student's lack of formal education appeared to greatly reduce available background knowledge and vocabulary. Typical of many juvenile delinquents, few books were available in this student's home, and access to other written media such as the internet was not easily available due to familial poverty. Thus, although this young woman had all the tools needed to become a competent reader, lack of access to printed material, formal education, and practice seemed to lock Renee's ability to comprehend written material at approximately the last grade in which consistent schooling was received.

When compared to the first student, who had such a discrepancy between fluency and comprehension, Jim showed a more traditional connection, with fluency and comprehension scores being at approximately the same grade level. The difference appears to be more

closely related to school attendance than mental ability. Although Jim progressed much more slowly than non-disabled peer, this student had been exposed to information and vocabulary that enabled comprehension at the student's fluency level.

Recommendations

Students whose reading achievement level is below grade eight and who are at least a year behind their expected level of achievement based on age should be given reading fluency instruction and practice. This should be continued until the student's WCPM score is at the fiftieth percentile for their age, or at the fiftieth percentile for grade eight, whichever is lowest. Selecting this group of students should ensure that those with the greatest need get the most intervention. For students whose reading scores are above these levels, increased exposure to printed material is necessary. Since the school has a large library for its size, an emphasis on modeling a love of reading and engaging students in discussions of books that interest them is indicated. Although

reading should be an intrinsically rewarding activity, extrinsic rewards for reading may be offered to encourage students to develop habits that will eventually lead them to reading for its own sake.

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APPENDIX A

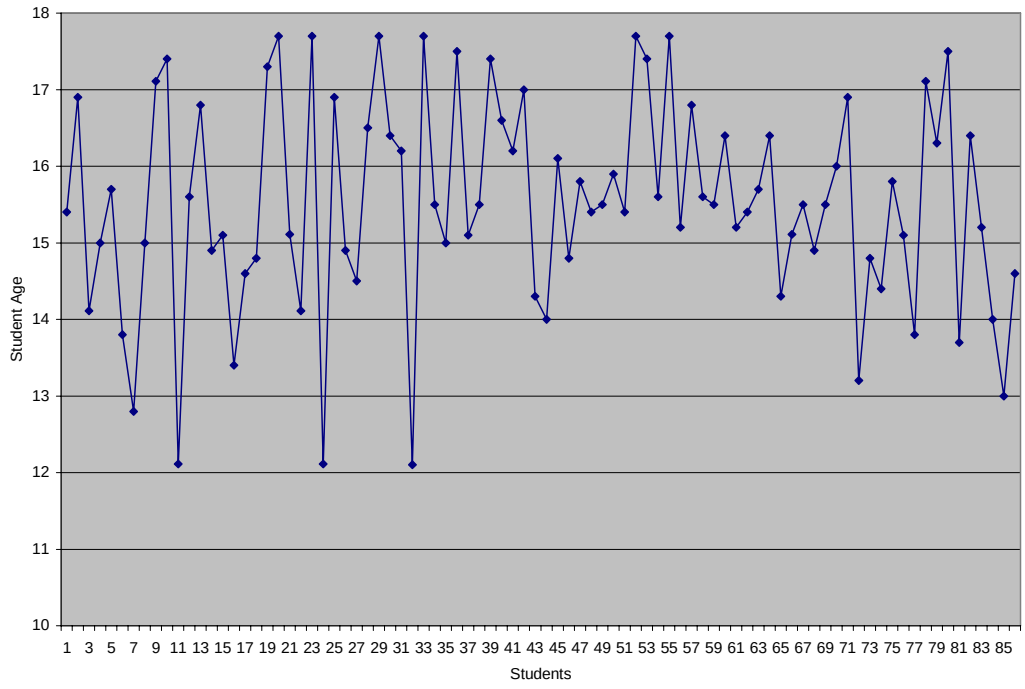

Figure A: Distribution by Chronological Age

Table A: Mean and Standard Deviation of Chronological Age

Statistic	Value
No. of Scores (N)	86
Sum of Scores	1318.41
Mean	15.51
Sum of Squared Scores	20611.74
Sum of Squares (SS)	162.27
SD for a Population	1.38
SD for a Sample	1.38

APPENDIX B

Table B: Percentile Rank by grade and WCPM

Student	Grade Level	WCPM	Percentile
01	6.1	112	25
02	3.2	33	20
03	2.1	66	65
04	4.5	129	65
05	6.1	115	40
06	2.5	76	55
07	5.7	127	45
08	2.6	43	25
09	5.7	83	10
10	6.5	83	10
11	3.1	80	60
12	2.7	114	75
13	1.7	40	43
14	6.2	172	85
15	5.6	99	25
16	5.7	83	15
17	3.1	61	40

(Tindal & Hasbrouck, 2005)

APPENDIX C

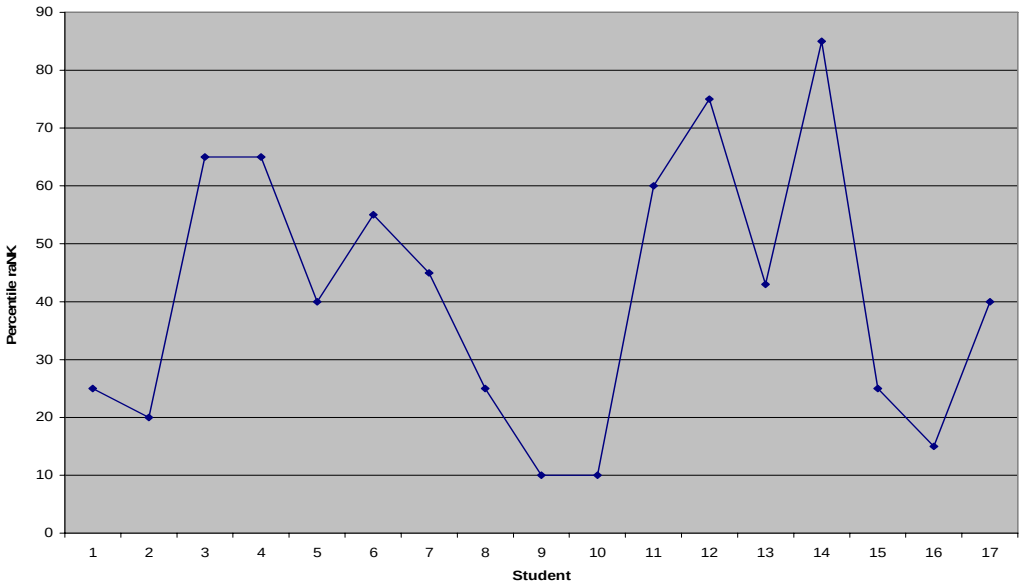

Figure B: Percentile Rank Based on Reading Level and WCPM (Tindal & Hasbrouck, 2005)

APPENDIX D

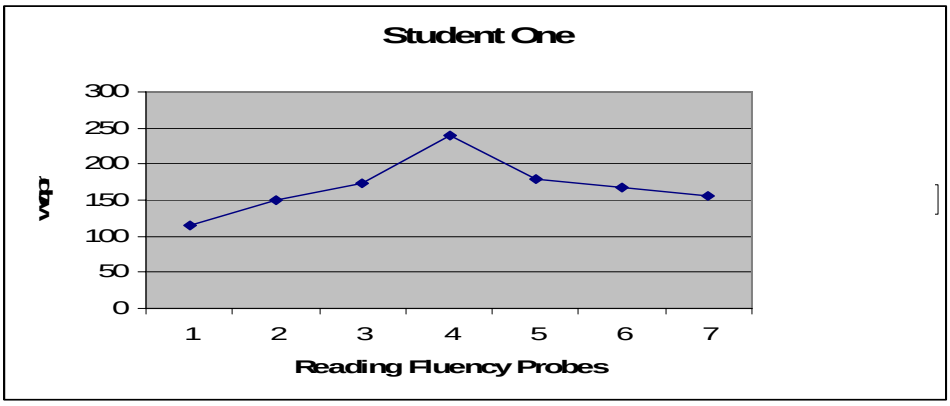

Figure C: Reading Fluency Progress Chart for Renee

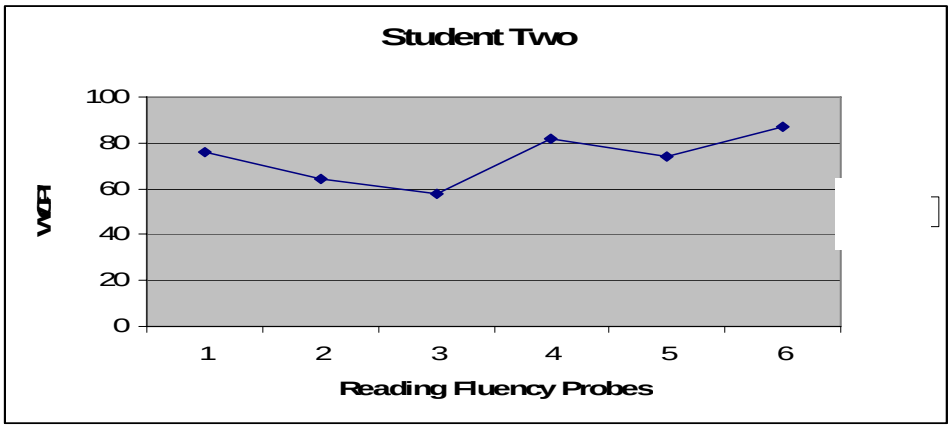

Figure D: Reading Fluency Progress Chart for Jim

APPENDIX E

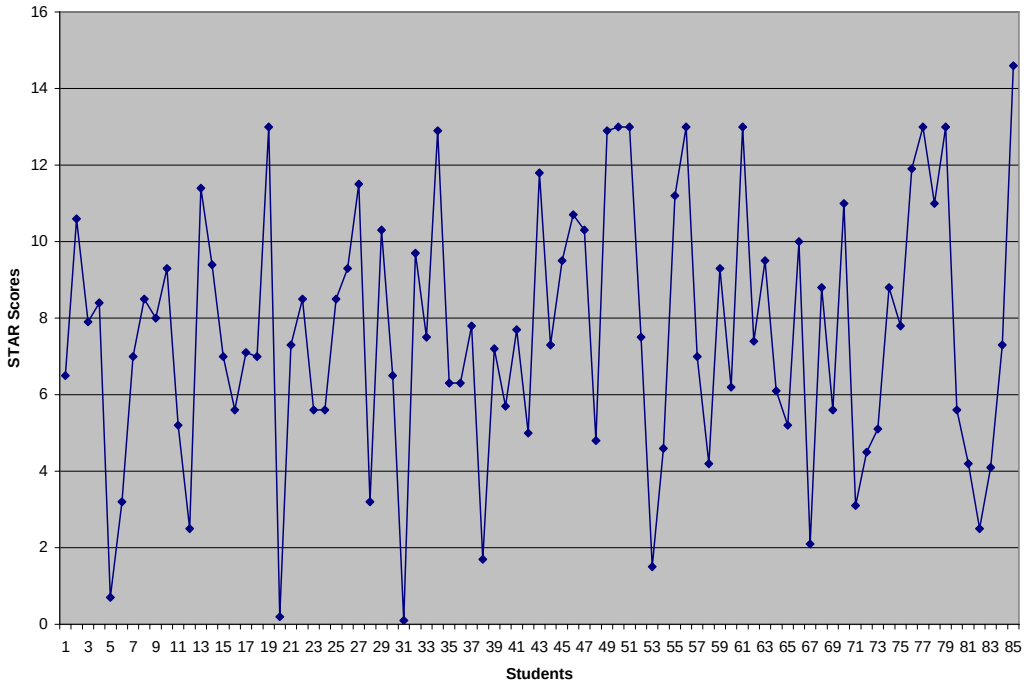

Figure E: Distribution of STAR Scores for Selected Students

APPENDIX F

Table C: Raw Data

Student	STAR	Age	Grade	Student	STAR	Age	Grade
000	6.5	15.4	9	058	7.3	14	8
002	10.6	16.9	10	059	8.5	16.10	11
003	7.9	14.11	9	060	5.6	14.8	9
004	8.4	15	9	062	5.6	15.8	10
005	.7	15.7	10	063	8.5	15.4	10
007	3.2	13.8	7	064	9.3	15.5	9
008	7.0	12.8	7	065	11.5	15.9	10
010	8.5	15	9	067	3.2	15.4	9
013	8.0	17.11	12	068	10.3	17.7	12
014	9.3	17.4	11	070	6.5	17.4	12
015	5.2	12.11	7	071	.1	15.6	11
016	2.5	15.6	10	072	9.7	17.7	12
017	11.4	16.8	11	073	7.5	15.2	9
018	9.4	14.9	9	075	12.9	16.8	11
019	7.0	15.10	10	077	6.3	15.6	10
020	5.6	13.4	8	079	6.3	15.6	10
021	7.1	14.6	8	082	7.8	16.4	10
023	7.0	14.8	9	084	1.7	15.2	9
024	13	17.3	11	085	7.2	15.4	9
025	.2	17.7	12	086	5.7	15.7	10
028	7.7	15.11	10	087	9.5	16.4	10
029	5.0	14.11	9	088	6.1	14.3	8
030	11.8	17.7	12	089	5.2	15.11	10
032	7.3	12.11	7	090	10.0	15.5	10

033	9.5	16.9	11	091	2.1	14.9	9
034	10.7	14.9	9	092	8.8	15.5	9
035	10.3	14.5	8	093	5.6	16	10
036	4.8	16.5	10	094	11	16.9	11
037	12.9	17.7	12	095	3.1	13.2	8
038	13	16.4	10	096	4.5	14.8	9
039	13	16.2	10	098	5.1	14.4	8
040	7.5	12.1	6	099	8.8	15.8	10
041	1.5	17.7	12	100	7.8	15.10	10
042	4.6	15.5	9	101	11.9	13.8	8
043	11.2	15	9	102	13	17.11	12
046	13	17.5	11	103	11	16.3	10
047	7.0	15.1	10	104	13	17.5	12
049	4.2	15.5	10	105	5.6	13.7	8
050	9.3	17.4	11	106	4.2	16.4	10
051	6.2	16.6	11	107	5.6	15.2	9
054	13	16.2	11	108	2.5	14	8
056	7.4	17.0	11	109	4.1	13	8
057	7.3	14	8	110	8.9	14.6	9