

# AceReader Pro:

## *Using Technology to Improve Silent Reading Performance*

April, 2005

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The study of reading fluency using computers is just in its infancy. While computers are ubiquitous in almost all areas of society, the use of them for improving fluency has not been studied. This is a white paper of a three month study of AceReader Pro in a small central Wisconsin elementary school. The author is a Program Support Teacher, for CESA 5 (Cooperative Educational Service Agency 5) in Portage, Wisconsin. She holds an undergraduate degree from the University of Wisconsin, Madison in special education and a Masters Degree from UW-Madison in English Education. She has over 25 years of experience in special education.

### ***Using Technology to Improve Silent Reading Performance***

#### Introduction:

There were two criteria used in looking at computer programs that dealt with fluency for classrooms. First I needed to find a program that could engage students in reading. Second, and most important, it had to be technologically simple. As a Program Support Teacher, I work with programs for teachers of children with disabilities. In education today, teachers are asked to do more and more with computers and yet are often ill-equipped to do so. As a Program Support Teacher I can recommend programs that might be highly rated and researched based; however, they are impractical because they are either too complex or so expensive, the districts resist purchasing them. Companies assume teachers have a high knowledge base of computers; indeed, some are up to speed, especially younger teachers. However, for the most part, even just scanning material is technologically challenging. Also becoming literate on any program takes time; a commodity in short supply in schools.

After reading the National Institute of Child Health and Human Development report, "*Report of the National Reading Panel: Teaching Children to Read*" in 2001; I started looking for fluency programs to use for students with high incidence disabilities (Learning Disabilities, Cognitive Disabilities and Behavior Disabilities). In the Findings and Determinations of the National Reading Panel by Topic Areas in the National Reading Panel report, it defines reading fluency as "Fluent readers are able to read orally with speed, accuracy, and proper expression. Fluency is one of the several critical factors necessary for reading comprehension...If text is read in a laborious and inefficient manner, it will be difficult for the child to remember what has been read and to relate the ideas expressed in the text to his or her background knowledge."

Over the years in public education it has been thought that by using some method of extended practice in which large quantities of material are read that the student develops fluency skills (Allington, 1977, 1984; Snow, Burns, and Griffin, 1998). These sustained silent reading programs were supposed to improve reading fluency, however, the sayings, "practice makes perfect" and/or "the Matthew principal" proved to be statistically correct. Those students with good reading skills got better and those students with poor skills did not improve. As noted in the reading panel report, Allington (1977) in his article, "*If they don't read much, how they ever gonna get good?*" found that the student who needed the most practice in reading spent the least amount of time in actual reading. Fifth graders at the 30th percentile for reading spend fewer than two minutes per day reading books outside of school, a total of about 100,000 words per year. Students at the 80th

percentile spend 15 minutes per day, and read over a million words. (Anderson, Wilson and Fielding, 1998).

According to the 2001, Reading Panel Report fluency is regarded as one of the five primary components of reading. Timothy Rasinski (2003) studied how accuracy, rate, and prosody work together to comprise fluent oral reading. In his book, *The Fluent Reader*, he outlines extensively the ways teachers can use direct instruction in fluency to lead to significant growth in reading scores. Oral fluency includes expression, word stress and phrasing, which need explicit instruction. The instruction of oral reading fluency continues to be an important part of the reading program. There is a connection between fluent oral reading and fluent silent reading; both are important and parallel each other. Technology offers opportunities for learner-control, increased motivation, and connections to the real world, and data-driven assessment. This study looks at silent reading fluency using technology to measure rate and comprehension, over a specific period of time.

In the North Central Regional Educational Laboratory (NCREL) (2000) study of the use of technology in schools; they defined three distinct phases in technology uses and expectations: Print Automation, Expansion of Learning Opportunities, and Data-Driven Virtual Learning. This report looked at the three phases and how to best use technology in the K-12 setting.

- Phase I the use of behavioral-based branching software that relied heavily on drill and practice to teach segmented content and/or skills
- During Phase II, computers become tools for learner-centered practices rather than content delivery systems, helping teachers move from largely isolated learning activities to applications that involved working in groups
- Phase III carried additional expiation of making schools more effective through the use of data-driven decision making a much more sophisticated nature than previously expected...

AceReader Pro allows the teacher with little technological skill to stay at Phase I; just the use of the program for practicing fluency on computers provides a vehicle for increasing skills. If a teacher is comfortable using the other parts of the program; designing comprehension test, editing games and more that are outlined in the intervention section of this paper, they can move easily from Phase I to Phase II with a minimum of experience and time. Technology offers opportunities for data-driven assessments tied to the content standards. It allows teachers greater accountability because it has data if applied systemically. Data does not fall under the "judgment" call of grades; it is either present or not. Data can also drive decisions on standards and efficacy of instruction needed for NCLB and Response to intervention (RTI) mandates.

## The Study of AceReader Pro in a Regular Education Fifth Grade Classroom

Taking the lead from the National Institute of Health and its extraordinary study of teenagers and the changes in brain function; they determined before they could say what was "wrong" with teenagers' brains, they had to say what was "normal". I decided before I could look at how AceReader Pro worked with children with disabilities, I need to see how it worked with all students. This led me to the fifth grade classrooms in one my assigned districts.

There were several criteria I wanted to evaluate in this study.

1. Could AceReader Pro actively engage students in reading practice with a minimum amount of teacher time, teacher expertise in technology, and preparation?
2. Would AceReader Pro provide a more academic, all inclusive, technology for the practice of improving fluency for fifth graders reading in a range from 219 WPM to 51 WPM according to the DIBELS pre-testing?
3. Would reading fluency increase with practice on the computer with AceReader Pro?
4. Would bi-weekly practice make students aware of their WPM?

How could technology help increase reading speed without losing comprehension? With that in mind I chose AceReader Pro as a program for fluency for several reasons. First, I could explain to teachers the essential basics of the reading improvement component of the program in about 45 minutes. Second, the program is inexpensive enough that if I couldn't get a teacher to use it the administration wouldn't be disappointed in the expenditure. Third, it was a program that students could use independently and with little supervision. Fourth, it had a positive effect on their reading.

Students with disabilities are especially resistant to reading for extended periods. I thought that using a computer for practice might increase their time spent on reading. Most of the special education resource rooms in CESA 5 have at least one computer for students. On AceReader Pro a student is logged on to the computer. Their time, their WPM (Words per Minute) scores, and their comprehension scores are recorded in the program. Generally, there is not the resistance to reading on the computer that there is to reading in classes. Finally, there is a resistance, especially at the middle level, for special education students to "appear" different from their peers. The books written at the independent reading level of students with disabilities (the books they should be reading in sustained silent reading times) are different than their peers' books. I wanted to find something that engaged students in the process of reading. The engagement had to be with something they liked doing; most of the students like being on the computer. I also did not want students to be able to distinguish who was at a specific grade level. Using AceReader Pro, the teacher can have a student reading at level one, (third grade reading level), or level five, (seventh grade reading level) and no one knows.

Description of the intervention:

1. All Fifth graders at Randolph Elementary, a rural central Wisconsin school
2. Two times per week from January 17, 2005 to April 13, 2005
3. All sessions were 30 minutes in length
4. All sessions were monitored by JoEllen Waddell, Program Support Teacher, for CESA 5
5. All students used AceReader Pro.

Randolph Elementary School is located in Central Wisconsin in a town of 3,313. The district has a total of 547 students, PreK/4-12, 42 of those students are minorities, and 79 are identified as special education. There are two classes of fifth graders with a total of 36 students. Fifth grade is taught by two teachers with over twenty years of experience each. These teachers have shared teaching responsibilities. One teacher teaches all students social studies and Language the other teaches them math and Science. They both teach reading to their homeroom classes. The classes switch each day after lunch. In this school there is a strong "class sense" that is, it would be more appropriate to say that two teachers team teach the fifth grade rather than there are two fifth grade teachers. The students have approximately the same amount of time with each teacher.

The fifth grade teachers felt that providing one class of fifth graders the AceReader Pro training and not both classes would not be effective for several reasons. First one class had higher intellectually functioning students and would just naturally perform better. That class had students with higher motivation to perform well and fewer students with behavioral issues. One class had students with disabilities and the other didn't. For a control study, all students must be taught using the same method—then a portion of that group is provided a new strategy, while the other portion is not. The study then shows the difference between the two groups. In this instance it would have been seventeen students getting a reading instruction, half presented with AceReader Pro, the other not. This would have been a total of 8 students, a very small sample statistically. While it is preferable to have "control" groups; especially if reporting evidence for research; it was not feasible at this school. The determination to do the study without a "control" group was made. The issue remains--is this intervention not supported by meaningful evidence of effectiveness without control groups or will the results be meaningful evidence because all the students participated?

All fifth graders were administered the DIBEL for fifth grade in late December, 2004. DIBELS--The Dynamic Indicators of Basic Early Literacy Skills are a set of standardized, individually administered measures of early literacy development. They are designed to be short (one minute) fluency measures used to regularly monitor the development of pre-reading and early reading skills. The range in reading was significant—from 51 words per minute to 219 words per minute. (See Chart 1) At Winter Break a new "computer lab" was being set up for the elementary School. The IT person put AceReader Pro Network on all the computers in the elementary computer lab.

This is the chart detailing the rate (words per minute) for average 5<sup>th</sup> grader.

Dibels measure Fifth Grade	Beginning of year Month 1-3	Middle of Year Month 4-6	End of year Month 7-10
Dibels oral Reading Fluency	ORF <81 81<= ORF <104 ORF> = 104	ORF <94 94<= ORF <115 ORF> = 115	ORF <103 103<= ORF <124 ORF> = 124

Top score is At-Risk  
Middle Score is Some Risk  
Bottom score is Low Risk

Preliminary evidence indicated that the Retell Fluency measures correlates with measures of oral reading fluency about .59. It appears children's retell scores may be typically about 50% of their oral fluency score, and that it is unusual for children reading more than 40 words per minute to have a retell score of 25% or less than their oral reading fluency score. So, a rough rule of thumb may be that, for children whose retell is about 50% of their oral reading fluency score, their oral reading fluency score provides a good overall indication of their reading proficiency, including comprehension. Chart 1.

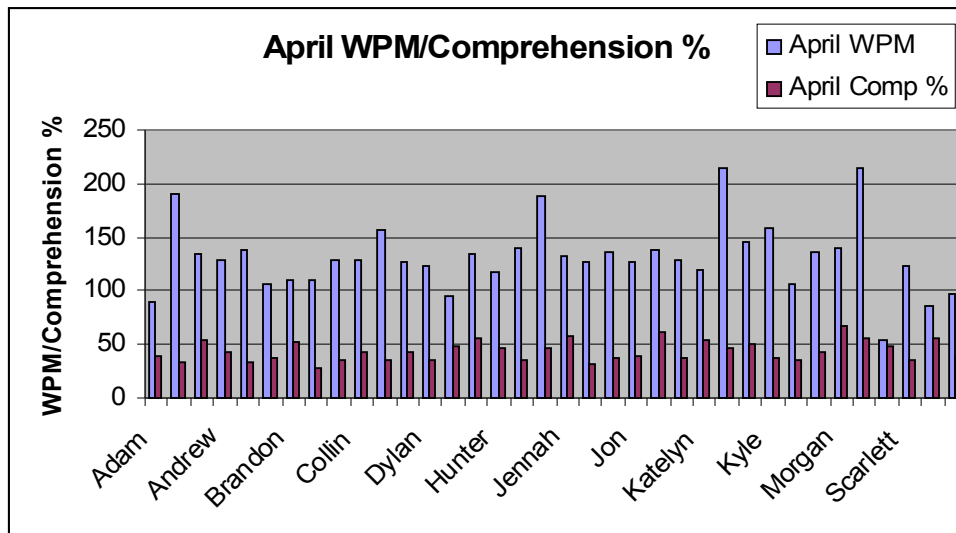
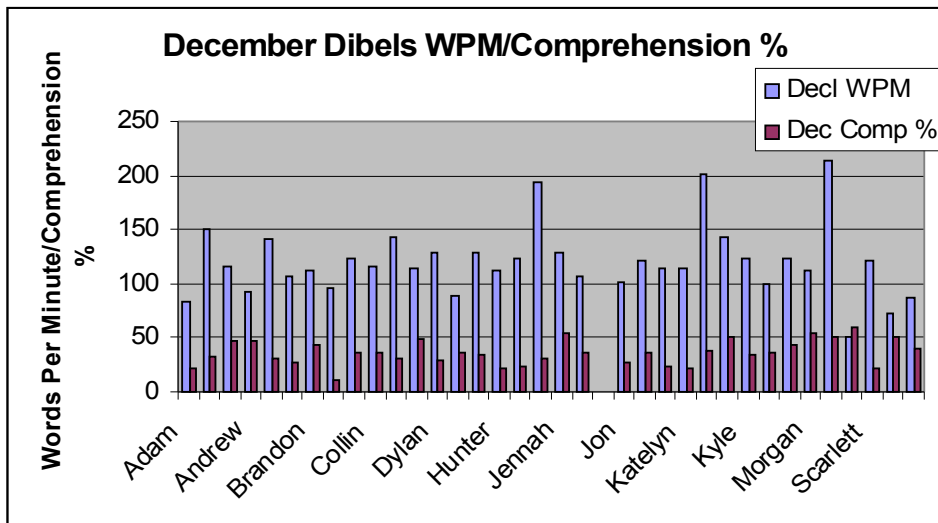
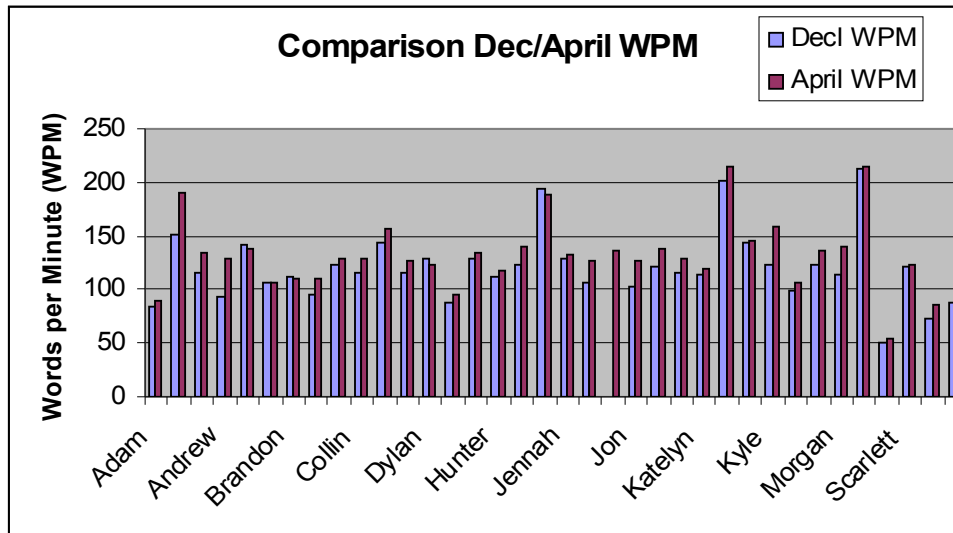
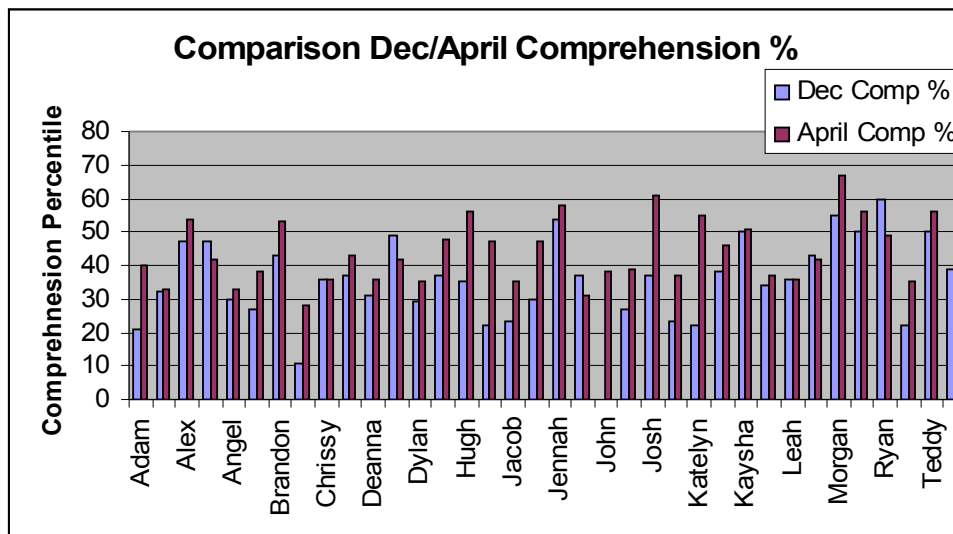


Chart 2: Comparison of December and April WPM scores



Only four students did not make gains from December to April in Dibels results. Of those four, one went from 188 to 194; both scores are well above the average for a fifth grade student. One of those four did not make gains in the Ace Reader Pro results either. The three students made gains in Ace Reader Pro. One student did not make any gains; however, made excellent gains in AceReader. Thirty students in the study made gains in WPM from the December Dibels to the April Dibels testing. The mean (average) rate of growth was 13 words per minute. Twelve students made gains in the single digits from 2 to 7, the rest made gains from 10 to 39 words per minute.

Chart 3: Comparison of December and April Comprehension in Percentile



The most surprising gain was the gain in the percentile comprehension score from December to April. These scores are computed by determining the number of words recalled in the story recall and determining an average over three stories. The percentile of recall to words read is then determined. According to the Dibels data for children whose retell is about 50% of their oral reading fluency score, their oral reading fluency score provides a good overall indication of their

reading proficiency, including comprehension. Ten students scored at fifty percent or above. Ten scored at 40 to 50% comprehension. Fifteen students scored from 30 to 40% in comprehension. Only one student scored a 28% comprehension. The December data was much lower for comprehension scores. Only 6 students scored above 50; five students scored from 40 to 50%; fourteen scored from 30-40% and ten students scored under 29%. There was so much emphasis on comprehension scores with AceReader, it may have carried over to oral reading.

## AceReader Pro:

Today students have access to information in a totally different mode than ever available in history. With the internet we have entered into a "fast-paced informational age," but have not used the computer to teach students how to pour through that substantial amount of information they now have at their fingertips. Truthfully, it overwhelms most of us. But students zip from one website to another with lightening speed, but still need to transfer this information from the screen to their brains as reading. We have reading needs now with the internet, and computer screens we never had before the computer age. As teachers we need to teach to what the students are going to be using—electronic text.

AceReader Pro utilizes two technologies: (1) Rapid Serial Visual Presentation (RSVP) and (2) Tachistoscope Scroll Presentation (TSP) When AceReader is in RSVP mode, text is displayed in the center of the text area. Students read faster than normal because their eyes do not need to move. In RSVP mode, the words come to their eyes instead of their eyes going to the words. When AceReader is in TSP mode, text is displayed in a manner that forces their eyes to move just like they do in normal reading. Using TSP mode can teach students to read in a normal fashion and at higher speeds. Both modes help students learn to take in multiple words at a time.

AceReader helps students become a more proficient reader by:

- (1) Reduce Subvocalization (pronouncing or whispering the words in your mind while you read)  
You typically can only subvocalize about as fast as you can talk. The program pushes you to read at higher speeds through pacing techniques. At these higher speeds, it is physically impossible to subvocalize.
- (2) Eliminate Regression (allowing your eyes to wander back to re-read text)  
The program will display or highlight words in a manner that will help encourage forward-only eye movement. In non-highlight modes, words are presented without the surrounding text being shown at all. This promotes forward-only eye movement since there is no previous text visible.
- (3) Reduce Your Eye Fixation Time  
Reducing the time spent when your eyes are focused on a single point.
- (4) Expand Your Eye Fixation Zone  
Improving your ability to read a wider text width when your eyes are focused on a single point.
- (5) Increase Your Re-Fixation Speed  
Improving your ability to reposition your eyes at a rapid rate.

In this study the AceReader Pro is being used as a fluency program. The program is designed with a daily *comprehension test*, at specific reading levels, and a set of drills. The drills contain a

- *warm-up* of approximately three minutes,
- a *push to double speed* practice using the time from the comprehension test of approximately three minutes and the final
- *eye-robotics* as a closing activity of about two minutes.

Once trained in this routine, students were comfortable and independent. There is little to no need for teacher involvement other than simply being present. The program is technologically simple to administer for fluency practice; if the teacher is technologically challenged, this is an extremely easy program. Using AceReader Pro there are many educational activities a teacher could expand on, however, the level of technological experience for fluency practice does not have to be advanced.

The schedule was designed for two days a week.

Each section of grade 5 came to the computer lab for 30 minutes.

The students were taught to log on to the computer and log on to AceReader Pro. Each student has a profile in AceReader Pro.

From the Dibels results three of the students were started on level 2; the rest started at level one. The levels correspond as follows: Level one is approximately third grade reading selections, level two is fourth grade reading selections, level three is fifth grade reading selections, etc. Each level has twenty sessions in it.

At each session the students took a *self-paced comprehension test*. The students log on and the test they took the previous session is checked, they then go to the next test. The test is comprised of approximately 150 to 300 words. The student reads the text, clicks on done when finished and is then presented with four comprehension questions. The student completes the comprehension questions and is given the results of the comprehension test and their WPM immediately.

After the comprehension test, the students did the drills set. The drills are based on the comprehension test speed they just earned. The *warm up* consists of flashing stimulus on the screen usually in four short sessions. The second drill is the "*push to double speed*" which uses a passage of approximately 250 to 400 words and presents it at about 1.1 times their personal base reading speed. The next session of the push to double speed drill, the speed increases 1.5 times their personal base reading speed. The third session is 2 times their personal base reading speed, hence the "push to double speed". The fourth and final drill is slightly faster than the original drill; (1.2 times their personal base reading speed. However by that time it seems extremely slow to the student. The final session of the drill set is the *eye robotics*. This is a short practice in four sessions in either right to left orientation, up/ down orientation, or simply speed.

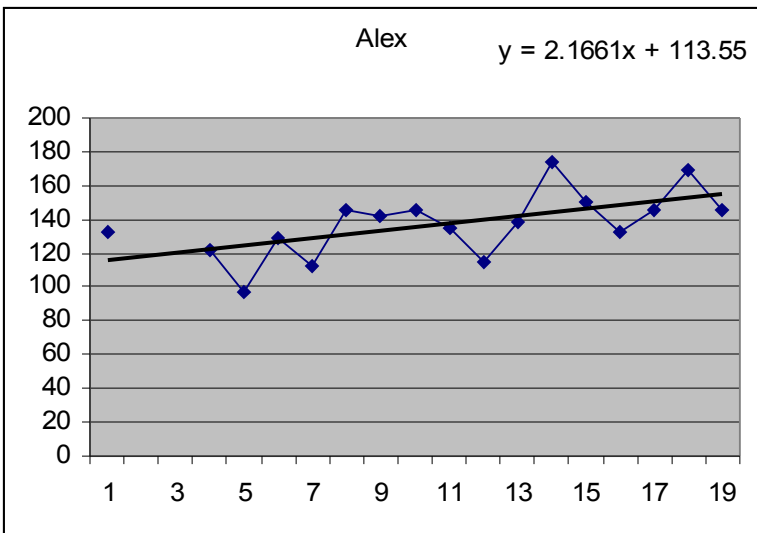
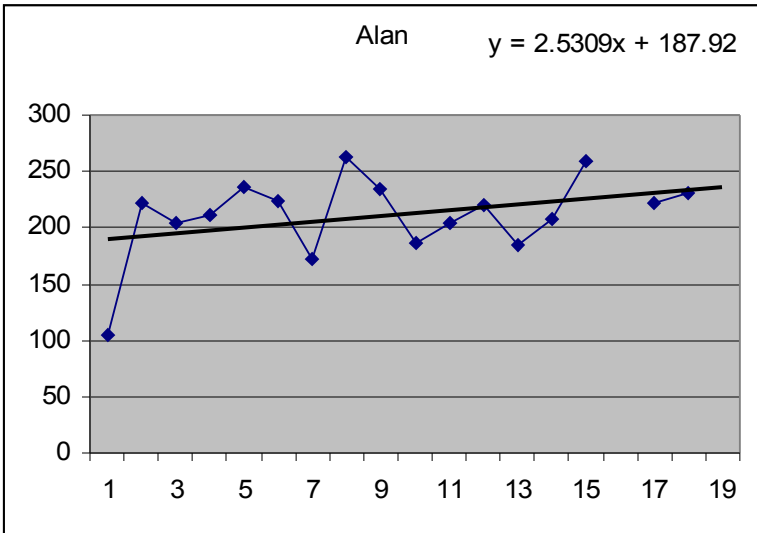
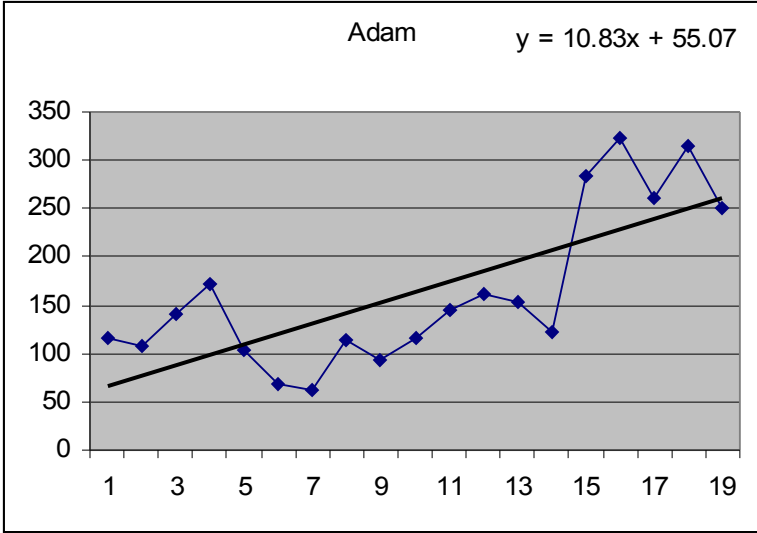
The basic practicing reading took 10 to 15 minutes each day from log on to log out.

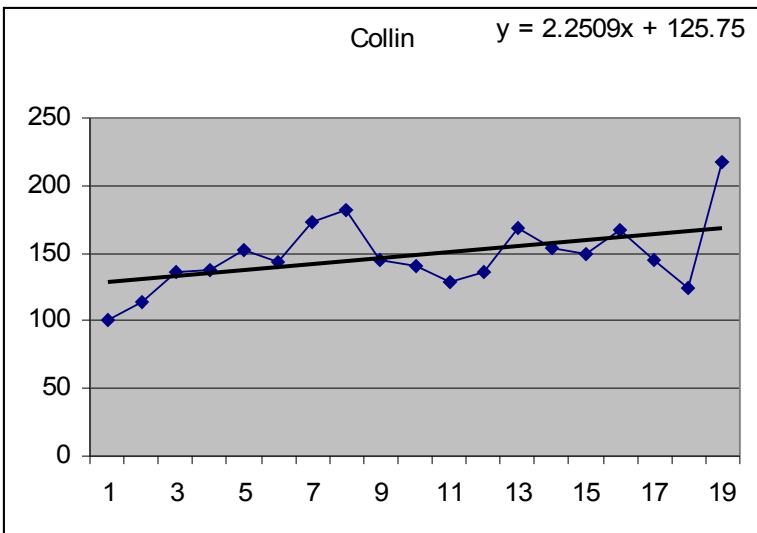
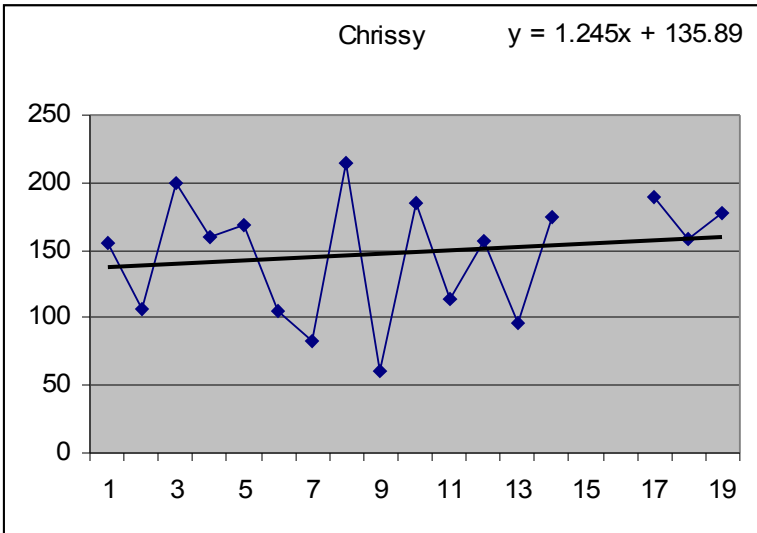
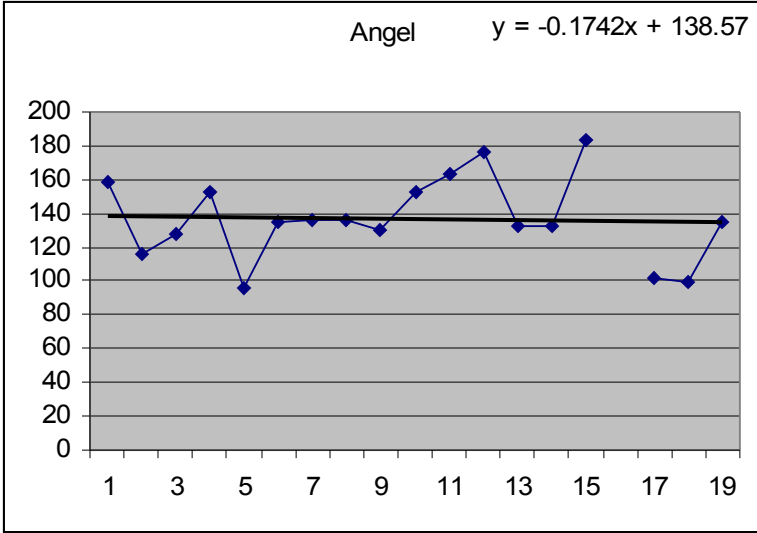
It was the only practice they received for fluency in reading instruction.

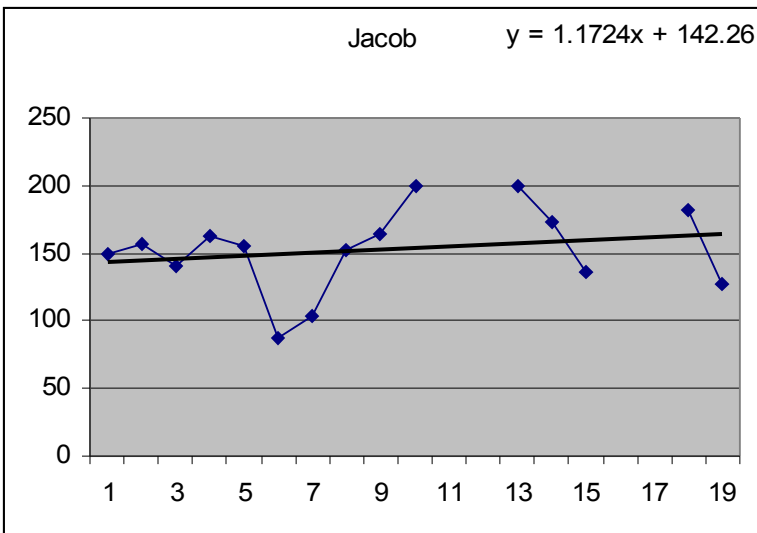
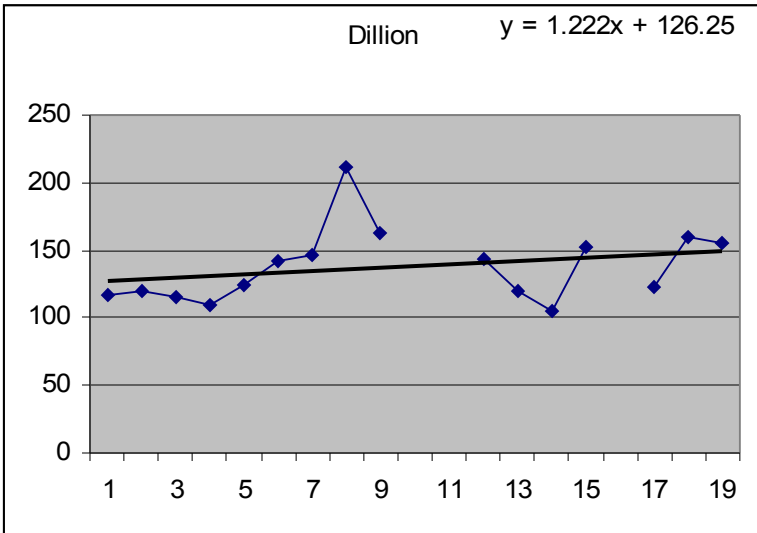
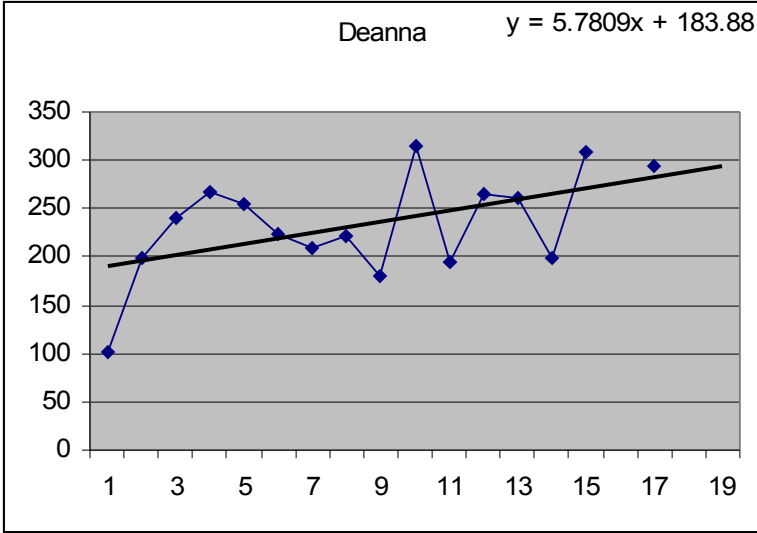
This is the basic component of AceReader Pro for fluency practice.

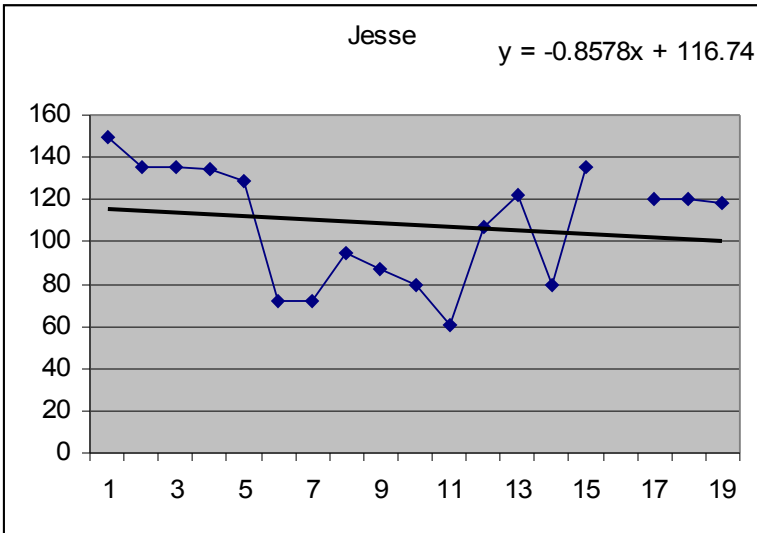
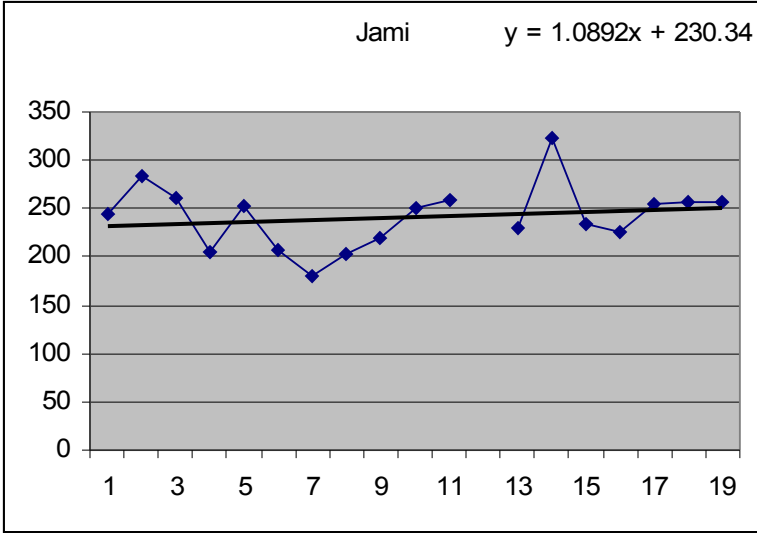
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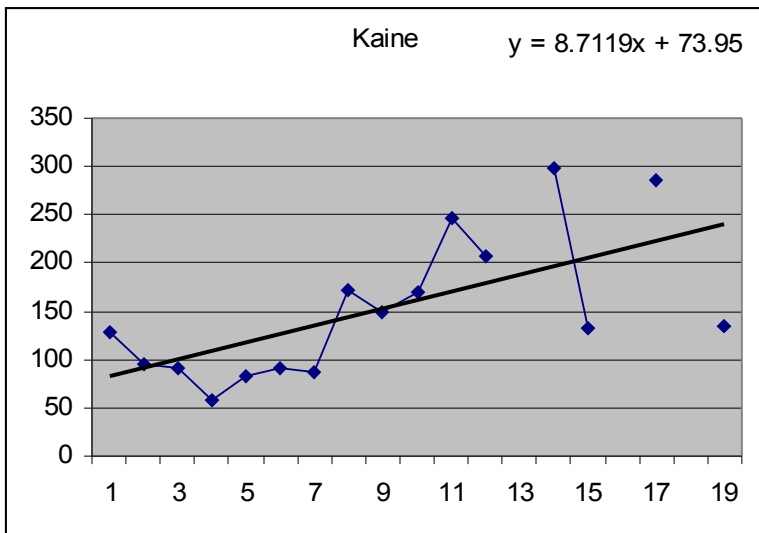
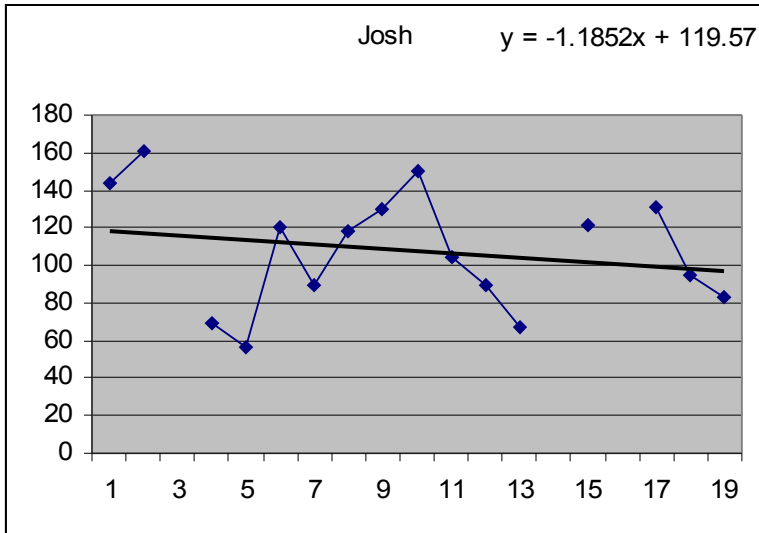
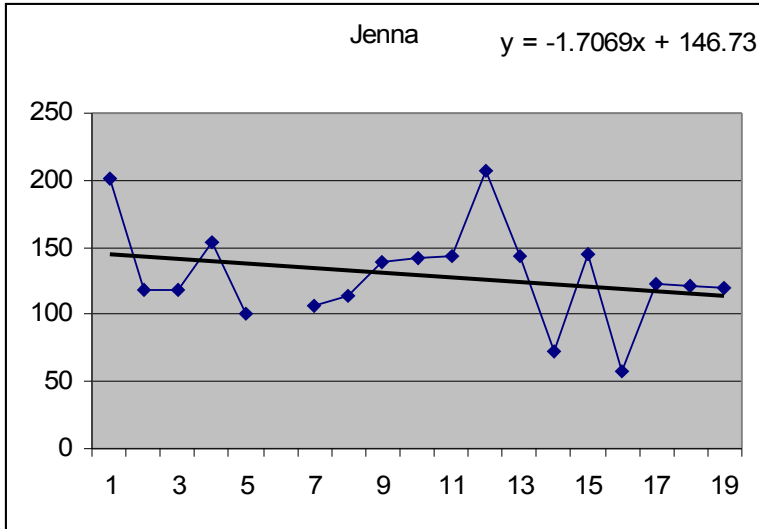
Each session was charted on an Excel document. At various intervals I looked at the trends in the data; I was most interested in the trendlines of the data. My concern was that many of the students were so variable, one session they had excellent WPM, the next session it was close to their beginning scores. Therefore, the trend data is there to show progress over 19 sessions. The following charts show the student, their daily WPM rate and finally the Trendline Date. This is a compilation of where the student started and where they finished regardless of the variability of the student. These scores also do not include the comprehension data.

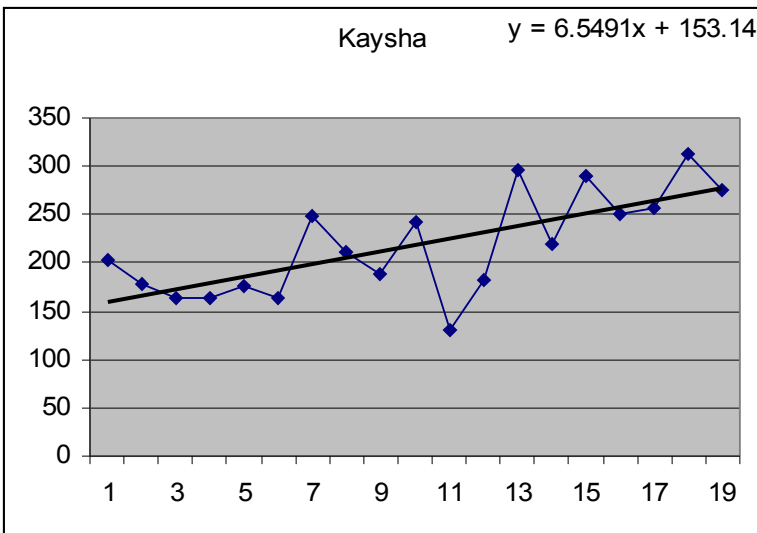
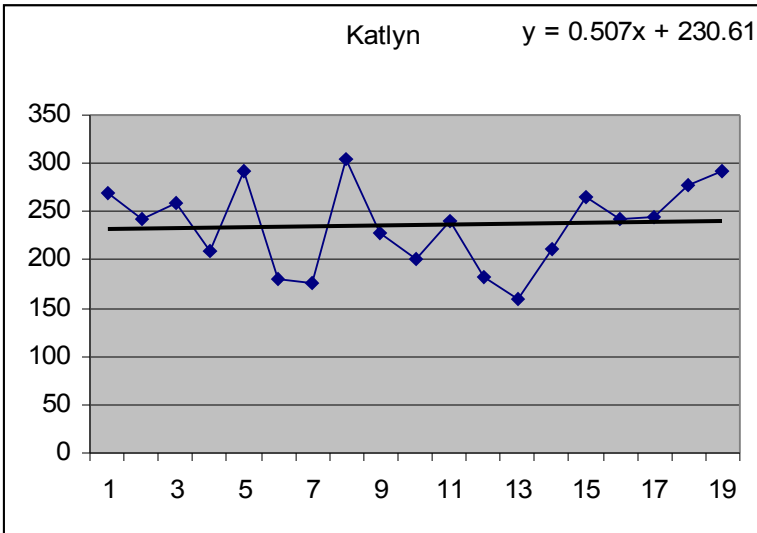
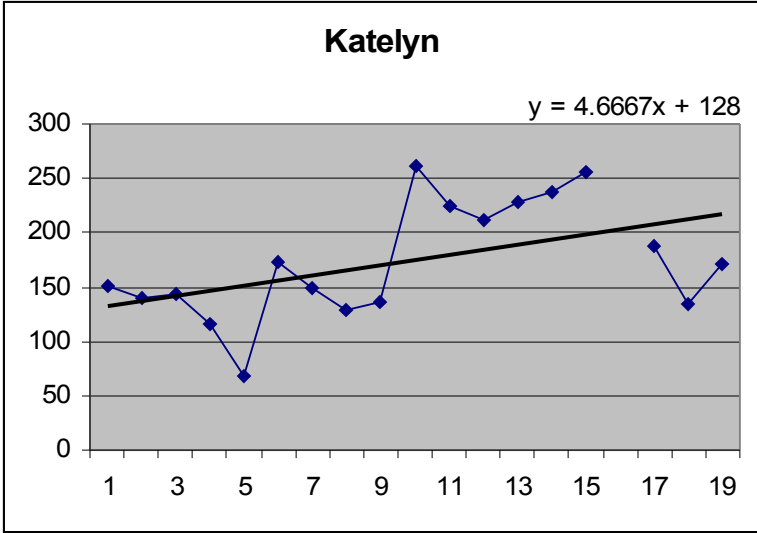


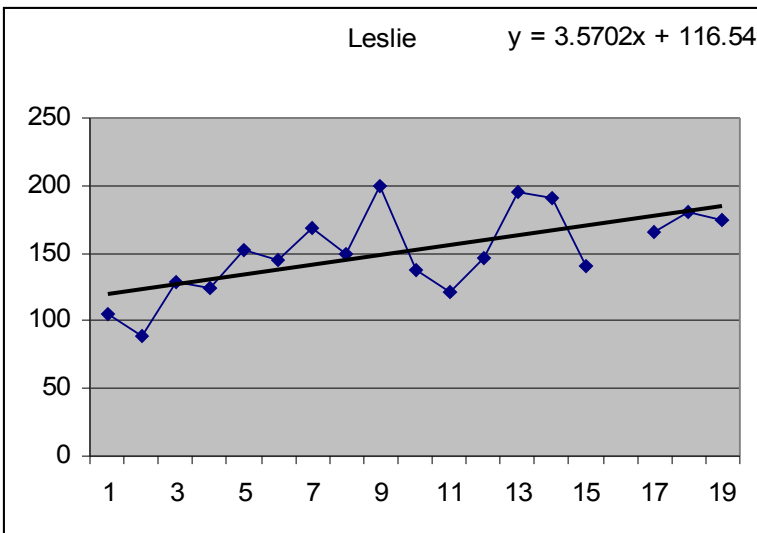
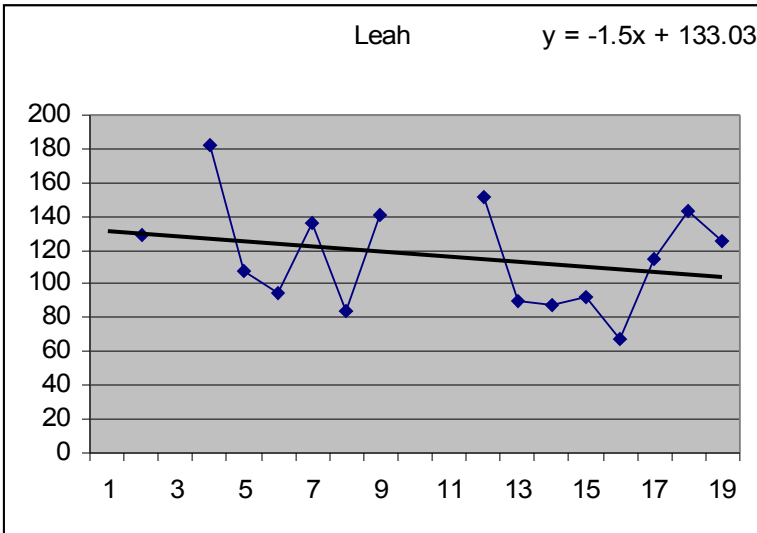
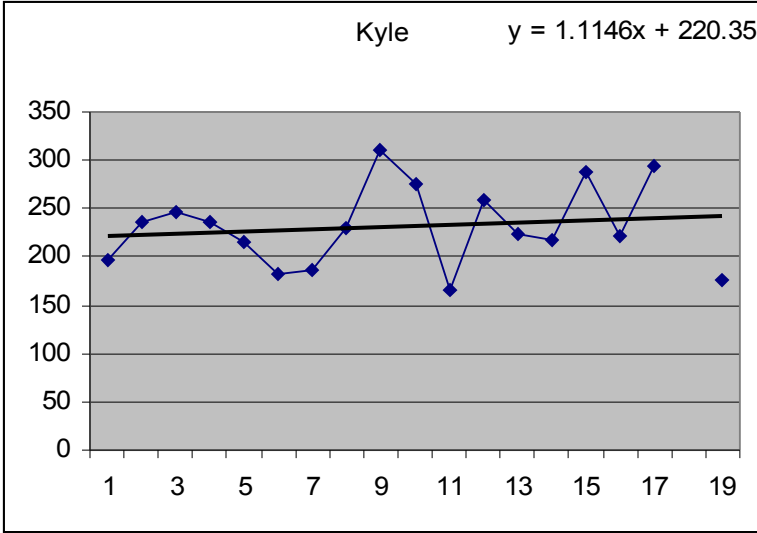


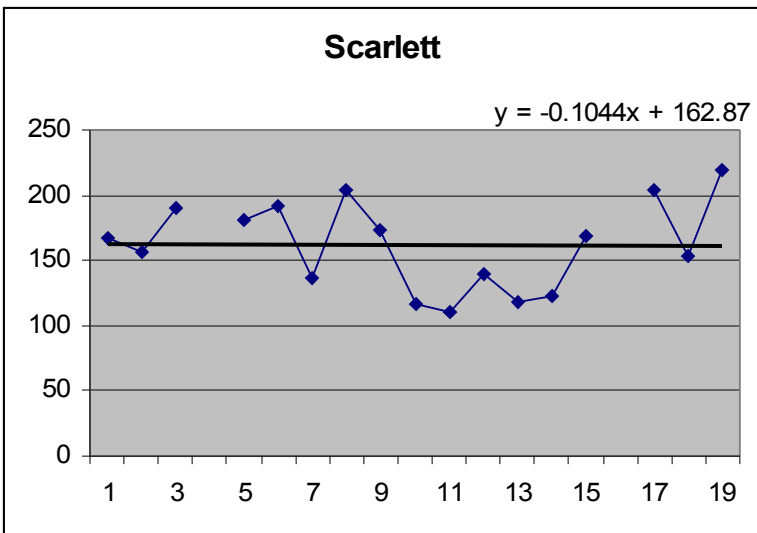
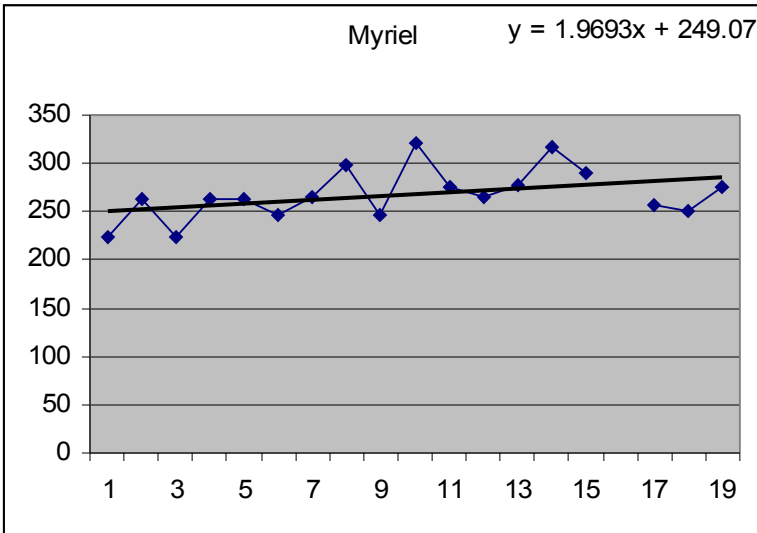
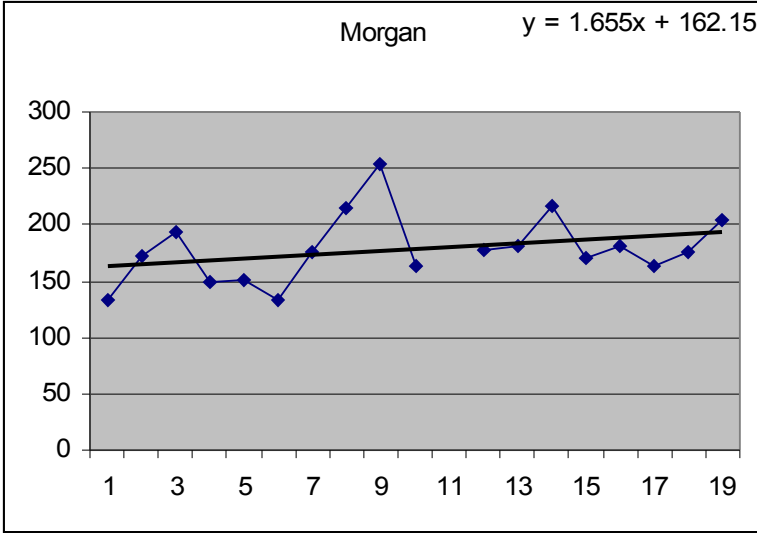


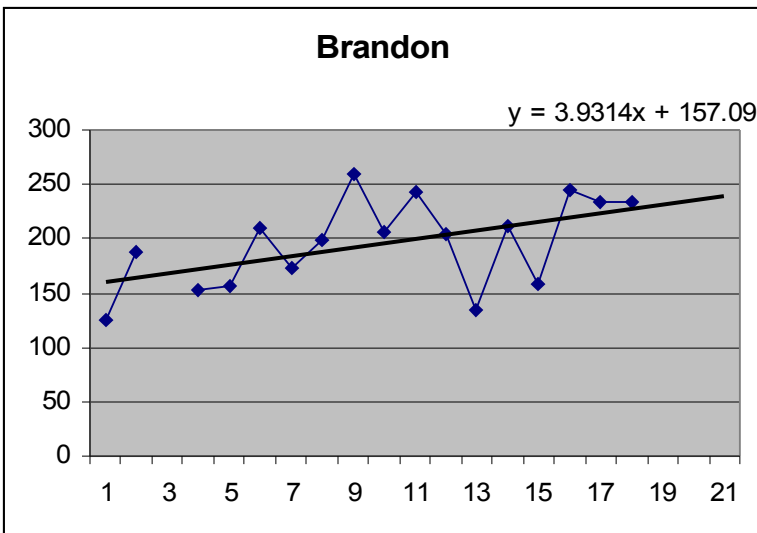
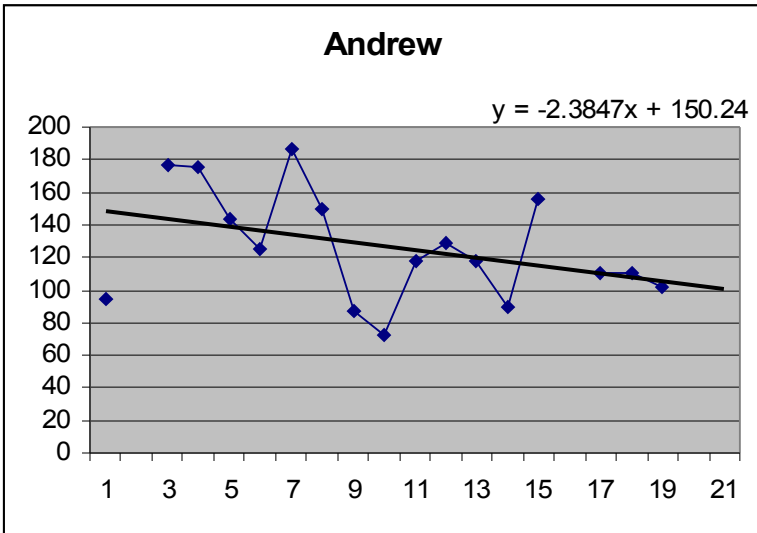
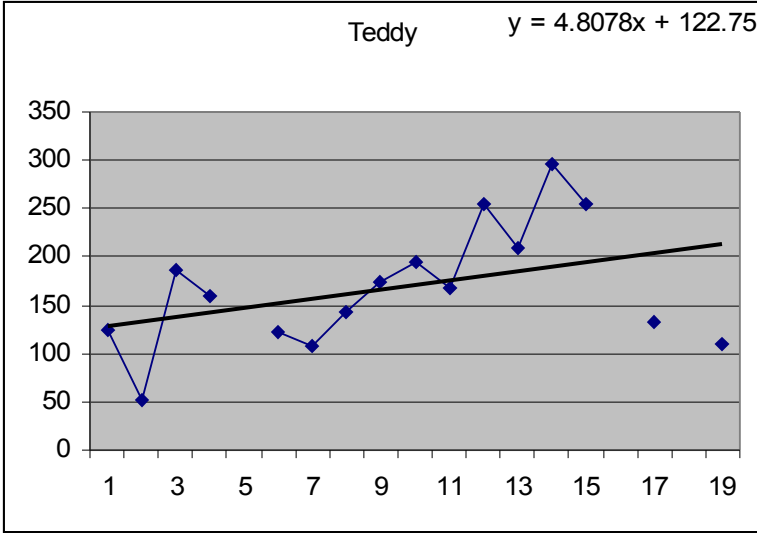


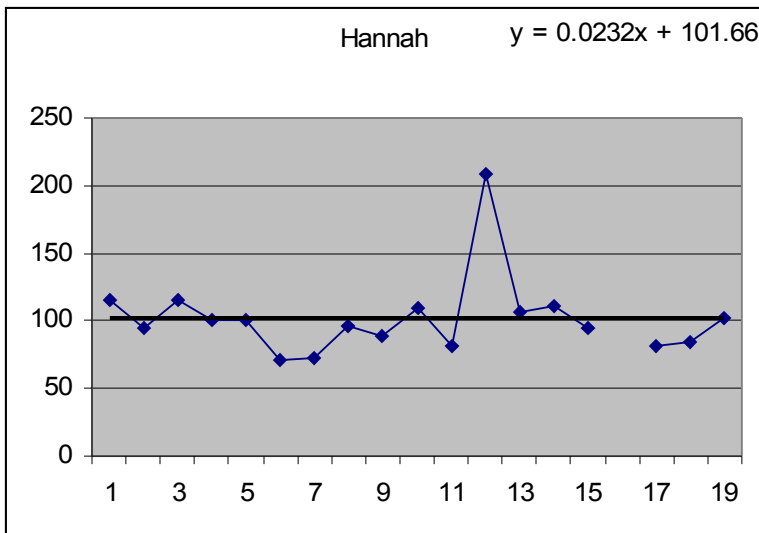
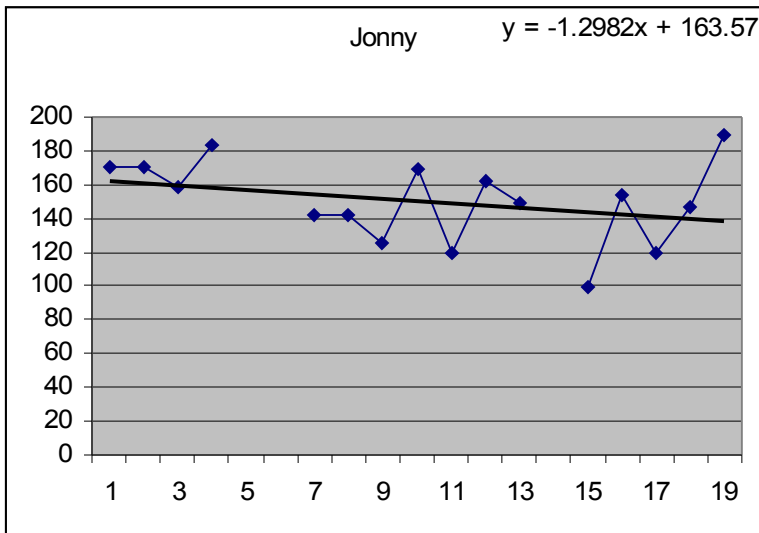
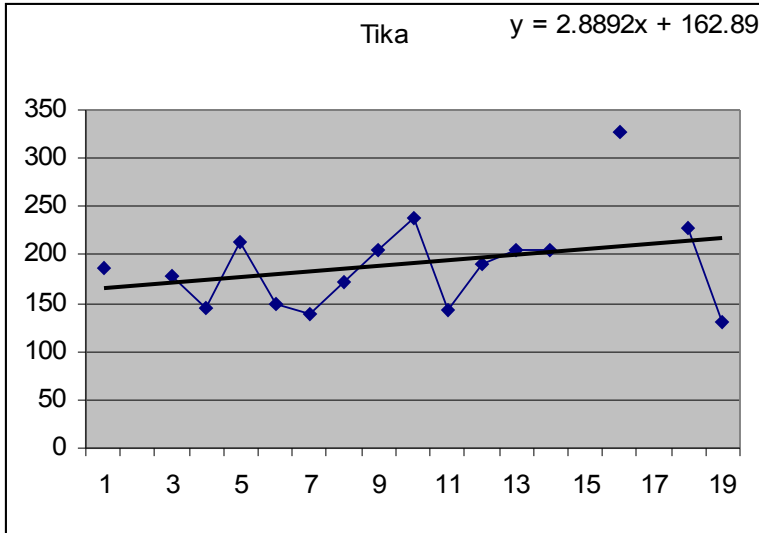


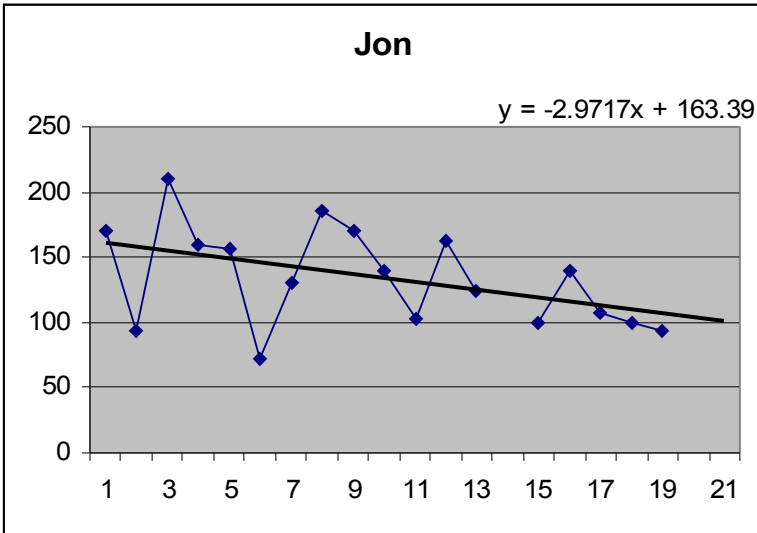
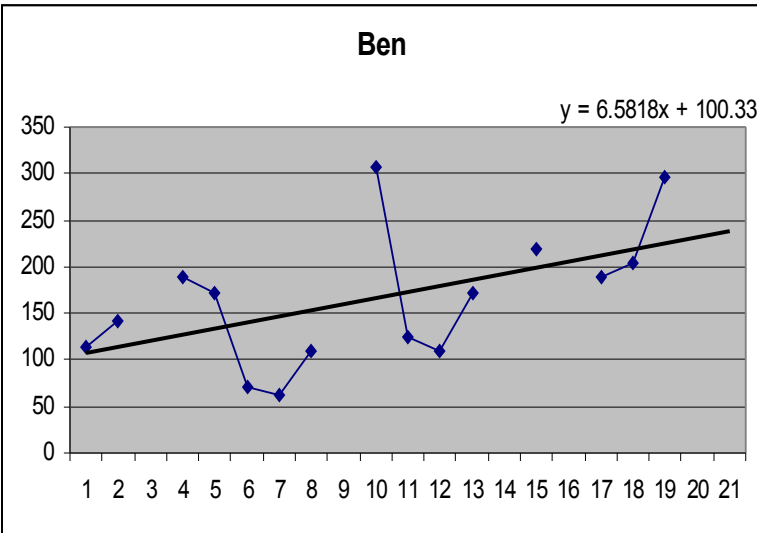
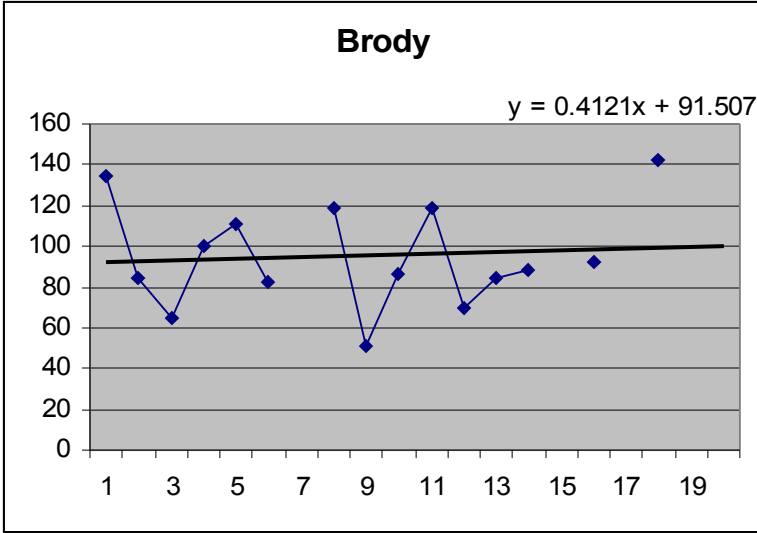


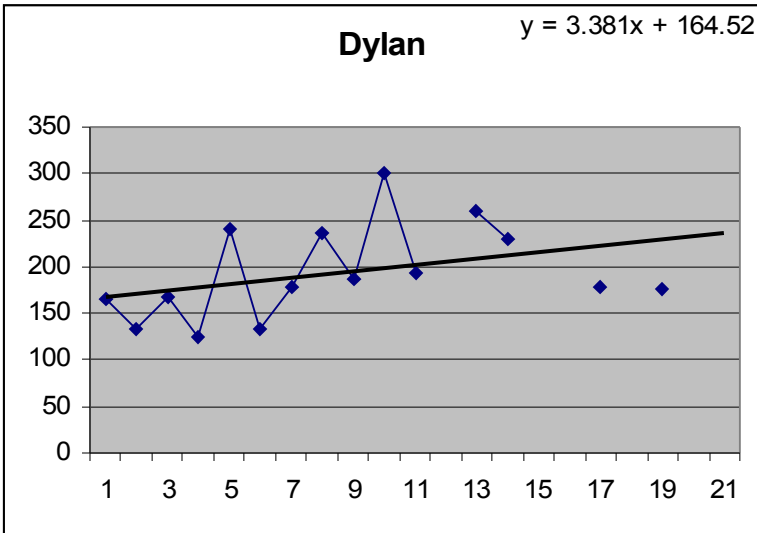
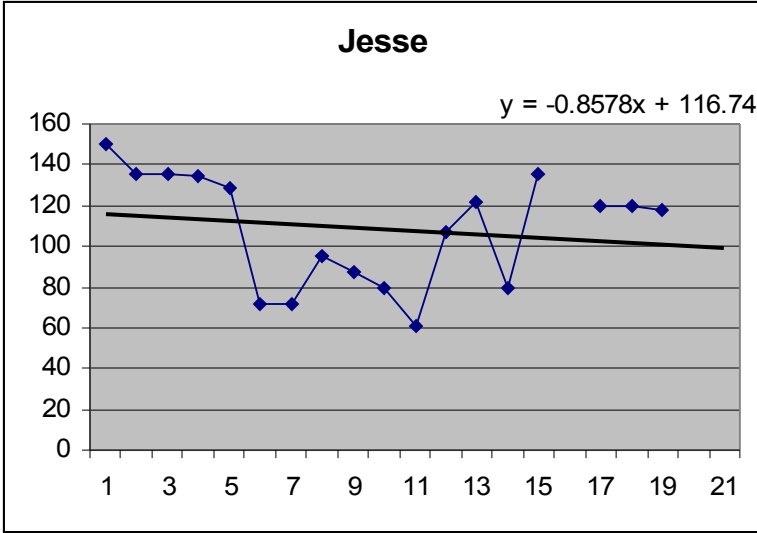


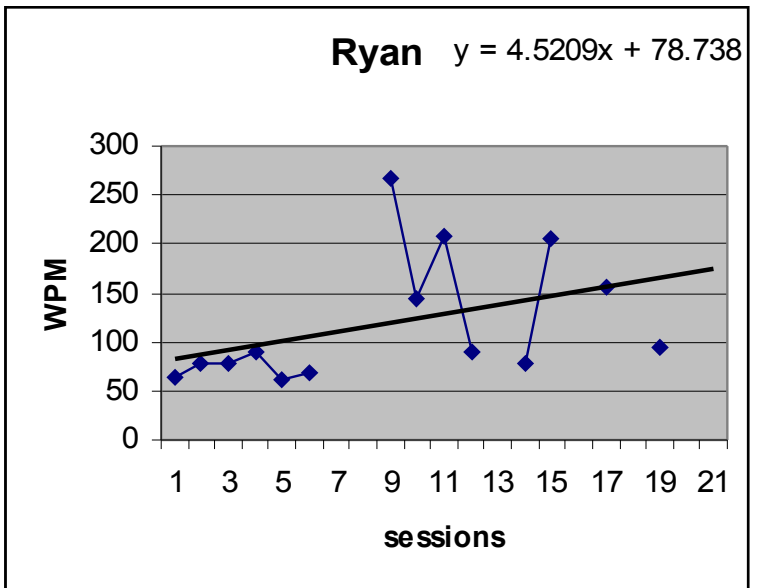
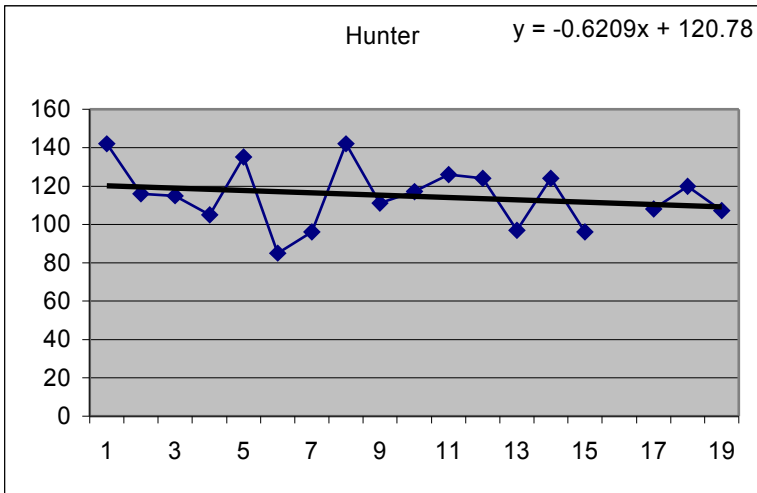
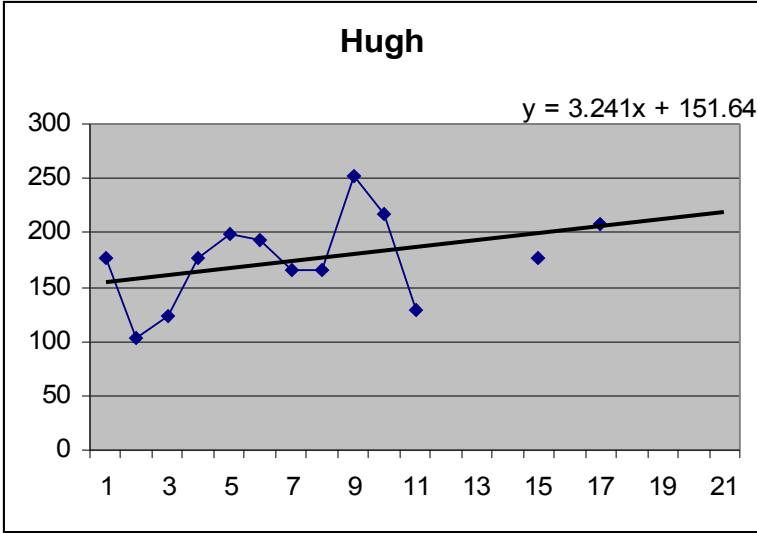


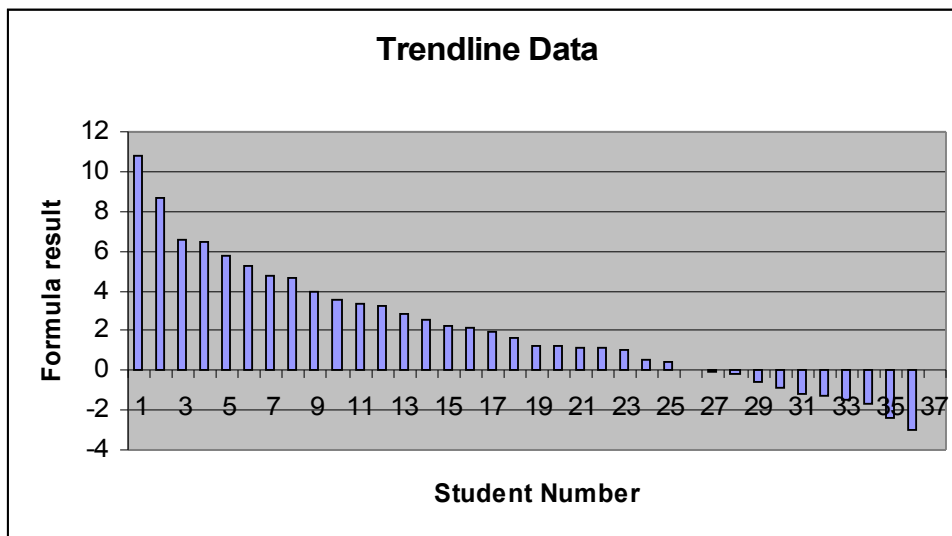












The DIBELS scores are rather typical of a regular education classroom. There are some astonishing readers, those children who say they love to read. Their reading scores are at the mid ninth grade reading fluency level. I predicted they would make few gains in the AceReader Pro; they were already well above their expected reading levels. I focused on making AceReader Pro a "productivity tool"; getting them to manipulate the electronic text for reading purposes. The seven highest scores in the DIBELS, 143 to 213 made gains in the silent reading, from a trendline average of +3.19. Fluent adults read at 250 words per minute. They were reading at 500 words per minute in forced speed. This twice weekly practice increased their silent reading rates. I was surprised; at their gains, knowing good readers get better.

The nine middle levels students with DIBELS scores of 121 to 129 oral words per minute scored from -1 to 3 in Trendline scores with the mean being +1.19. These were gains over all, with only 3 of the 9 losing ground on the Trendlines. These readers are in the top middle of the reading programs. They made modest improvements over all.

The eight students who scored from 112 to 116 on the DIBELS made the mean score of +2.99 on the Trendline scores. These students were reading at the level that would be considered low risk for the middle of the year fifth grade. Only one of the students in this group did not make gains. This solid middle group made excellent gains. They enjoyed the reading via computers and tried any of the strategies I suggested.

This was the most frustrating of all the groups for me because of my background as a reading teacher for students with LD/ED. Of the ten lowest readers on the DIBELS from 51 to 107 seven made gains. Three students scored a -1.5, -1.29, and -0.85. Clearly these students needed much more intervention than two times per week. They may have done better with more time; even with four weeks into going to the computer lab they needed assistance logging on, getting to the program and starting. One low reader on the DIBELS, got glasses in the middle of the research and this helped her with her reading. Two of these students who made excellent gains; one had a 73 on the DIBELS and one an 87; they made gains of 4.8 and 2.8 on the Trendlines. Both students were

placed on medication approximately three weeks into the research and were able to go into the lab, get started and not need redirection. A student scored an 84 on the DIBELS, started off reading at the same level on AceReader. Approximately 15 sessions into the research he was able to read up to 300 words per minute with 100% comprehension from reading in the low hundreds to the one-forties. It seemed like it finally clicked in his head and he took off. He was even helping his neighbors with the games. This group needed more individual attention which was difficult to provide in a group of 17 ten year olds in a computer lab. They needed much more encouragement than I was able to provide. Most wearisome was the fact they needed more sessions per week to make a dent in their scores.

#### Additional Interventions:

I felt it was important that students look at their results and talk about how to make improvements. In AceReader Pro the students are able to view their comprehension results, I would go around the lab looking at their results and talking to them about those results. Several of the students had attention deficit disorder and I was able to give them "hints" about being able to pay attention during the comprehension tests. I discussed increases/decreases in the WPM results and the comprehension scores. I asked them questions if they performed higher or lower than their usual scores, e.g., "Why do you think you did better today?" or "Why did you have trouble paying attention during the test today?" I wanted to have them focus on what happened on good days and what happened on days they didn't do well.

Approximately once every two weeks I would talk to the students in their homerooms; I had several things I wanted to talk about with them. First I thought it was important they knew I was keeping data on their progress. I asked them several times if there was something I should do to improve the sessions. They had interesting insights for improvement. They wanted to be able to go back into the text to answer the comprehension questions, something possible in AceReader, but I had asked them not to do so. The program allows them to go back to the story: I wanted to see how they did in terms of comprehension without the help. The program would add WPM if they did return to the text. They wanted other students to be quiet when they were taking the comprehension tests. They wanted to be able to practice before they took the comprehension tests. I wanted to have the comprehension tests first so it would allow their Personal Base Reading Speed to stay current and log their progress so that their progress can be monitored over time (for accountability).

We also discussed the five parts of being proficient readers, phonemic awareness, phonics, vocabulary, comprehension and fluency. Twice when I came into their classroom the reading specialist was just working with a class. I asked her to stay and asked questions about what they were doing and how it related to fluency. It was during one of these sessions that a student said, "Fluency is like riding a bike, and if you don't go fast enough you fall off." Another said, "Going too fast was just as bad, you don't know what you are reading. Like going too fast and wiping out." I wanted them to know that reading was a skill that their teachers had worked on for many years. Since I have been in this district for ten years as the Program Support Teacher; I have done many tests of achievement for qualification for special education. This is a district with strong phonics instruction. They focus on phonics heavily in the 4-K program, kindergarten, first and second grades. While I have had to not qualify students for special education based on lack of adequate

instruction in phonics in other districts; that has never been an issue in Randolph. This little district of 500 students is in the class "C" athletic division for small schools and has gone to State Boys Basketball for their division and won four years in a row. One session in their classroom I asked them, "What is Randolph really good at?" I was looking for the response, "Phonics instruction." Andrew looked right at me and said, "Duh, JoEllen, Basketball."

For the first three weeks, when they were finished with the comprehension tests and the drills, they could play the games on the AceReader Pro. I wanted them to become familiar with the games and know how they worked. That way if I was going to change the games they would be familiar with the format. In AceReader Pro they can change the formats on the on-line expert modes. They loved changing the fonts, the text, the colors...and those changes would be there each time they logged on.

Every day I encouraged the students to look at their WPM. There is a chart they can show on the screen. This was important as they had no idea when this started what WPM meant and why it was important to reading. At one point during the study, I was able to send home with them their results from the AceReader Pro tests they took. On that letter I give parents tips about how to improve fluency at home.

Thirty minutes is a long time in a computer lab when most of the students are done in ten to fifteen minutes. This forced me to develop activities that all students could be involved with. They all read the same Social Studies book. I scanned in a chapter at a time, and developed comprehension tests of the paragraphs. They would read the paragraphs from their social studies and take comprehension tests which I developed. There were so many possibilities for this, if I had the students in class; I would have had them develop the questions. I included questions that would make them laugh..."I regret that I have only one life to give to my country" was said by... and the choices were George Washington, Nathan Hale, JoEllen Waddell. Personally, I feel worksheets are overdone in public education today. In many ways the copy machine has opened the door to such mindless busy work. As adults we do very little paper and pencil tasks any more; we take attendance on the computer, we write notes to people via e-mail, we can be chained to a computer if we are not careful. But, regardless of what we as adults do, we force kids to fill in the blanks. If teachers asked themselves how to best promote learning; they would find that kids don't mind being engaged in doing mindless fill in the blanks on the computer. Somewhere the idea that the computers had to be used for "creative" learning labs has overshadowed the fact that it can be used for everyday assignments.

About four weeks into the study, I added the "forced speed test". I was interested to see how well the students would do if they were forced to read faster. In the Forced reading Mode, I set up each student's program so "forced speed would be relative to their base reading speed as determined from the last self-paced comprehension test speed". That made it 1.5 times their base reading speed. I also set it to the Productivity setting and set it so the text was centered one word at a time on the screen. This is based on my personal preference for productivity mode and how it seems to increase my comprehension when reading. Also once in productivity mode I would be able to do a number of activities with the students. The students easily went to forced speed, and several opportunities to speak to them about speed and comprehension became available. I asked them to let me know when they got a 100% on forced speed comprehension tests. I wanted to make

a sure I personally congratulated them on that. Also I would have the opportunity to speak to them about how fast the text was being presented, encourage them but assure them that it was much faster than I thought they would ever be able to read, when they then earned a 100%, it would be a huge accomplishment for them. The options for viewing the comprehension scores on the graph had to be changed as I wanted them to see their scores regardless of the comprehension score. This led to several opportunities; first, each student could see how fast they could go when forced. Then if they did well with the comprehension it was a double opportunity to encourage them. Also at one session, the absolutely best reader in the class had a zero on comprehension. This was just so funny/amazing to her. She showed me, the students sitting by her, soon about half of the students were listening. She told me how hard she was trying to read the text but it was just too fast. I then asked her what she did remember about the selection. She told me the few points she could remember about the reading. It was the perfect "teachable moment" and I introduced scanning/skimming text in reading. Skimming/scanning text with the internet is hugely important for today's readers. When the best students' efforts can be shared by other students, especially when the student is sweetly self-deprecating, it helped all the students to see that sometimes they learn things in route to doing the ordinary.

Using the productivity mode, I individually introduced to students how to take text from the web and paste it into the On-line reader/expert mode. By this time I was aware that several students were able to take the information further. I didn't want to show everyone at the same time as about  $\frac{3}{4}$  of the students were just mastering the games. I had the on-line reader/expert mode set to one word at a time; however, I wanted to let the students pick which way was more comfortable for them. This way we could individually talk about how they liked to read. Most of them wanted one word at a time. All Randolph fifth graders do a President report. They could go to their presidents' reports web site and get information. It took about four sessions to go through this with all the students. Since I am involved in special education administration; I don't see these students often. They let me know if I hadn't worked with them on how to get to the web and use the Expert mode.

Once most of them had read on the On-line-Expert mode, I added the "Burst-n-Stop" function. This is an interesting function as it can be set to show a preset number of sentences, word burst, phrase burst (by display lines, defined by punctuation or screen updates). I was able to show them how to use the burst and read three lines, stop, and think about what they read. I would then model by rephrasing what I read and telling them I had used my inner voice to really think about what it was I was reading. I then had students read a section of their social studies I had put on the network. They read it and I asked them to put it into their own words in their heads. They would read a section, stop, and one of them would model what they told themselves. We were then able to discuss the section; this was the point that I could ask questions beyond the literal type questions in the comprehension tests. The section was about the Early Colonies, how the Pilgrims did not like other people's ideas and if they were different what could happen. The discussion included all the students, in traditional question and answer times in the classroom; some students just don't read the book. Since I could tell that all of the students had done the reading and done the comprehension questions; I was sure that everyone was engaged.

Fifth graders at Randolph don't memorize poems. I said a few of the poems I had learned (probably as a fifth grader in Parochial school in the fifties) and asked them what they think about when they

are bored if they don't repeat the poems they memorized in their heads. Even from fifth graders this got quite an interesting number of responses. I modeled how to memorize a short poem-- Robert Frost's *The Road Not Taken*. I told them we were going to memorize it together. Using the projector, I copied the poem into the on-line expert screen. I used the Manual Mode to review the poem line by line. Poems are easier to memorize not by sentence but by line, so I added periods to the end of each line. First I modeled it, practiced it several times, then we read it aloud together. I called on several of them and some could recite the lines. In order to leave the computer lab they had to say three lines from the poem—they all could leave the lab. Manual Mode worked very well for this. Reviewing vocabulary words would also work well with this Manual Mode.

While I did not use any of the games for this study, it is very easy to program them, and correct responses still get smiley faces.

What I learned from this study.

1. Doing more with this program and moving it from what the NCREL calls Phase One, the Print Automation (the use of behavioral-based branching software that relies on drill and practice to teach segmented content and/or skills), to Phase Two, Expansion of Learning Activities (computers as tools for learner-centered practices) was one of the most rewarding parts of this research. Not only was expanding what was expected daily very easy technologically, there were many more activities I could have done.
2. Most students made gains, of course, some more than others. However, all of them appeared to enjoy the time in the computer lab.
3. When left without academic routines in computer lab students will play any games available on the computer, even the gifted students. At Randolph they have a drawing game they would go on to.
4. With well practiced routines they got right to the task and generally did not get off task until it was done.
5. Students, as long as I discussed their scores, looked at their scores daily and appeared to care how they did. I would have kept a weekly average of their WPM scores in a notebook if this was my personal classroom.
6. It would be simple to do this daily if there was a computer lab. The part that made this interesting is that there were comprehension tests for students who read at a third grade level and students who read at a sixth grade level. No one was aware who was reading at what level.
7. Students are very comfortable with reading from a computer screen, reading text set up traditionally, in a paragraph or text flashing one word at a time. They seem to be much more able to make those changes with no glitches.
8. I would have added forced speed earlier in the study.
9. Some students were so variable; they did well one day and not well the next. If this was an every day opportunity would the scores be less variable? Practice makes perfect and is two times a week enough to have consistency?

## Personal Reaction to this Research

I am confident *AceReader Pro* will have a positive influence on students' performance in reading. The practice of comprehension tests and drills is positive and helps make reading better one of their goals.

I am confident teachers can use only the fluency practice of *AceReader Pro* with very little technological expertise.

I am confident teachers will be able to move from fluency practice to using more of the program with a minimum of time and technological effort.

I am confident I enjoyed this research, I hope the staff of Randolph Elementary School and the fifth grade students did too.

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Comments from Fifth graders

Dear Dudes and Duets who run the Ace Reader Pro

Thank you for giving us this reading program it really helped me read better because I got 505 words per minute.

Sincerely,

Adam (he has four pictures of puppies pasted on this)

Dear Ace Reader Pro

Thank you for this program thanks to you I can read faster and comprehend and I don't struggle with words anymore better also thank you for giving this program to our school and the middle school you should give it to other schools so they can read and understand words like our school.

Sincerely,

Jonny

Dear Ace Reader Pro,

Thank you for giving us this program. I think this program has helped a lot of students in our school and will continue to help students in the future. I hope you will continue to give other schools the opportunity of using Ace Reader Pro. Thanks again.

Sincerely,

Myriel

Dear Ace Reader Pro

My name is Jami. I think AceReader was a great idea because it helps people read better and faster. My reading started at 244 and ended at 364. I thought that was a great improvement.

Thanks again,

Jami

Dear Ace Reader Pro

My name is Morgan. I liked AceReader Pro not only because it got us out of class but because it helped my class and I read better and faster. This is a neat program, at first I was a little nervous about it but now I think it is cool. THANK YOU FOR GETTING THIS PROGRAM AT OUR SCHOOL!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Dear Ace Reader Pro

Thank you so much for giving this super program to the Randolph School District. I have had so much fun by getting my reading faster and more in joy able.

Sincerely,

Your student Jennah

Thank you

Thank you for giving our school this program. I thought that this program was very good. It helped. Us read faster and memorize more thank you again...

Brandon (each letter in Brandon is a different font)

Dear Ace Reader Pro

Thank you so much for giving this program to the Randolph School district. I have had so much fun and it has helped my reading improve by almost 100%.

Sincerely

Randolph student Katlyn

Dear Ace Reader Pro

I really liked the Ace Reader Pro program because now I can read faster and more easily with struggling with words that are hard to pronounce. Thank you for giving this program to Randolph Elementary/Middle School. I love your program. I think you should give it to other schools also so they can read faster and have better comprehension. I think other schools will love your program just like me.

Sincerely

Jacob

Dear Ace Reader Pro,

My name is Kaysha, and I think Ace Reader Pro was a great idea not just because we got out of class. I think that I am a better reader because I increased by almost one hundred words a minute!

Thanks again,

Kaysha

Hi, I'm Alex. Thank you for the Ace Reader Pro Program I have been doing much better in my reading and I have understood it better too. I like this program because it helps me and it gets us out of class. I hope you have a good time and I hope you had fun making this program.

Thank you,

Alex

Dear Ace Reader Pro

Thank you for letting us use this program it was haggard and wicked awesome but I really loved it.

It made me a lot better reader and please continue this across America

Your friend

Josh

Dear Ace Reader Pro

Thank you for giving us this program. I really enjoyed it because it got me out and class, and made me a faster and better reader.

Sincerely,

Leah

Dear Ace Reader Pro

I think your program was an awesome experience. It definitely was not a waste of time. Thank you for letting us this program.

Your friend,

Kyle

Dear Ace Reader Pro

Thank you, for letting us to have this program this program made read faster and easier I like this program was awesome because it made me read fast and is wasted us time so I like it a lot.

Your friend,

Jon

Dear Ace Reader Pro

Thank you for giving us this program. I like it because it helped me read better and it got us out of class.

By Hugh

Dear Ace Reader Pro

Thank you for the program. I like it a lot. I liked the games and the reading helped me

By Collin

Dear Ace Reader Pro,

My name is Ted Miller. I love the fact that we get out of class to this program. It makes me smile.

Thank you.

Dear Ace Reader Pro

My name is Ben. I liked it because it got us out of class. I have been doing well I went for 114 to 935.

Ben

Dear Ace Reader Pro

My name is Dylan. I like your program because it gets me out of the classroom and its fun.

Dear Ace Reader Pro

My name Hunter I like this program because it gets out of class, that that's not the only way. I like the flash card games, they're the best. Thank you for giving our school this program every body loves it. Or teacher JoEllen is the best there is for this program. Thank you

Sincerely,

Hunter

Dear Ace Reader Pro

My name is Andrew. I thought program was so cool. I liked JoEllen as a teacher she was so fun. I liked it because it got us out of class. I really hope we can still do it again next year. I liked to play all the games. My highest word per min. was 486.

Lots of thanks form

Andrew

Dear Ace Reader Pro

My name is Dillon. I like this program because it teaches us to read better and it gets us out of class.

I read at 117 words per minute at the beginning and 203 words per minute at the end of the year.

Thanks,

Dillon

Dear Ace Reader Pro

My name is Scarlett, I am in 5<sup>th</sup> grade and 10 years old. I loved the program it was so fun. It helps me read fast, so when I read on the computer I finish the article in record time. When I read a book it helps me finish the book on time.

Sincerely,

Scarlet

Dear Ace Reader Pro

My name is Hannah I'm in 5<sup>th</sup> grad; I think this process is cool because it gets us out of the habit of moving our heads while reading. Joelleen is a totally sweet lady, this program has help me improve my reading a lot.

Your friend

Hannah

Dear Ace Reader Pro

My name is Leslie, I am in 5<sup>th</sup> grade. I like this program because I can learn how to read better. Thank you for giving us this program.

Leslie

Dear Ace Reader Pro

My name is Brody. I thought your program was really cool. I liked the games and the tests. It also gets us out of class for a while. I improved a little.

Dear Ace Reader Pro

My name is Katelyn. Thank You for letting us obtain AceReader Pro. I like this program because it challenged my reading sills and I liked that a lot. From AceReader Pro now I love to read. This program is the best. Thank you for this opportunity for our school to have this program. It helps our school's fifth grade class a lot.

Randolph fifth grade student,

Katelyn

Dear Ace Reader Pro,

My name is Jesse and I like the program. I have been doing good. It gets me out of class and I like.

Dear Ace Reader Pro

My name is Alan I'm a 5<sup>th</sup> grader of Randolph Elementary school. This program is awesome it has helped me to read faster. I wish I could thank you in person for giving us this wonderful system.

Thanks a lot.

Sincerely yours,

Alan

Dear Ace Reader Pro

My name is Ryan and I like this program because it gets me out of class. This program helped me read a lot. Thank you!!!!

Dear Ace Reader Pro

My name is Deanna. I thought this program was awesome because it helps me improve my skills and comprehension. It also gets us out of reading. I hope we can do this again next year. Thank you for bring this program into my life, I really enjoyed it.

Thanks

(She wanted to know if she could autograph it personally)

Deanna

Dear Ace Reader Pro

My name is Angel. I'm in 5<sup>th</sup> grade and have experienced a wonderful way of reading. I think this is an awesome way of reading it helps me and I'm sure it helped my classmates. Thank you for letting us have AceReader pro.

Your friend,

Angel.

Dear Ace Reader Pro

My name is Christeen. I liked this program because it helped me not to read better in class and helped me like reading more in class. In ace Reader Pro 156 to 297.

Chrissy

Dear Ace Reader Pro

My name is Kaine I really liked your program. I liked it because it helped me read a lot faster and better. I used to read about 10 pages in ten minutes and now I can read about 20. Our teacher Jo Ellen is the best teacher there is for this program. Thank you very much.

Thank you