AN ANALYSIS OF STUDENT READING AS MEASURED ON THE DIAGNOSTIC ASSESSMENT OF READING (DAR)

JUNE 2006

JO-ANN M. BACA, ED.D, EDUCATIONAL ASSOCIATE

BARBARA A. SHEPPERSON, M.ED., EDUCATIONAL RESEARCHER

WITH ASSISTANCE FROM:
DEBRA COFFEY, GRADUATE RESEARCH ASSISTANT
XIMENA URIBE-ZARAIN, GRADUATE RESEARCH ASSISTANT

Delaware Education Research & Development Center
University of Delaware
Newark, DE 19716

PUBLICATION T2006.09.01

An Analysis of Student Reading
As measured on the Diagnostic Assessment of Reading (DAR)

Background

As part of the reporting of Delaware's State Improvement Grant (DelaSIG), the Delaware Education Research and Development Center (R & D Center) completed a study on the Diagnostic Assessment of Reading (DAR) scores of students whose teachers attended a professional development program designed to help focus teacher instruction of struggling readers in Grades 4 through 12. IMPACT, the acronym for *I*mplementing *M*ultiple *P*ractices for *A*ctivating *C*omprehension in *T*eaching, is a 30 hour training component of the professional development program provided by the Delaware Department of Education (DDOE). It is part of a 90-hour cluster designed to provide teachers with "extensive practice in implementing teaching strategies based on current, evidenced-based reading research dealing with the literacy needs of diverse learners and special needs populations as they are found in all content areas of the school. The ultimate goal of the cluster is to equip teachers with the practice needed to successfully apply its content knowledge and the pedagogy necessary for increasing reading achievement of all students with an emphasis on the struggling reader" (IMPACT Cluster, 2005). Training was provided through a *Train the Trainer* Model, in five, six-hour modules in the following areas: Word Identification and Fluency, Assessment for Teaching and Learning, Vocabulary, Comprehension, and Motivation and Instructional Design for Reading.

The DAR was chosen by the DDOE to be used to analyze student data as part of the reporting of the DelaSIG, Goal 1, Objective 3: "Through the use of trained teachers and the implementation of scientifically-based research regarding the teaching of literacy and reading skills, [Grade] 4-12 students with disabilities will make significant reading gains over their baseline (entry level) scores, or against comparable control groups" (DelaSIG, 2002). The DAR, an individually administered criterion referenced test designed to measure the important components of reading, was used to assess students' reading in the fall of 2005 and again in the spring of 2006.

Purpose

A portion of the R & D Center DelaSIG workscope for Grades 4-12 called for an "Analysis of DAR data on a random sample of struggling readers[1]". This was further defined in the following way: "Data will be collected by classroom teachers in the fall and spring of each year (05-06, 06-07). Data will be analyzed at the state level and reported in a separate document. This data will be reported for formative purposes and will not be analyzed as part of the annual outcome evaluation report" (R & D Center's DelaSIG Outcome Evaluation Plan, 2005). This paper reports the findings of the fall and spring assessments of the DAR and discusses their results and implications. Program developers may find the perceptions of the IMPACT survey respondents informative; their perceptions regarding the influence of the IMPACT training on their classroom instruction and on their students' reading provide insight into the context of the findings.

[1]Due to the limited amount of data that met the criterion for use, a random selection process was not utilized.

DAR Literature Review

A review of the literature suggests that users should be administering the DAR to assess the reading skills of students who need reading remediation to help with reading difficulties. Link's (1998) investigation used the DAR to assess the differences between the "lower level 'print skills' and higher order 'meaning' skills among successful adults with dyslexia". Reale (1999) found the DAR was one of the most helpful tools for "determining literacy level, learning style, and type of instruction" among the participants in her study, who were adults with mental retardation. Reale noted that if the program in which she did her research had more money, they would have used the DAR more widely. Curtis and Longo (1996) reported that they used the DAR to assess the reading skills of all young people at Boys Town within a week of their arrival. The majority of these young people were "behaviorally disordered and emotionally impaired" (p.2).

The development of the DAR arose from the authors' findings and experiences in the research of reading. Perhaps the most basic is Chall's (1983) research finding that reading consists of a number of different processes and the author's judgment that using five or more separate norm-referenced tests to assess the separate skills related to reading was inefficient. This led to their desire to develop a single tool that assessed all of the reading-related skills. The tests were developed and given an initial item "try-out" in 1989 with 1,664 students in grades 2 through 8. A 1990-91 national validation study involved 1,216 students in grades 1 through 12.

The DAR authors compared the items on their pilot assessment to existing curriculum and assessment tools; these items and measures included "word lists, readability measures, and grade placement" (p. 15). They note that the tools they use for this comparison are in general use and have been thoroughly validated by existing research. According to the DAR Technical Manual (2005), the results of the data from Form A of the DAR demonstrate both convergent and divergent validity (p.50). In their paper, Hennings and Hughes (1992) describe the results of the prepublication research of the pilot items. Participants were selected by teachers, who were asked to identify students who were not reading up to their potential. Hennings and Hughes compared the results of the pilot DAR items with the results of the Gates-MacGinitie Reading Tests and found the scores between the two tests correlated well.

The skills that DAR evaluates are:

- print awareness
- phonological awareness
- letters and sounds
- word recognition
- word analysis
- silent reading comprehension
- spelling
- word meaning
- oral reading

The subtests of the DAR align with the critical areas of reading as recognized by the National Reading Panel (2000). The DAR technical manual (Roswell, FG., Chall, J.S., Curtis, M.E., & Kearns, G., 2005) claims the DAR tests, "meet the highest technical requirements for reliability and validity-following scientifically based research guidelines within No Child Left Behind (NCLB)" and "meet NCLB reading mandates by offering information about student performance in the essential components of reading as defined by the National Reading Panel-alphabetics, fluency, vocabulary, and comprehension." Finally, according to the DDOE IMPACT Professional Development Cluster Proposal for Educators (2005), this individually administered instrument is endorsed by the USDOE's Technical Assistance Team (Eastern Regional Reading First Technical Assistance Center) for Delaware's Reading First Leadership, as research-based and appropriate, for Grades 1 through 12.

Questions

In order to report on the professional development program designed to focus teacher instruction of struggling readers in Grades 4 through 12, DAR scores from students of teachers who attended IMPACT, were analyzed. To guide the reporting, two main questions drove the investigation:

1. Did DAR scores of struggling readers change from fall 2005 to spring 2006?
2. To what factors may the changes be attributed?

Procedures

All teachers who participated in the IMPACT training were instructed to select 3 to 5 of their struggling readers for DAR data collection. "Struggling reader" was defined by the DelaSIG team as a student who did not "Meet the Standard," according to his/her Delaware Student Testing Program (DSTP) reading performance level (PL). Data collection forms were sent to all IMPACT participants directing them to send their fall DAR scores to the R&D Center. Due to a delay in obtaining DAR testing materials, some teachers had difficulty meeting the fall deadline of administration (originally September through October, 2005) thus; the administration window was extended through December 2005. The administration timeframe for the spring DAR scores was April 2006 through May 2006. Further, data for inclusion in this study had to meet all of the following criteria:

1.) The fall and spring DAR scores must have been provided for each student in at least one subtest.
2.) Fall DAR scores must be accompanied by a DSTP reading PL indicating that the student did not meet the standard.
3.) DAR scores must be collected within the defined administration window for each test season.

Only those scores that met *all* of above criteria were included in this study. In order to interpret the results and help explain the findings, additional information from the teachers concerning their perceptions about the program and their student test scores was requested. In late spring, all 54 IMPACT teachers were emailed a brief electronic survey designed to inquire about the context of their classroom instruction, their beliefs about the influence of the IMPACT training, students' DAR scores, and the degree to which they used the strategies taught in the IMPACT training. The survey was to be submitted by June 2, 2006 in order to be included in the study.

Participants

Teachers

All teachers enrolled in one or more IMPACT training module(s) in 2005 were invited to be participants in this study. Names of the teachers were provided to the R&D Center by the DDOE. There were a total of 54 teachers whose names were submitted as IMPACT participants from five districts in all three counties in Delaware. Of the 54 participants, 43 submitted some student DAR data, of those, 16 participants submitted data that satisfied all requirements. The demographics of these 16 teachers are reported here. Fourteen teachers (88%) reported completing all five IMPACT training modules; the percentage of teachers who were enrolled in each module, according to the information they reported is as follows:

IMPACT Module					
Word Identification and Fluency	Assessment for Teaching and Learning	Vocabulary	Comprehension	Motivation and Instructional Design for Learning	DAR Administration
88%	94%	87%	81%	81%	88%

These teachers reported teaching a wide variety of content areas including English Language Arts, reading, science, social studies, and math. Further, 67% reported holding special education certification.

Students

All teachers who participated in the IMPACT training were directed to select 3 to 5 of their struggling readers for DAR data collection. "Struggling reader" was defined by the DelaSIG team as a student who did not "Meet the Standard" according to his/her DSTP reading PL. 125 unique student identification numbers were submitted by teachers who reported student data. Based on this data, a total of 38 students' scores met all the parameters required to be included in this study. Of these 38 students, 62% were enrolled in special education classes. In the fall, the number of students in each grade was:

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10
1	9	7	7	5	3	6

Further, these students ranged in age from 10 (born in September, 1995) to 17 years of age (born in April, 1989). 49% of the students had at least one accommodation, 34% had multiple accommodations. Upon reviewing all the accommodation codes provided by the teachers concerning their students, only one[2] of the reported accommodations would have affected DAR scores, however, because test instructions explicitly state:

> "Because the test is individually administered, accommodations for individual students are built into test administration. For example, the test administrator adjusts pacing of the DAR assessments for each student as needed. Teachers should use their own judgment and/or the student's IEP in deciding what kind of accommodations are appropriate. However, no accommodation is permitted that involves reading material *to* the student that is meant to be read *by* the student" (p.ii)

In addition, the IMPACT and DAR training emphasized explicitly following the DAR instructions.

[2] DDOE accommodation code 46 is "Reading or signing passages or tests for the reading test (or using cued speech or oral interpreter)".

Instrumentation

DAR

According to its authors, (Roswell, F.G., Chall, J.S., Curtis, M.E., & Kearns, G., 2005), the DAR is composed of individually administered tests of essential areas of reading and language. The subtests are suitable for administration to students of all ages who are functioning on reading levels that correspond approximately to kindergarten through the end of high school. The purpose of the DAR is to assess students' relative strengths in various areas of reading and language, and to discover the areas of reading and language in which students need further assistance. There are no set time limits for administering the DAR.

The DAR subtest data[3] collected as part of this study were:

- Word Recognition (WR)-a test that assesses the student's ability to read words of increasing difficulty,
- Word Meaning (WM)-a test of oral vocabulary,
- Silent Reading Comprehension (SRC)-scores depend upon basic word recognition and analysis as well as upon background knowledge and language and cognitive development, and
- Oral Reading Fluency (ORF)-the highest level on which the student's reading is fluent is entered.

DAR-IMPACT Training Survey Protocol

Additional information from the teacher participants was sought through a survey developed by the R&D Center to gain some insight into the context of their classroom instruction. A second purpose of the survey was to explore the teachers' perception of the links between the IMPACT training and changes in their instruction and between their instruction and student DAR scores.

Findings

The findings reported below are organized into three parts: student DAR scores, individual student's case studies, and the IMPACT participant's survey.

DAR

For each student, DAR scores were analyzed to determine the difference in each student's grade equivalent (GE) subtest score compared to his/her current grade. In addition, the scores were analyzed to determine the change in each subtest area as measured from fall to spring for each student. A DAR subtest score is reported as a GE score, ranging from 1-1, the first half of first grade, to 11/12, approximately grades 11 and 12. The difference between each student's current grade and his/her GE on each DAR subtest and the change or stability in GE for each student in each of four areas: WR, WM, SRC, and ORF are reported. The color coded figures below allow for tracking students by grade level in each subtest. Figures 1 through 8 indicate each subtest area in terms of students' individual difference in GE from current grade, followed by each subtest area in terms of the change in students' individual scores from fall to spring.

[3] According to DDOE IMPACT cluster developers, Word Analysis was required only for those students whose Word Recognition subtest score was below third grade, therefore, due to the limited number of reported results, a reporting of this subtest was not done.

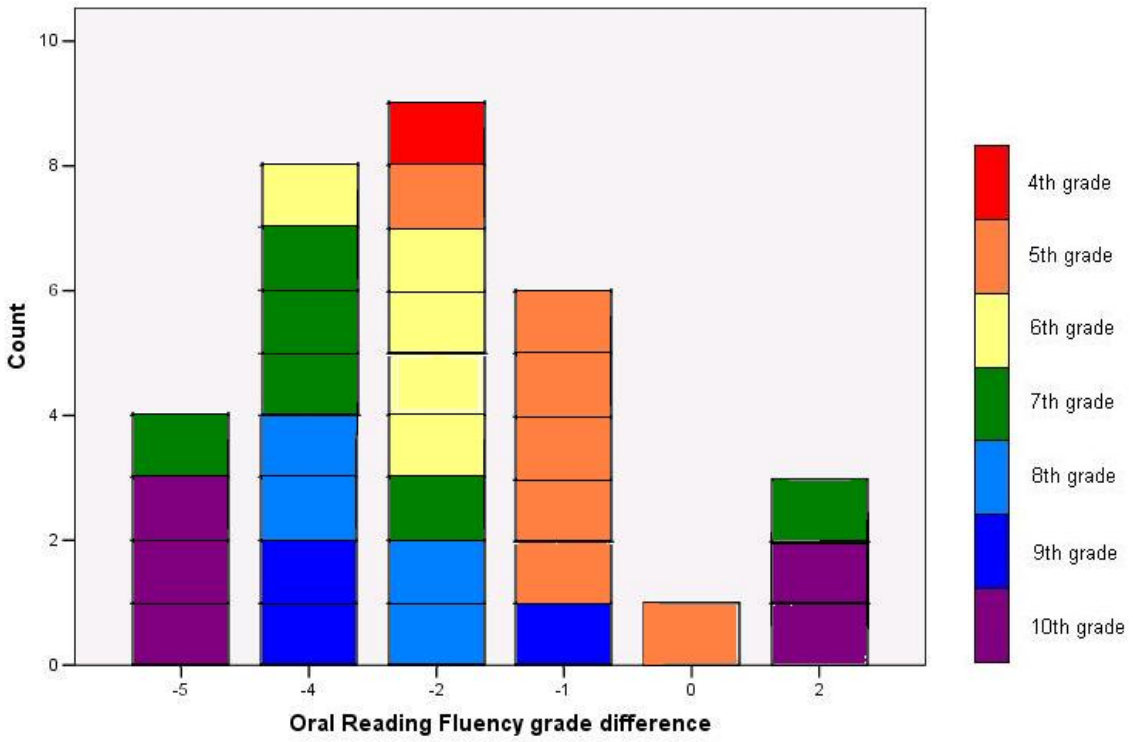


Figure 1. Oral reading fluency.

Figure 1 shows the difference between each student's current grade and his/her GE score on the ORF subtest in the fall. A total of 31 of the 38 students had a valid fall ORF score.
As can be seen in the above figure, in the fall:

- Four students' scores were five GEs below their current grade.
- Nine students' (29%) scores were 2 years below their current grade.
- Three students' scores were two GEs above their current grade.

In reviewing these student results, it becomes apparent there is great variability within the group in the difference between each student's current grade and his/her GE on the ORF subtest.

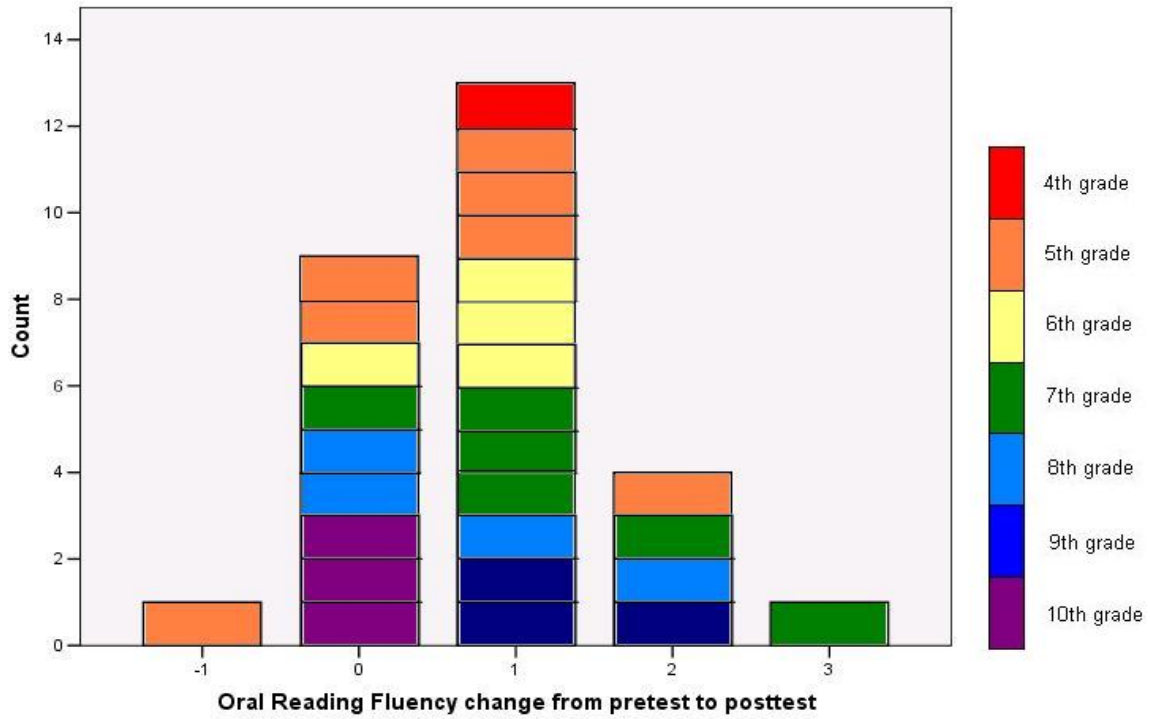


Figure 2. Change in oral reading fluency.

The change in each student's ORF subtest GE from fall to spring is shown in Figure 2. A total of 28 of 38 students had valid fall and spring ORF subtest scores. As can be seen in the figure above:

- In the spring, nearly half of the students' (46%) scores increased one GE.
- In contrast, one student's score decreased one GE, while one student's score increased 3 GEs.
- All sixth grader's scores were two or more GEs below their current grade in the fall, while three increased by one GE in the spring.

In reviewing these student results, it becomes apparent there is great variability with the group in the change from each student's fall to spring ORF subtest score.

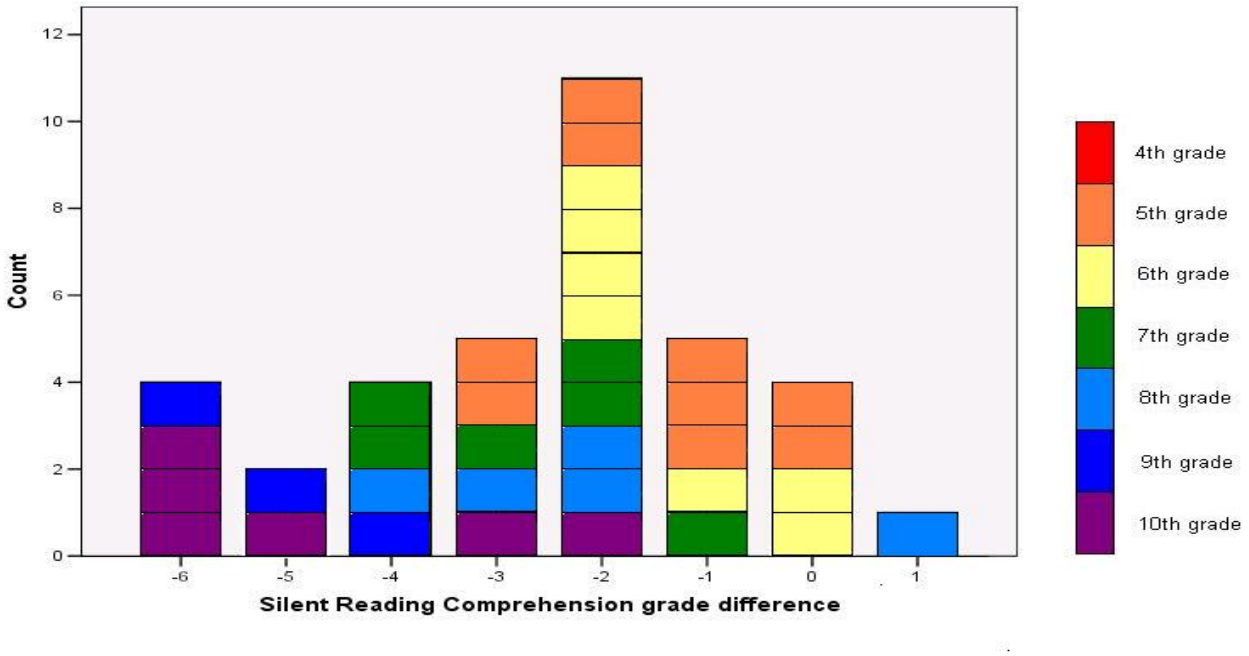


Figure 3. Silent reading comprehension.

The difference between each student's current grade and his/her score on SRC subtest in the fall is shown in Figure 3. A total of 36 of the 38 students had a valid fall SRC subtest score. As can be seen in the figure above:

- Four students' (11%) scores were six GEs below their current grade in the fall.
- Four students' (11%) scores were four years below their current grade.
- Eleven students'(30 %) scores were two years below their current grade.
- The lone student who scored one GE above his/her current grade was in Grade 8.

In reviewing these student results, it becomes apparent there is great variability within the group in the difference between each student's current grade and his/her GE on the SRC subtest.

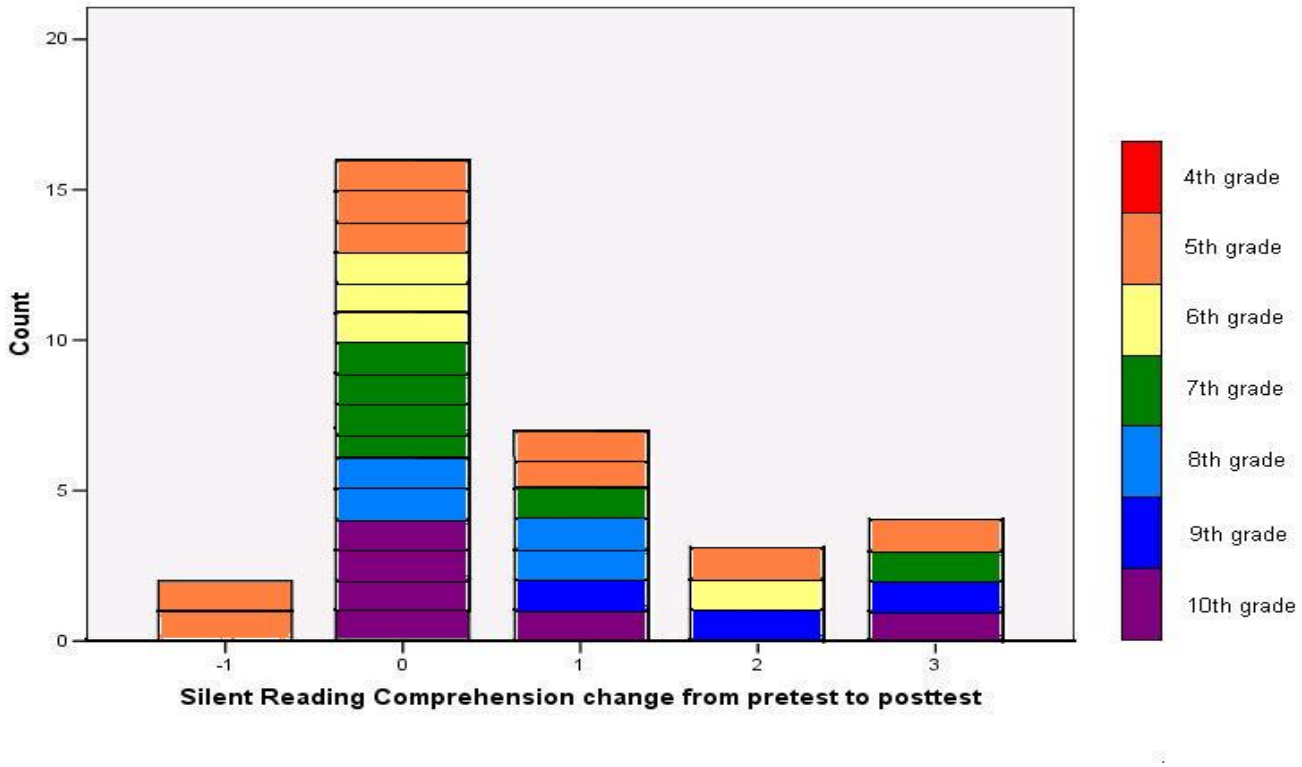


Figure 4. Change in silent reading comprehension.

The change in each student's SRC subtest GE and from fall to spring is shown in Figure 4. A total of 32 of 38 students had valid fall and spring SRC subtest scores. As can be seen in the above figure:

- In the spring, sixteen students' (42%) scores made no change.
- In contrast, seven students' (18%) scores made an increase of 1 GE, while four students' (10%) scores increased by three GEs.
- All of the seventh grade individual subtest GE scores were below the current grade (Grade 7) in the fall, while all of the seventh grade individual subtest GE scores stayed the same or increased on the subtest in the spring.

In reviewing these student results, it becomes apparent there is great variability with the group in the change from each student's fall to spring SRC subtest score.

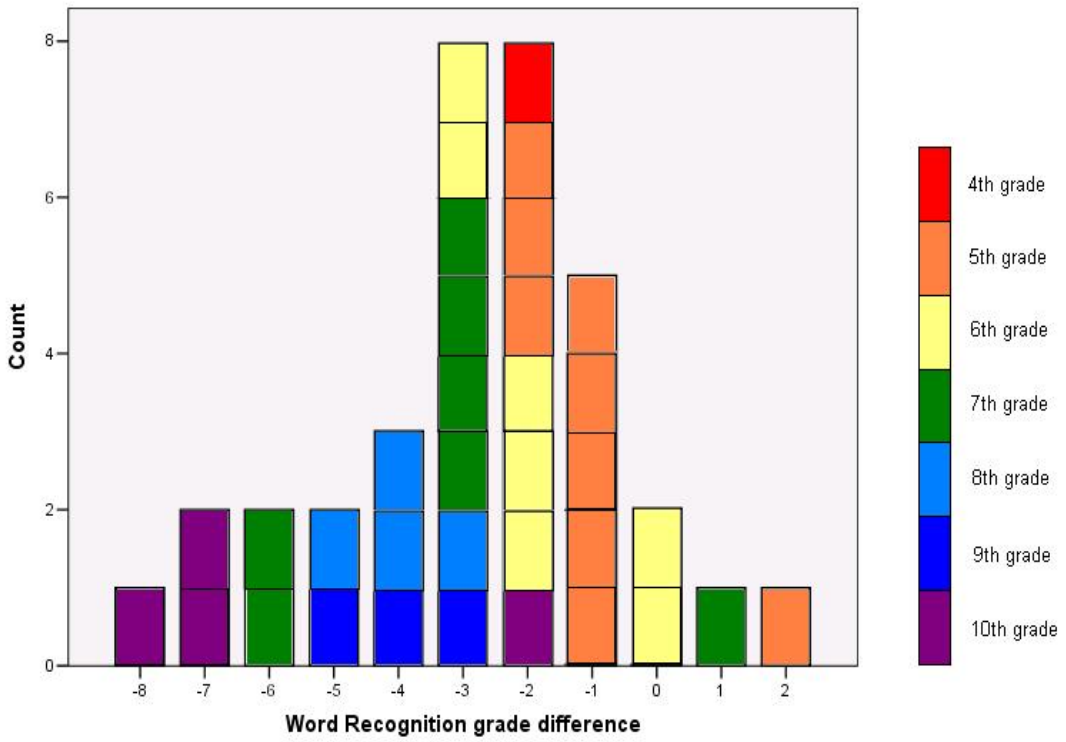


Figure 5. Word recognition.

The difference between each student's current grade and his/her score on the WR subtest in the fall is reported above. A total of 35 of the 38 students had a valid fall WR subtest score. The findings show this is the subtest with the greatest area of deficit in reading among these students in the fall. From the figure above:

- Only four students' (11%) GE scores are on or above their current grade, while the remaining students' scores are below their current grade.

- Most of these students' GE scores are well below their current grade, with one student's score eight GEs below his/her current grade.

In reviewing these student results, it becomes apparent there is a great variability within the group in the difference between each student's current grade and his/her GE on the WR subtest.

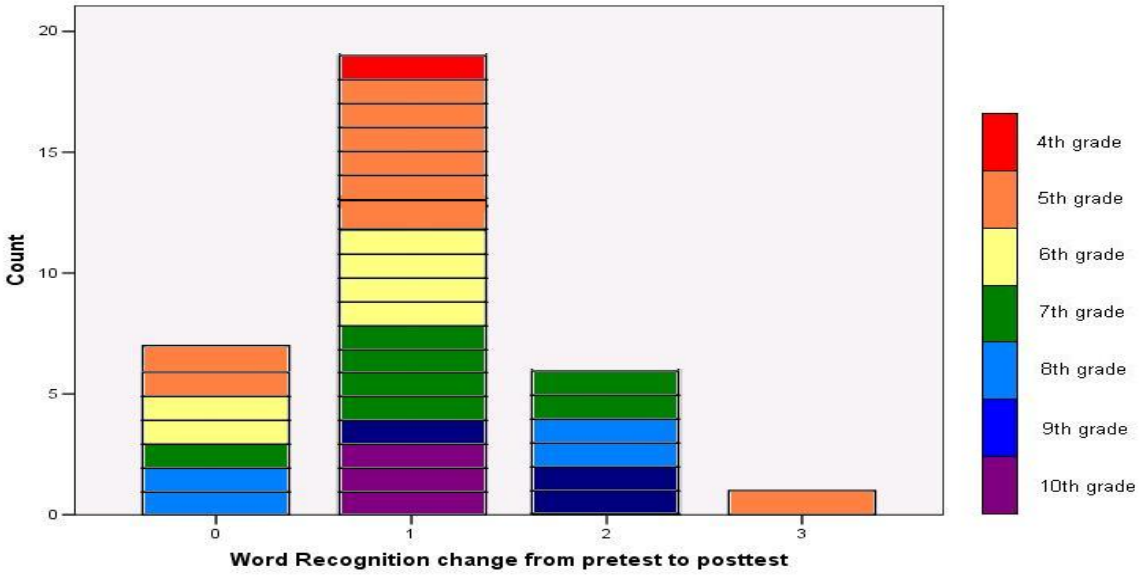


Figure 6. Change in word recognition.

The change in each student's WR subtest GE and from fall to spring is shown in Figure 6. A total of 32 of 38 students had valid fall and spring WR subtest scores. From the above table it can be seen that:

- 19 students' (57%) spring scores increased by one GE.
- Six students' (18%), spring scores increased by two GEs, and one student's score increased by 3 GEs.
- Eight students (22%) in Grade 5 had GEs below their current grade in the fall, while in the spring, all Grade 5 students' GE scores were on or above their current grade.
- One fifth grade student scored 3 GEs above his/her current grade in the spring.

In reviewing these student results, it becomes apparent there is great variability within the group in the change in each student's fall to spring WR subtest score.

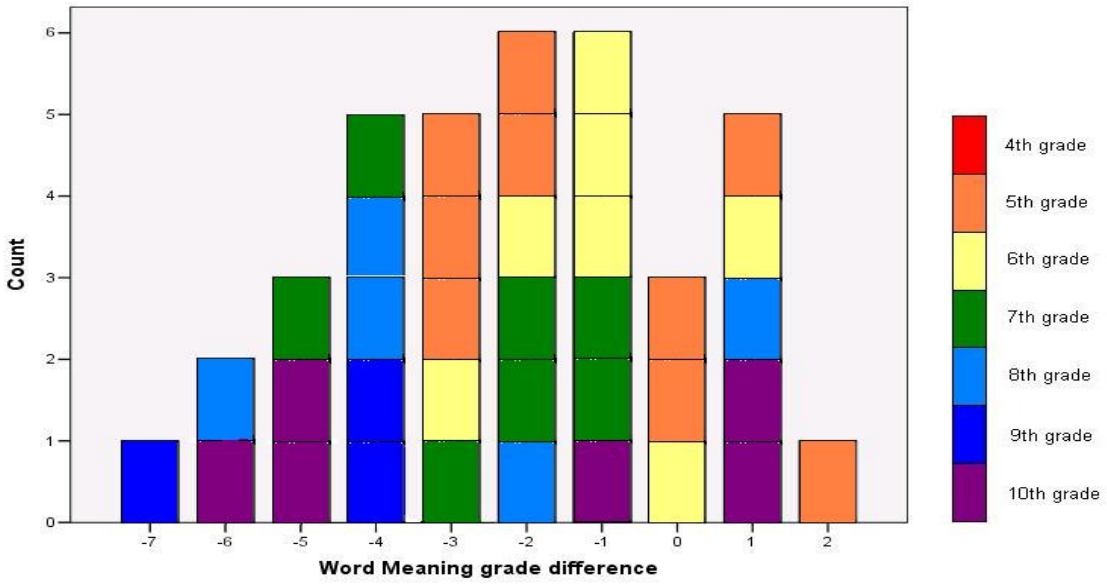


Figure 7. Word meaning.

The difference between each student's current grade and his/her GE score on the WM subtest in the fall are reported above. There were a total of 37 of 38 GE scores ranging from seven GEs below his/her current grade to two GEs above. From the figure above it can be seen that in the fall:

- One ninth grade student's score was seven GEs below his/her current grade.
- Three students' (8%) scores were five GEs below their current grade.
- Five students' (13%) scores were three GEs below their current grade.
- Five students' (13%) scores were one GE above their current grade, while there was one student whose subtest score was two GEs above his/her current grade.

In reviewing these student results, it becomes apparent there is a great variability within the group in the difference between each student's current grade and his/her GE on the WM subtest.

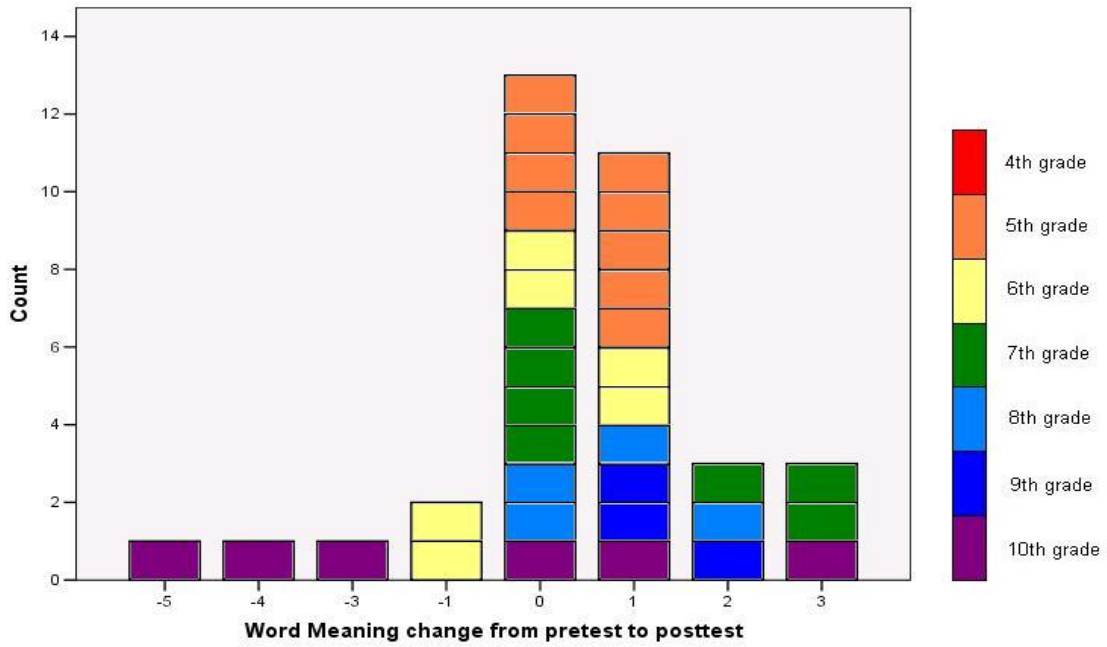


Figure 8. Change in word meaning.

The change in the DAR Word Meaning scores from fall to spring is shown in Figure 8. A total of 35 of 38 students had valid fall and spring WM subtest scores. The change in each student's individual WM score from fall to spring is shown. From the figure above, it can be seen that:

- 13 students' (37%) scores showed no change in GE.
- 11 students' (31%) scores increased one GE, while three students' (8%) scores increased 3 GEs.
- In contrast, one student's score decreased 5 GE's.
- All of the seventh grader's fall scores were below their current grade, while all of the seventh grader's spring scores stayed the same or increased in GEs.

In reviewing these student results, it becomes apparent there is great variability within the group in the change from each student's fall to spring WM subtest score.

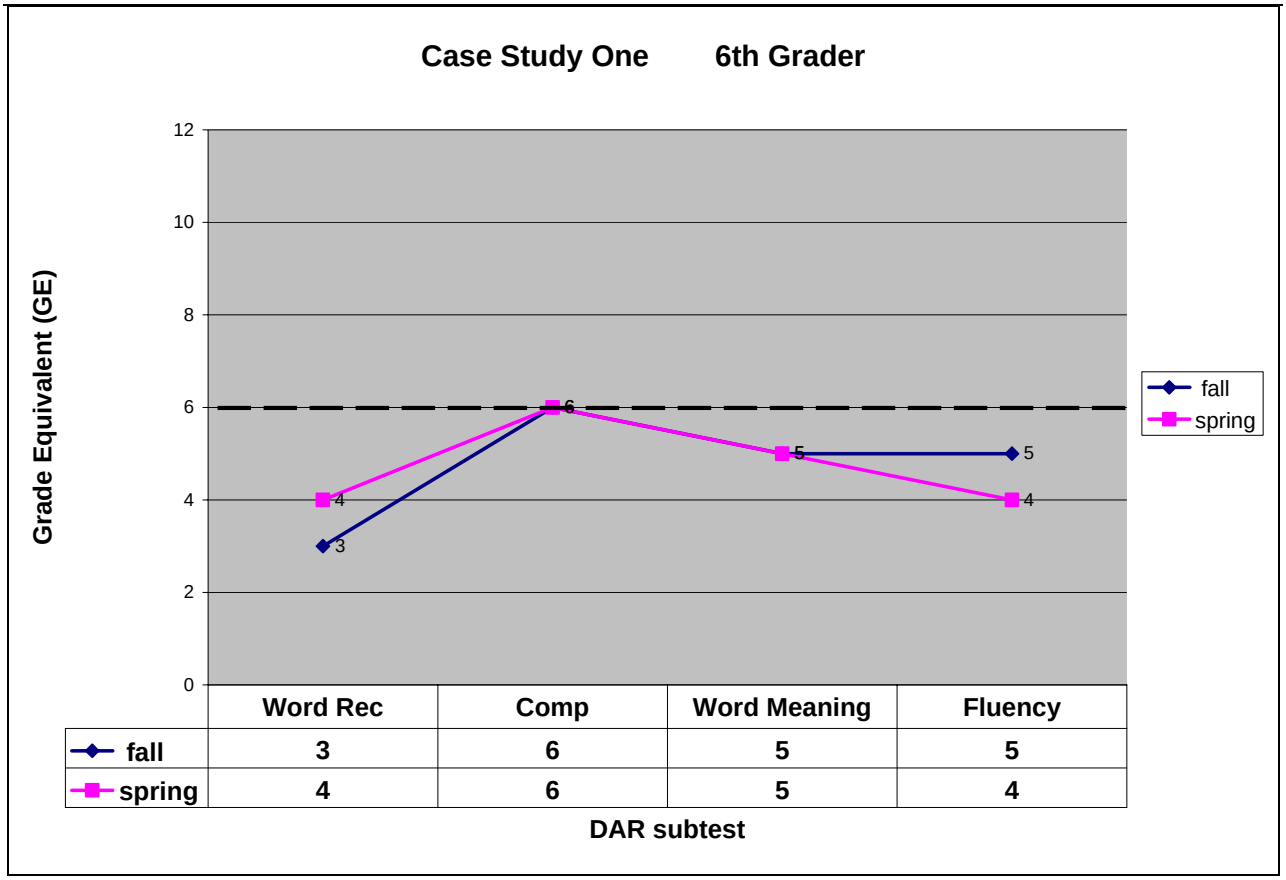
Summary of the DAR Findings

Overall, it becomes apparent there is a great variability within the group in the difference between each student's current grade and his/her GE on most subtests. Further, in reviewing all DAR scores, the change in subtest scores of each student is important.

In our sample, the change in ninth grade students' subtest scores is notable. There were three ninth grade students included in this study. Of these students, *no* GE score was on or above the current grade on any DAR subtest in the fall; in the spring, all of these students' GEs scores were on or above the current grade on all DAR subtests.

Case Studies

It is important to consider the difference in each student's GE and his/her current grade as well as the differences among each DAR subtests score(s) when interpreting the findings. To highlight the unique needs and highly individual abilities of the students in the study, four case study students are depicted here. In the following figures, in order to better represent the data, the student's current grade is noted with a broken line. Student's DSTP reading PL score, special education status, month and year of birth, and DSTP accommodation code(s), as reported by the teachers in the fall, are included below. All 38 students' fall and spring DAR subtest scores can be found in Appendix A.

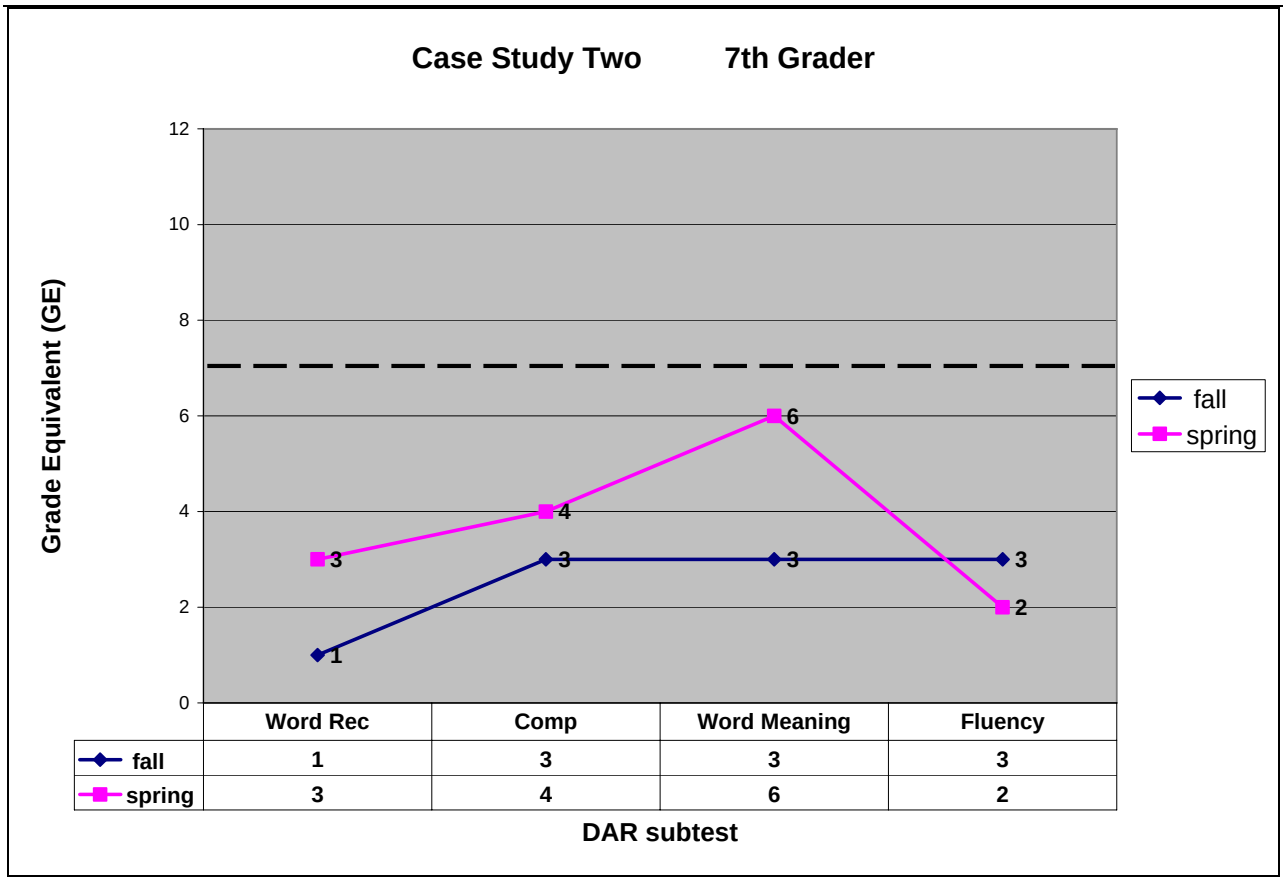


Case Study One

This case study was selected to demonstrate a student who had a comprehension GE score that was "on grade" in the fall, but who also met the criteria for "struggling reader" as defined earlier in this study. There was little change in GE scores from fall to spring in comprehension and word meaning but there was an increase in the word recognition score, however, a decrease in his/her fluency score also occurred. Little difference is found among the individual subtest GEs. These findings suggest the question:

- Why would student's comprehension GE be "on grade" while the word recognition subtest is three GEs below the current grade?

DAR Case Study One				
Current grade	Date of Birth	Special education status	Fall DSTP reading PL	DSTP accommodation(s)
6	Sept, 1993	yes	1	Administering the test in small group, rereading directions for each subtest, refocusing attention, reading or signing passages or tests for the reading test (or using cued speech or oral interpreter)



Case Study Two

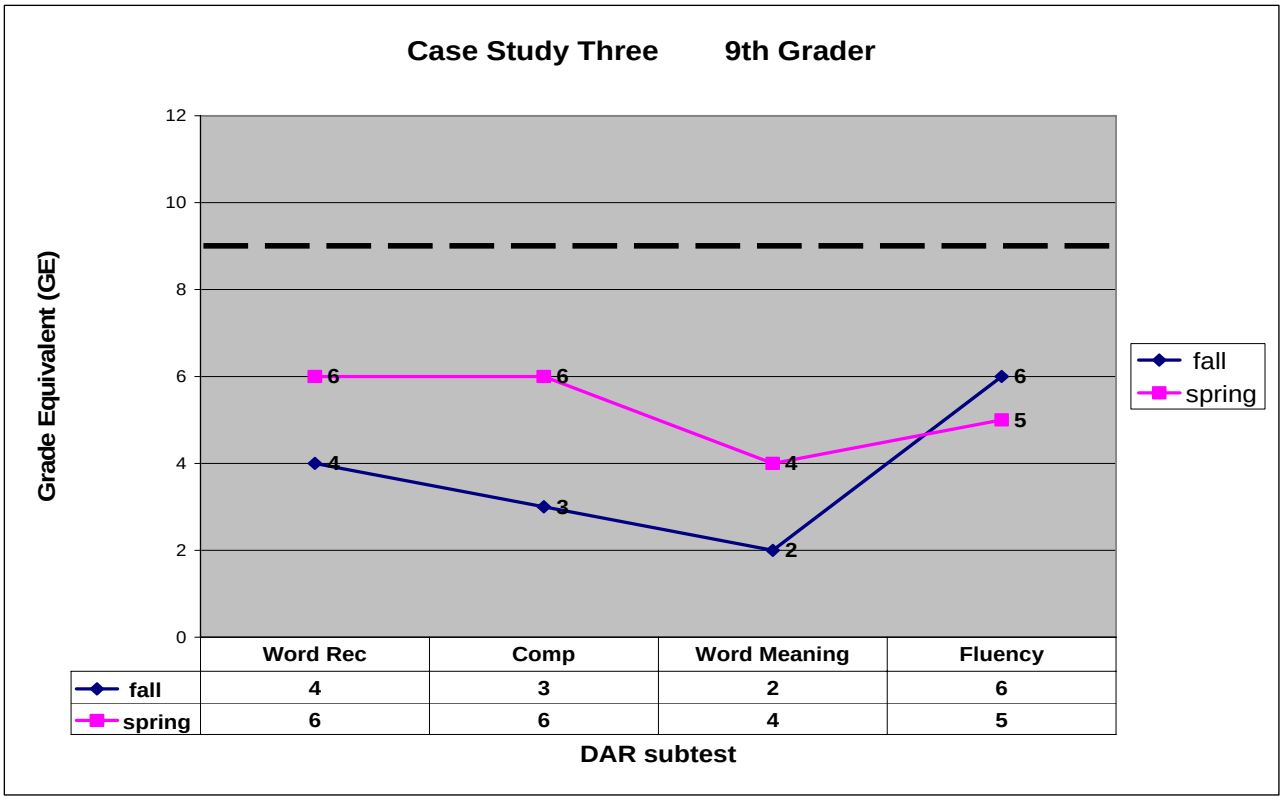
This case study shows a seventh grade student whose DAR scores were several GEs below his/her current grade in all subtests in the fall. In the spring, the GE scores increased in all subtests except fluency. The word recognition and word meaning subtest scores increased by several GEs, however, in fluency the GE score decreased. These findings generate several questions:

- If a student made gains in word recognition, comprehension, and word meaning, why isn't an increase in fluency also seen?

According to Rasinski (2003), studies have found that fluency is associated with comprehension. Given the relationship between fluency and comprehension, one might expect to also see an increase in the fluency subtest GE score.

- Was something interfering with the test conditions, such as lack of attention?
- Was the student reading particularly slowly?

DAR Case Study Two				
Current grade	Date of Birth	Special education status	Fall DSTP reading PL	DSTP accommodation(s)
7	June, 1992	yes	1	Reading or signing passages or tests for the reading test (or using cued speech or oral interpreter)

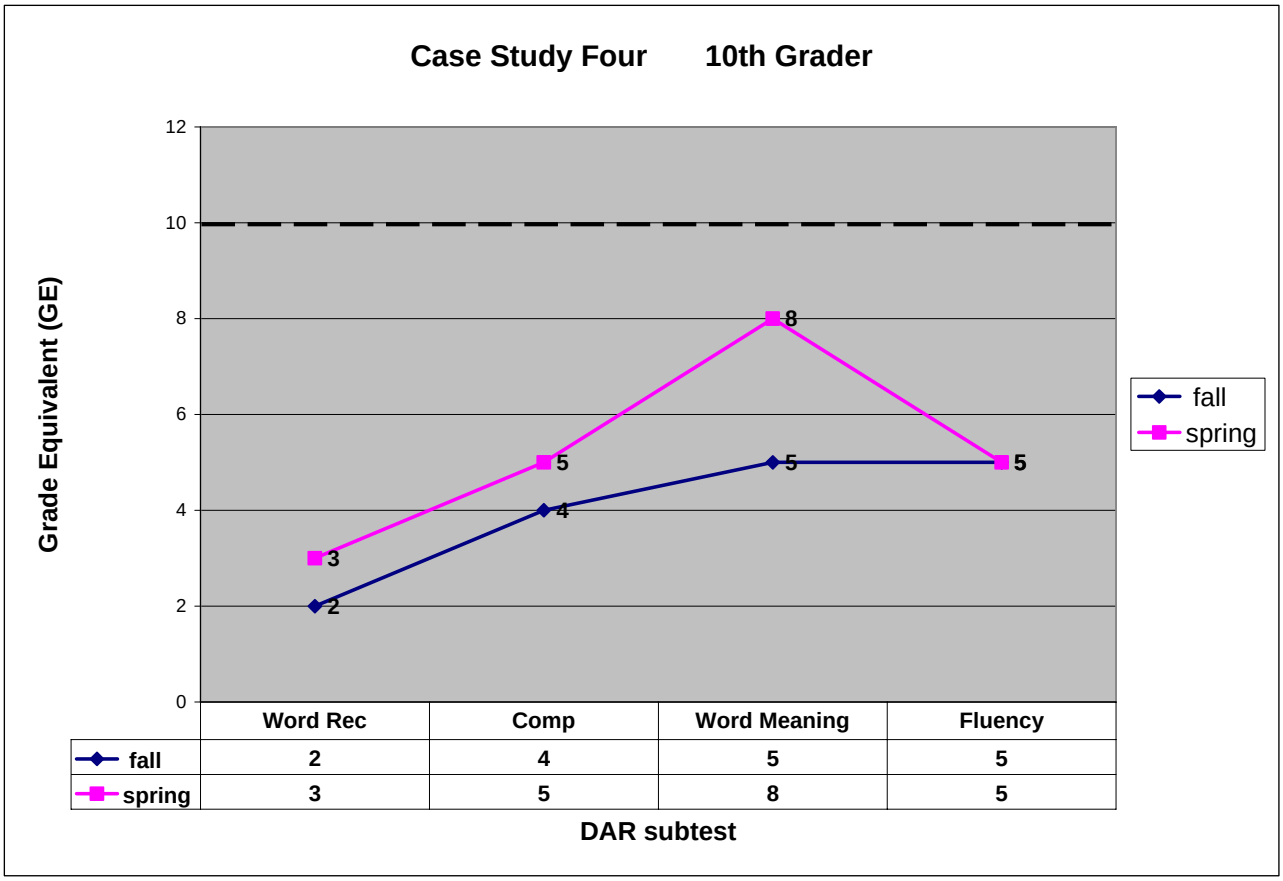


Case Study Three

This case study shows a ninth grade student whose GE scores were well below the student's current grade in each subtest in the fall. It also shows:

- The differences between this student's current grade and the GE scores are dramatic.
- The fall word meaning subtest GE was two, which is seven GEs below the current grade.
- In three subtests, this student's spring scores increased by at least 2 GEs; comprehension scores show an increase of three GEs.

DAR Case Study Three				
Current grade	Date of Birth	Special education status	Fall DSTP reading PL	DSTP accommodation(s)
9	April, 1991	yes	1	None reported



Case Study Four

The fourth case study shows a tenth grade student whose subtest scores were well below his/her current grade in the fall. The differences between this student's current grade (Grade 10) and the subtest GE scores are dramatic.

- In the fall, this student's word recognition GE score was two, which is eight GEs below his/her current grade; the comprehension GE score was four, which is six GEs below his/her current grade.
- In the spring, an increase is seen in all subtest GE scores except fluency.
- The word meaning subtest shows an increase of 3 GEs.

DAR Case Study # 4				
Current grade	Date of Birth	Special education status	Fall DSTP reading PL	DSTP accommodation(s)
10	Feb, 1990	yes	1	Providing verbal or signed assistance, using an auditory trainer, rereading directions for each subtest, reading or signing passages or tests for the reading test (or using cued speech or oral interpreter)

DAR/IMPACT Survey Protocol

A survey was administered to gain some insight into the context of the participants' classroom instruction. Additionally, the survey was used to explore the teachers' perceptions of the links between the training and changes in their instruction as well as changes between instruction and reading scores. The overall rate of return on the electronic survey was over 50%, with 23 out of 54 teachers returning the completed survey. These 23 respondents represented five districts within all three counties throughout the state. The 13-question survey protocol had nine yes/no items, two open-ended questions, two multiple choice, and one demographic that identified the teachers' school district. The two open-ended items were analyzed for trends and categorized by commonalities for reporting. Selected responses to the survey items are shown in the following tables. Complete survey results can be found in Appendix B.

Table 1. Survey responses to instructional influences.

Survey Question	Yes	No
2. Has your instruction changed based on your students' DAR scores?	83%	17%
12. Overall, did the IMPACT training influence your instruction with your DAR students?	96%	4%
13. Overall, for those students that improved, do you believe your instruction influenced growth in their reading achievement?	100%	0%

Question three directed respondents to name the most important change made in their instruction to the struggling readers (if they perceived a change in their instruction). Analysis of these responses revealed four main categories: targeted/individual instruction, word identification, explicit strategy instruction, and comprehension. The majority of responses involved targeted individual instruction. Several responses are highlighted here:

- "tailoring instruction to their needs in the 5 areas of reading"
- "I have been able to better differentiate my instruction better meeting the specific needs of individual students."
- "Finding the weak area in reading and working to make that area stronger."

Other responses focused on word identification. These include:

- "I placed a larger emphasis on prefixes and suffixes to figure out larger words and focused more on improving fluency when needed."
- "I had a student who showed a lack of knowledge of silent e rule and I was able to integrate instruction at opportune moments without using the whole classes time for the intervention."

And still other survey respondents included explicit strategy instruction as their most important change with comments such as:

- "I am really making an effort to use explicit teaching. I am giving the student more practice time with the strategy I introduced."

- "I did a lot of modeling of how I think about what I'm reading."

Table 2 describes the percentages within each category by the survey respondents when asked about the most important change to their instruction.

Table 2. Survey responses to most important change in instruction.

Category	Targeted Individual Instruction	Word ID	Explicit Strategy Instruction	Comprehension
Percent	40%	25%	20%	15%

Question four on the teacher survey, "To what do you attribute the change or stability in your students' test scores from fall to spring?" gave respondents four response choices: IMPACT training, targeted instruction, both IMPACT training and targeted instruction, or other. All 23 (100%) survey respondents chose both IMPACT training and targeted instruction as their response.

Responses to survey question five, "In retrospect, what would be the one most important change you would make based on your students' DAR scores?" show data that was categorized into four main areas: use of the DAR test scores to drive instruction, fluency, comprehension, and explicit instruction. Some examples of responses are shown below.

- "My student's DAR scores increased significantly on the silent comprehension and word meaning subtests. For the future I'd like to incorporate strategies that increase fluency to that level as well."
- "Test all students with DAR at the beginning and every quarter."
- "Showing the students how good readers do things. Modeling how to think and take notes and question while you're reading."

Question six asked teachers to select the most significant barrier to instruction that they noticed when instructing their students based on their DAR scores. Lack of time was clearly the most frequently chosen response. The responses to each item are shown in Table 4 below.

Table 4. Reported barriers to instruction.

Item	Lack of time	Class size	Lack of material	Other (unspecified)	Did not respond
Percent	56%	17%	13%	12%	<1%
Number of responses	13	4	3	2	1

Questions seven through 11 referred to the influence of each training module on instruction. Each question asked if they found [name of module] helpful in instructing their DAR students. Results show that the respondents perceived a very strong influence from each training module in their instruction, particularly for Vocabulary, in which 100% of the respondents perceived the training

to be helpful in their instruction. In four out of five modules, over 90% believed the training was helpful in instructing their DAR students. Results for these five questions are shown in Table 5 below.

Table 5. Influence of IMPACT training on instruction.

Module	Vocabulary	Word ID and Fluency	Comprehension	Assessment for Teaching and Learning	Motivation and Instructional Design
Yes	100%	96%	91%	92%	82%
No	0%	5%	4%	5%	17%
Did Not Attend	0%	0%	4 %	5 %	0%

Overall, the survey responses regarding teachers' perception of the influence of the IMPACT training on their instruction, and its influence of their instruction on their students' growth in reading achievement, are noteworthy. Teachers reported using IMPACT training and the DAR to help define students' reading needs and to pinpoint targeted instruction.

Discussion

DAR

Several factors should be taken into consideration when interpreting the results of this study. First, the DAR is intended to provide an in-depth analysis of a student's reading proficiency and to provide teachers with diagnostic information to plan individual or group reading instruction. It is to be used to assess students' relative strengths and weaknesses in key areas of student learning in reading. Although every student in this study was deemed not "Meeting the Standard" according to their DSTP reading PL, the students' fall DAR scores revealed that some GEs were above the current grade in certain subtests, and others were below current grade by as much as eight GEs.

Second, the students' current grade ranged from Grade 4 through Grade 12. These individual differences must be taken into account when interpreting the findings. For example, one GE increase in a student's subtest score who is one GE below current grade (moderately below grade level) should be interpreted differently than one GE increase in a student whose subtest score is three or more GEs below current grade (severely below grade level). These changes may not be equivalent. For these reasons, aggregate scores were not considered appropriate and were not reported.

And finally, the notion that as students advance in grade, their achievement gap becomes even greater is well documented. According to Torgesen, (1998), "The consequences of a slow start in reading become monumental as they accumulate exponentially over time" (p.32). Reading problems tend to worsen as children progress through school. Stanovich (1986) attributes this decline to what he calls the *Matthews effects*, based on Stanovich's observations that the gap between proficient and struggling readers widens over time (McKenna and Stahl, 2003). Findings such as these influence conclusions that can be made when interpreting performance.

DAR-IMPACT Training Survey Protocol

A survey was used to collect teachers' perceptions of various aspects of their classroom context, IMPACT training, and their student's DAR scores. Of the teachers who responded, their perception of the IMPACT training and the DAR were positive. Four out of the five training modules were perceived to be helpful to over 90% of the teachers in instructing their struggling readers. 100% of the respondents perceived the Vocabulary module to be helpful in instructing their struggling readers. Teachers listed lack of time as their biggest barrier and cited many of the strategies supported in the training, such as greater emphasis on instruction at the word level and explicit instruction, as most important. The survey responses regarding teachers' perception of the influence of the training on their instruction, and the influence of their instruction on their students' reading growth, are noteworthy. 86% reported that their instruction changed based on their students' DAR scores. 96% of the teachers perceived the IMPACT training influenced their instruction. Further, 100% reported the change or stability in their students' DAR scores from fall to spring was attributed to both their IMPACT training and targeted instruction.

Limitations

Limitations encountered which may have influenced the results are included below. Some IMPACT participants failed to:

- ❖ submit data.
- ❖ submit both fall and spring data.
- ❖ include all of the required data (e.g. no DSTP reading score, no grade of student).
- ❖ submit scores of students who were below standard according to their DSTP reading score.

Additionally, the following factors may also have affected the results of the study.

- ➢ Data reported in the aggregate would not be meaningful due to:
  - o the highly individual nature of struggling readers' difficulties
  - o the differences within subtest areas and among students' various DAR subtest scores in comparison to their current grade level
  - o the wide range of differences among students in Grades 4 through 12.
- ➢ Random selection was not considered due to the limited number of valid matched scores that were submitted.
- ➢ The use of multiple test administrators (i.e. IMPACT participants) to follow appropriate test protocol procedures could have affected the results.

Further, an important factor that must be taken into consideration when reporting DAR data is the use of grade equivalencies; the use of a test that compares students by grade equivalent, "an estimate of a grade level corresponding to a given student's raw score" (McKenna and Stahl, 2004, p. 25), is considered problematic by some. "Without question, the worst norm typically reported on group achievement tests is the grade-equivalent score" (p. 30). Although the DAR is not a group test, according to McKenna and Stahl, the use of grade equivalents appears to be even less desirable when viewed in the opinion of the International Reading Association (IRA), which in a 1980 Board of Directors position statement that is still in effect officially condemned the use of grade-equivalent scores (p.30). Traditional schools, however, divide students according to grade levels and most educators are quite familiar with the concept; the reason these types of norms continue to persist is because teachers demand them (2004).

Conclusions

In order for an individual student's reading achievement to increase, teachers need to have a clear picture of student's reading abilities as well as the content knowledge to apply their instruction to address their students' area(s) of need(s). This study suggests that both of these aspects are being addressed through the IMPACT training. The teachers' survey responses indicated 96% of the teachers perceived IMPACT training influenced their instruction. Teachers reported using IMPACT training and the DAR to help define students' reading needs and to pinpoint targeted instruction. The DAR is intended to provide an in-depth analysis of a student's reading proficiency and to provide teachers with diagnostic information to plan individual or group reading instruction. It is used to assess students' relative strengths and weaknesses in key areas of student learning in reading. IMPACT training and the use of the DAR appear to have focused attention to the important aspects and processes involved in the teaching and assessment of reading. IMPACT training and the use of the DAR also appear to have encouraged teachers to implement more purposeful instruction designed to target students' needs.

Implications

The trend of teachers of struggling readers in Grades 4 through 12 to recognize and assess their students' reading as a series of inter-related processes that include word recognition, word meaning, comprehension, and fluency, and to target instruction to each of these areas, is critical. Reading instruction at the secondary level has not always been emphasized. This study suggests that after IMPACT training, teachers implemented changes in their reading instruction. Survey respondents believed that their instruction influenced student achievement as measured on the DAR. Not only did the teachers report that their instruction influenced their students' reading achievement, they also reported they believed they could do more to help their struggling readers. These findings suggest that teachers perceived a thread among the IMPACT training, targeted instruction, and an increase in students' reading achievement. These findings have implications for decisions regarding continued and expanded professional development for teachers of struggling readers in Grades 4-12.

Recommendations

- Educate more teachers to view reading in terms of the various processes of word recognition, word meaning, fluency, and comprehension, and to use assessments in each area to target reading instruction.
- Increase teacher professional development that emphasizes individual instruction for struggling readers based on reading assessment(s) that measure the critical areas of reading.
- Investigate successful professional development programs for teachers of secondary struggling readers.

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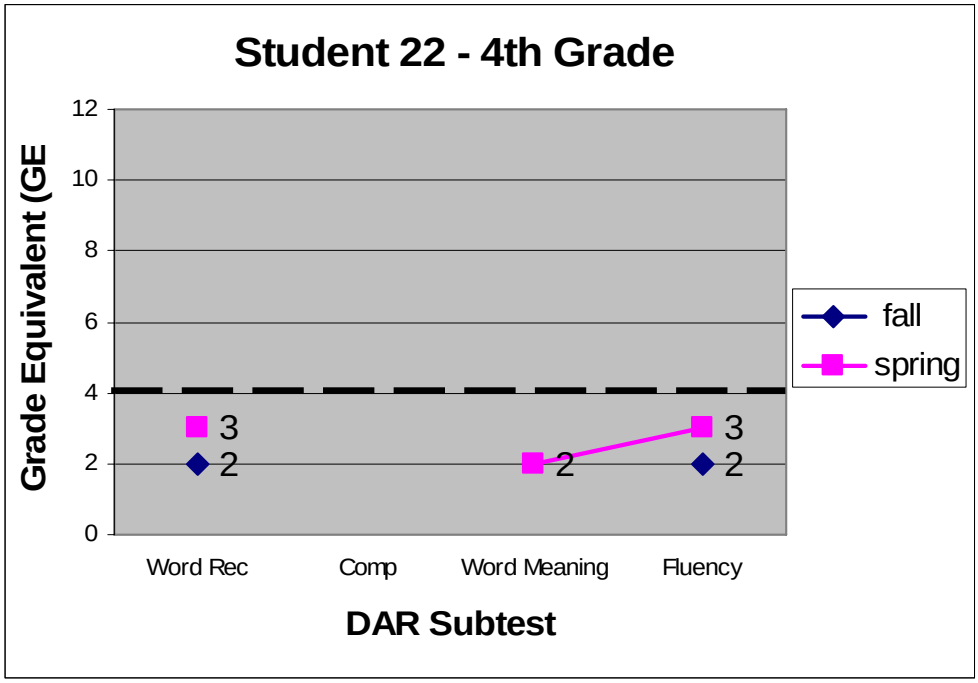
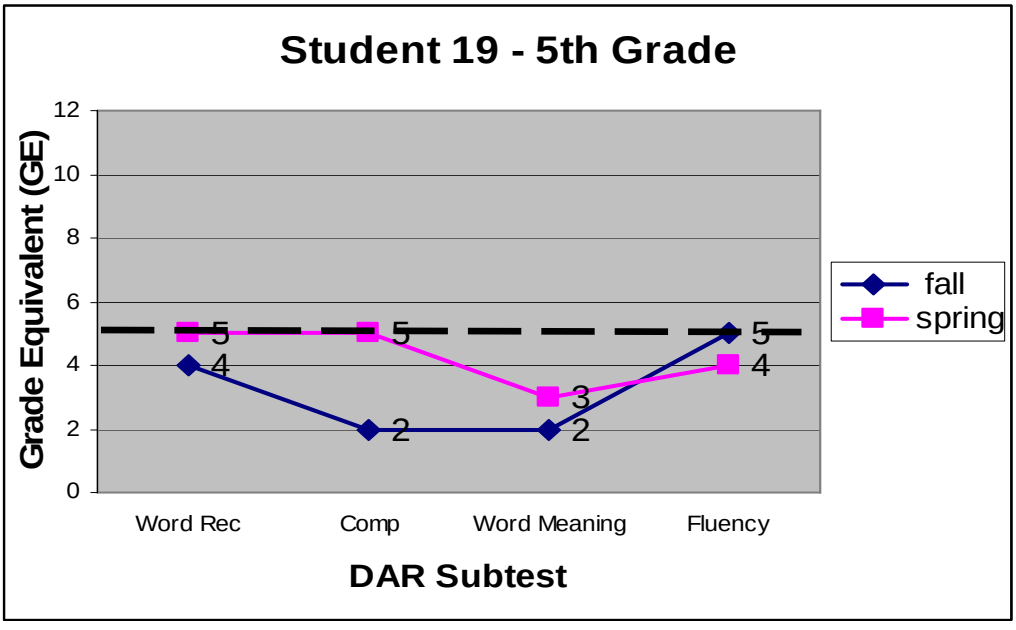
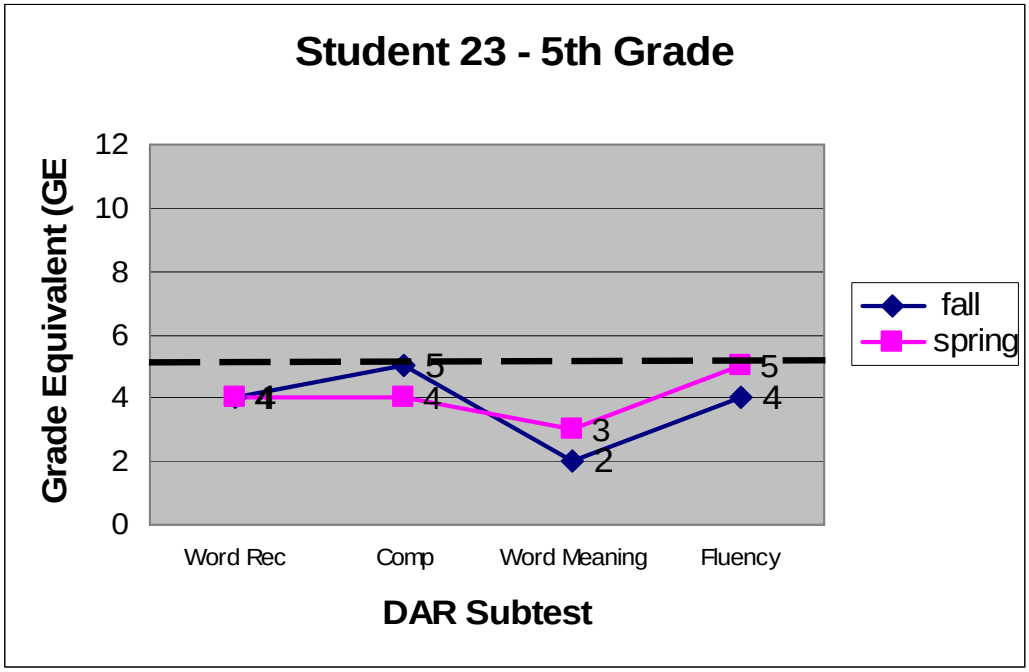
Appendix A: Individual student results on the DAR



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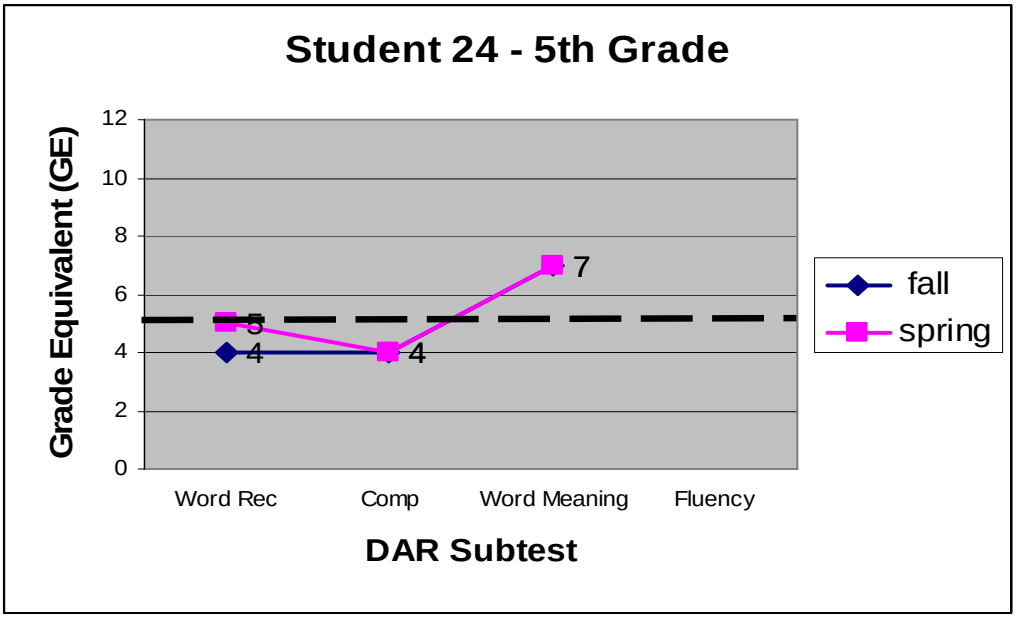
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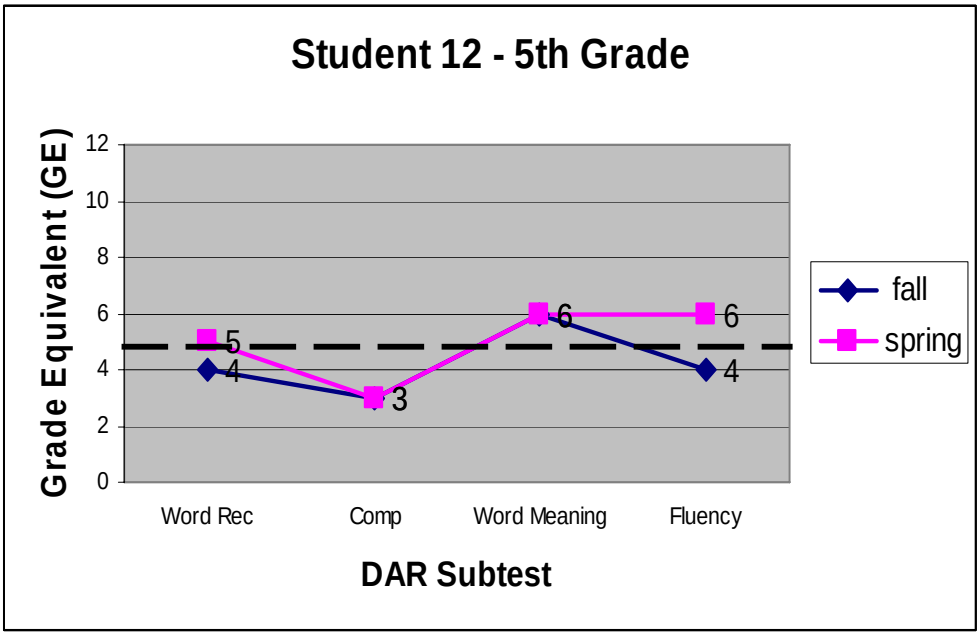
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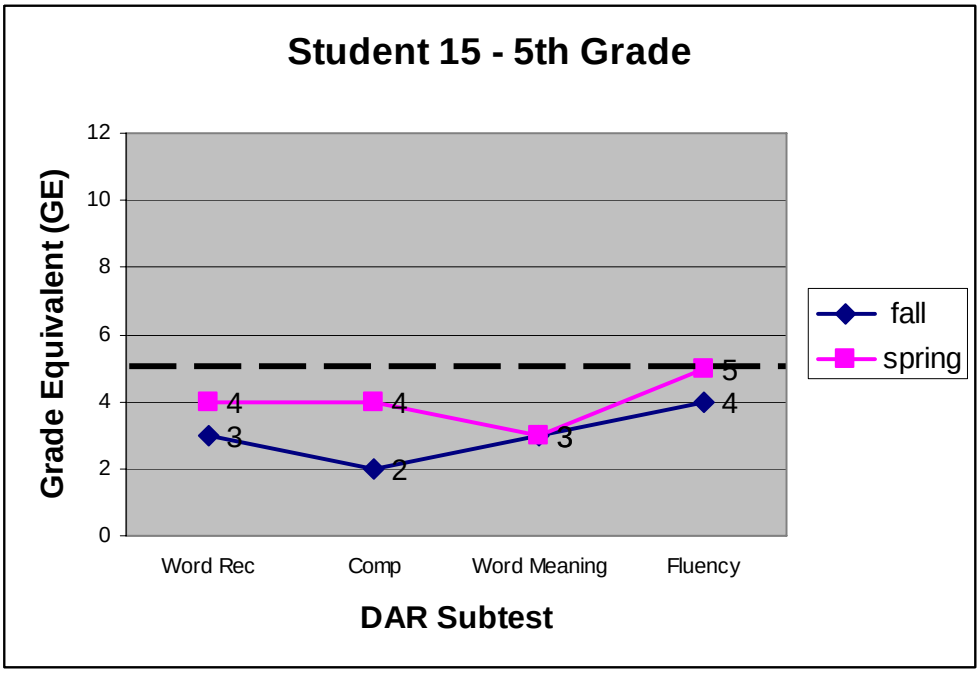
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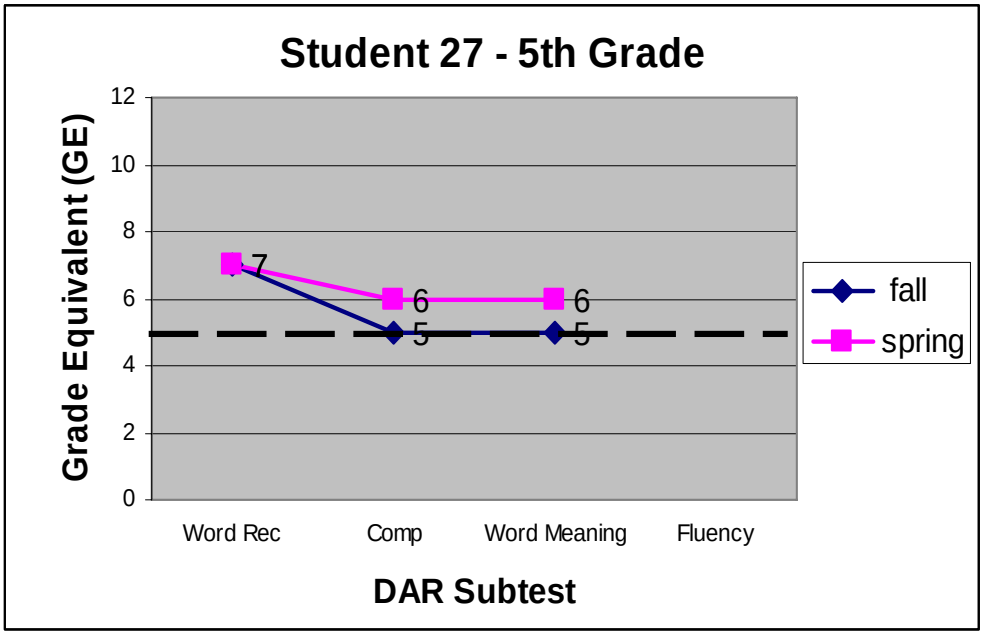
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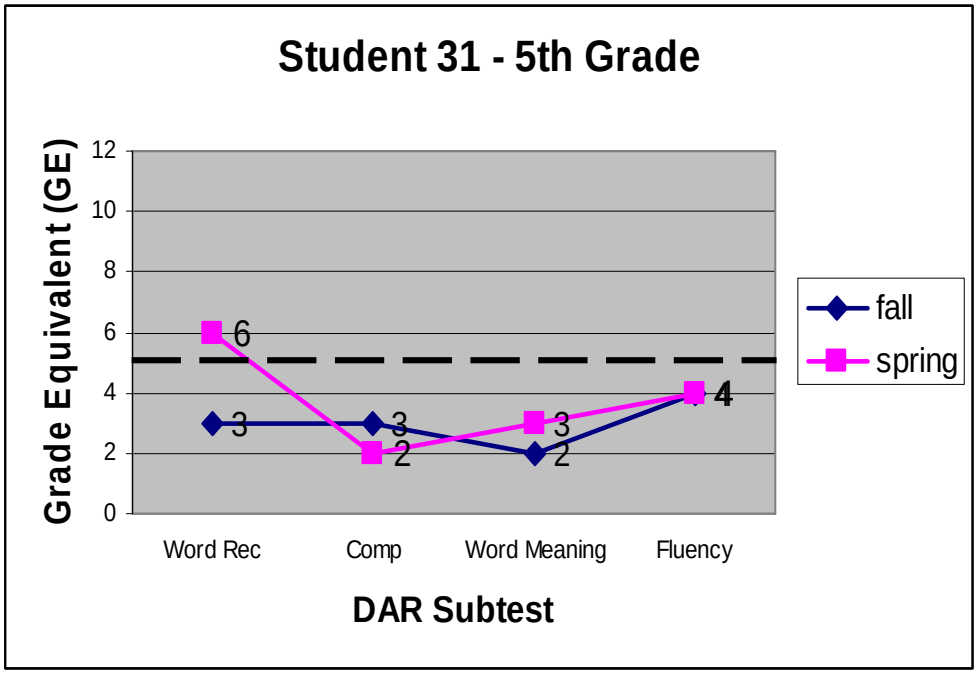
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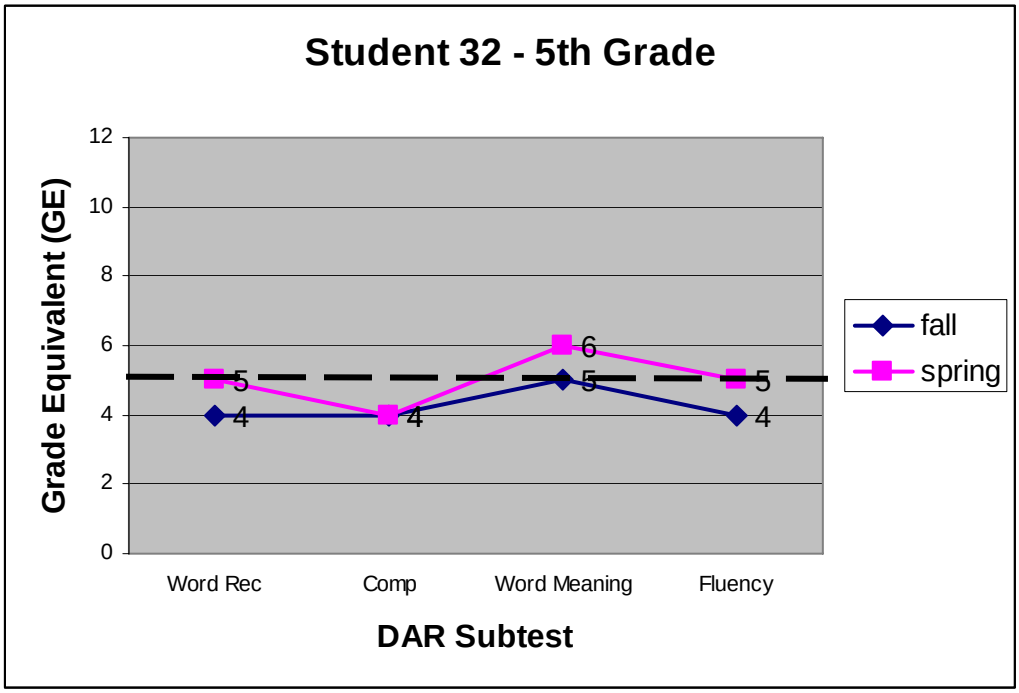
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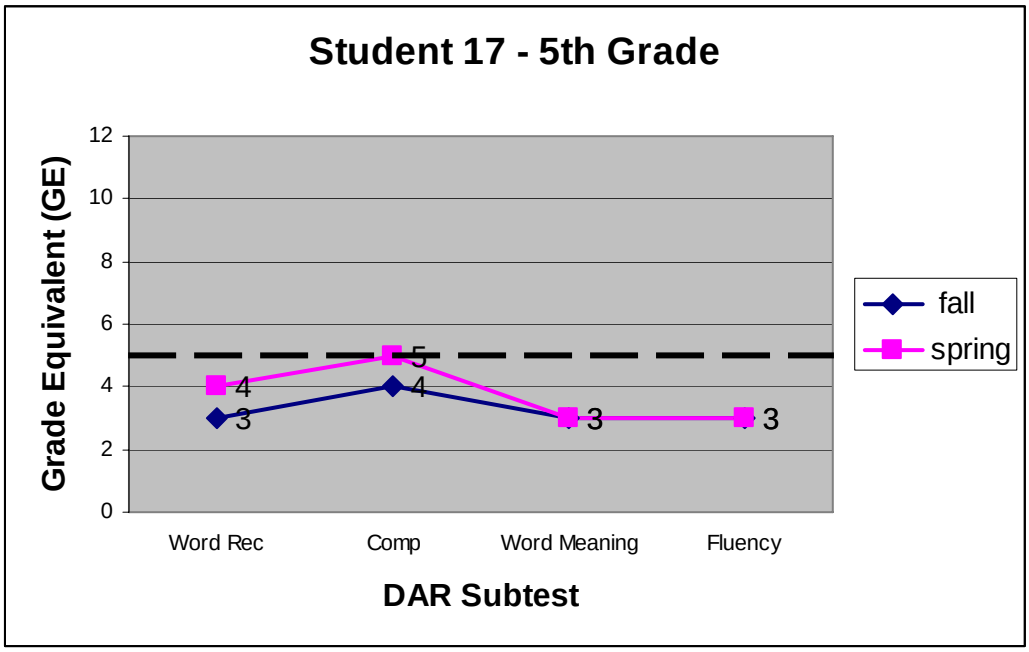
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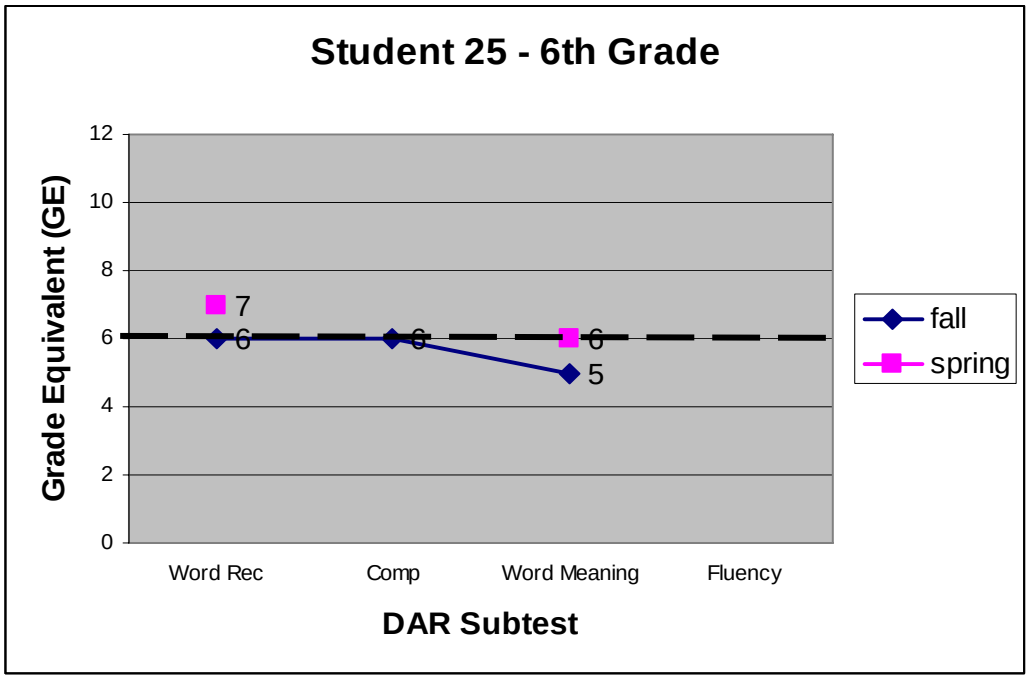
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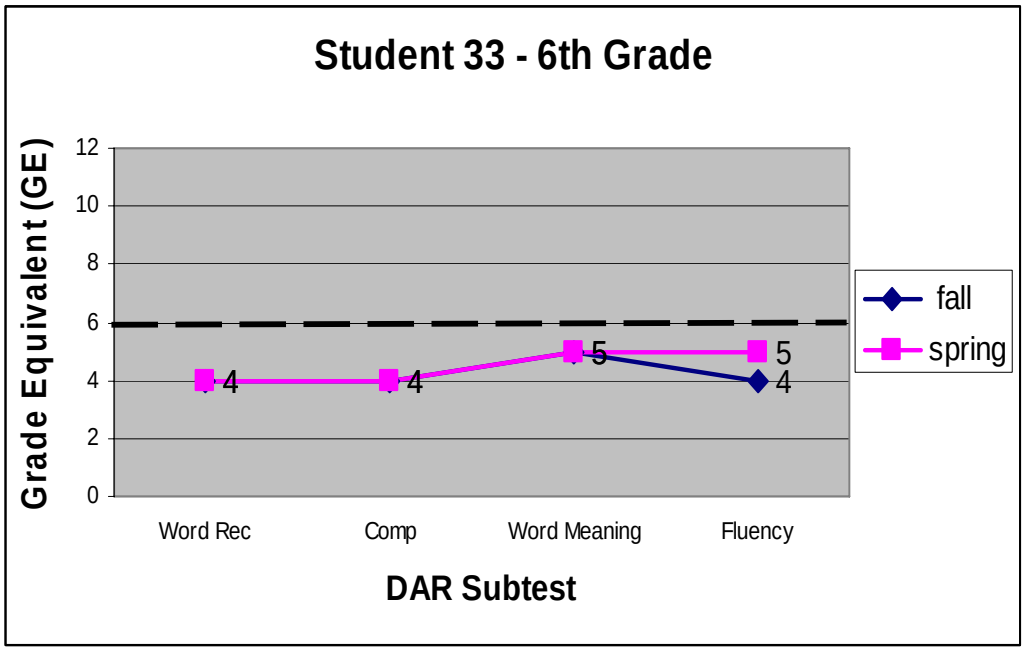
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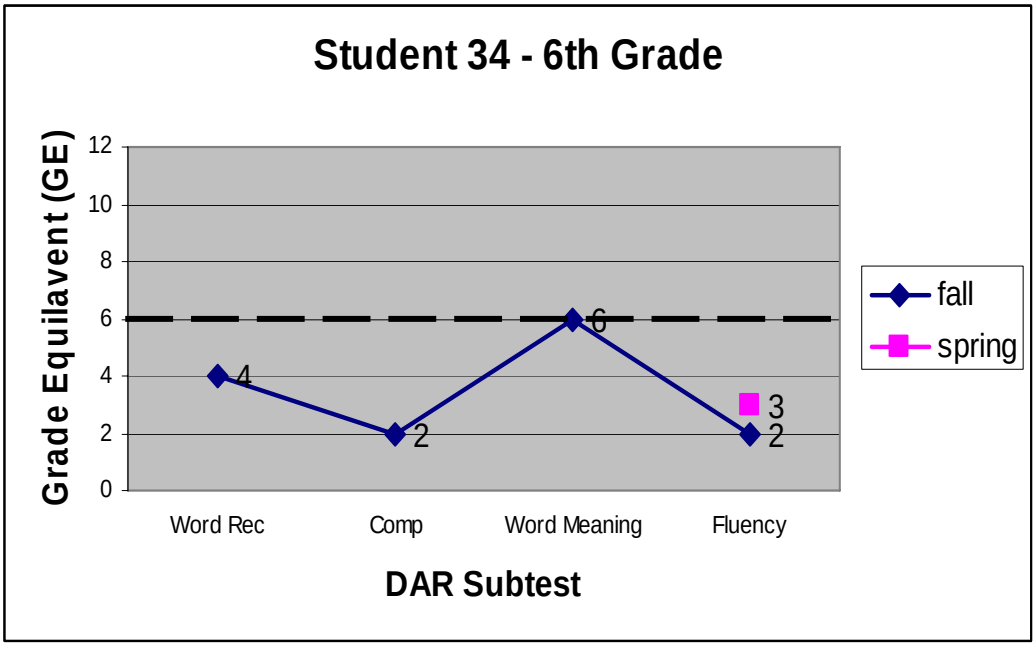
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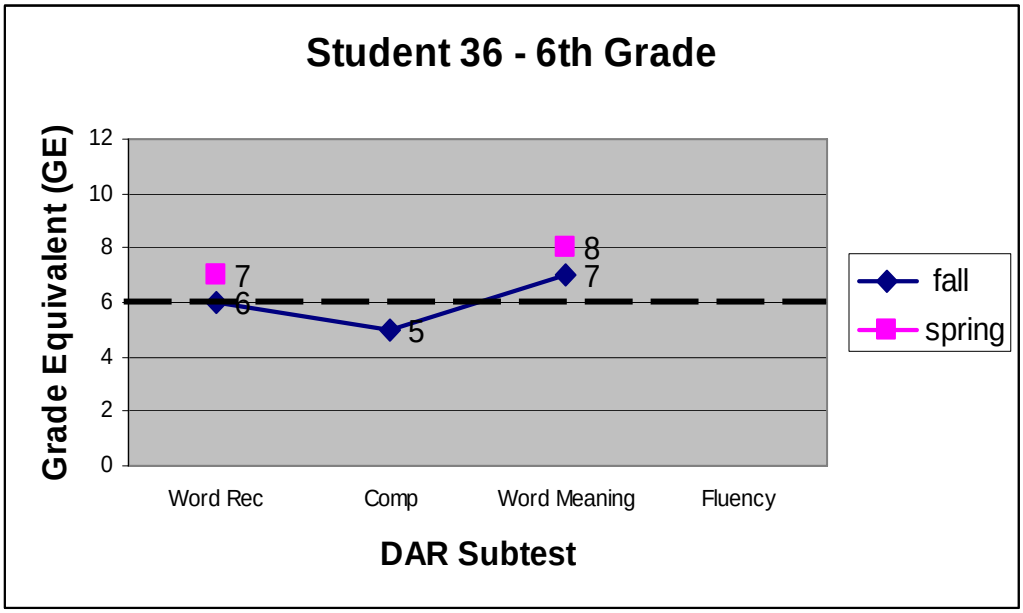
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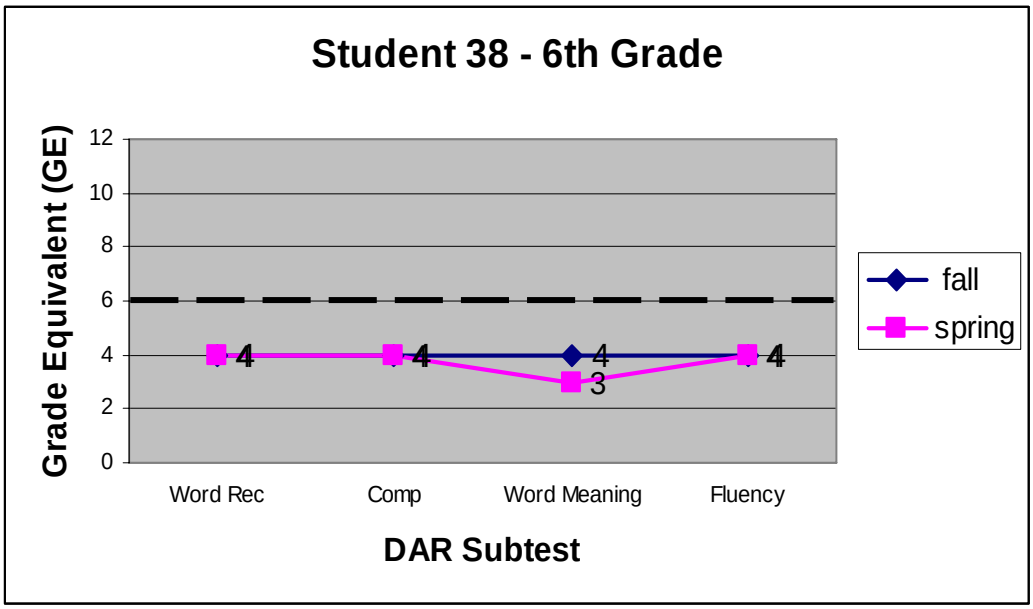
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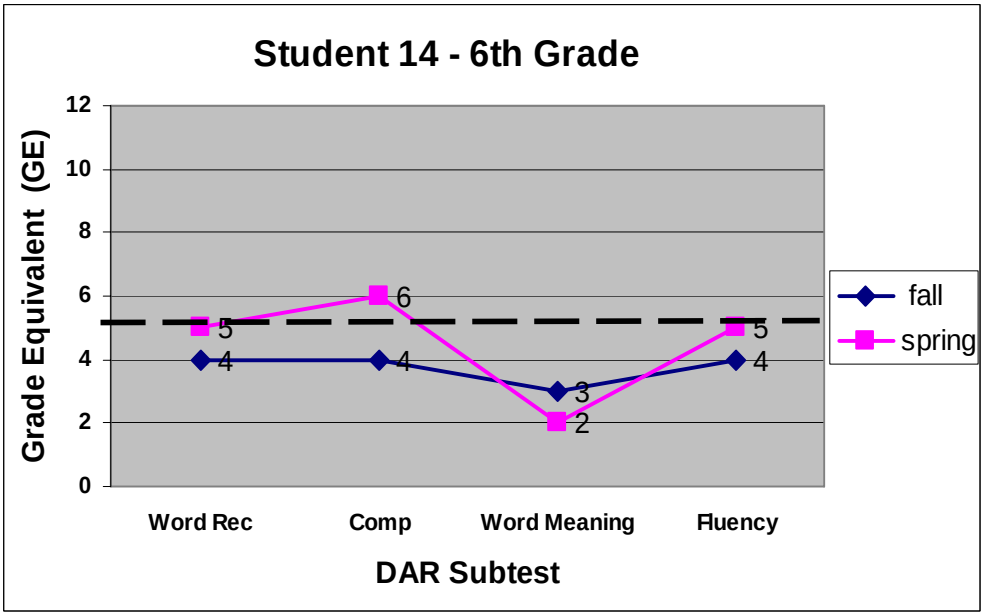
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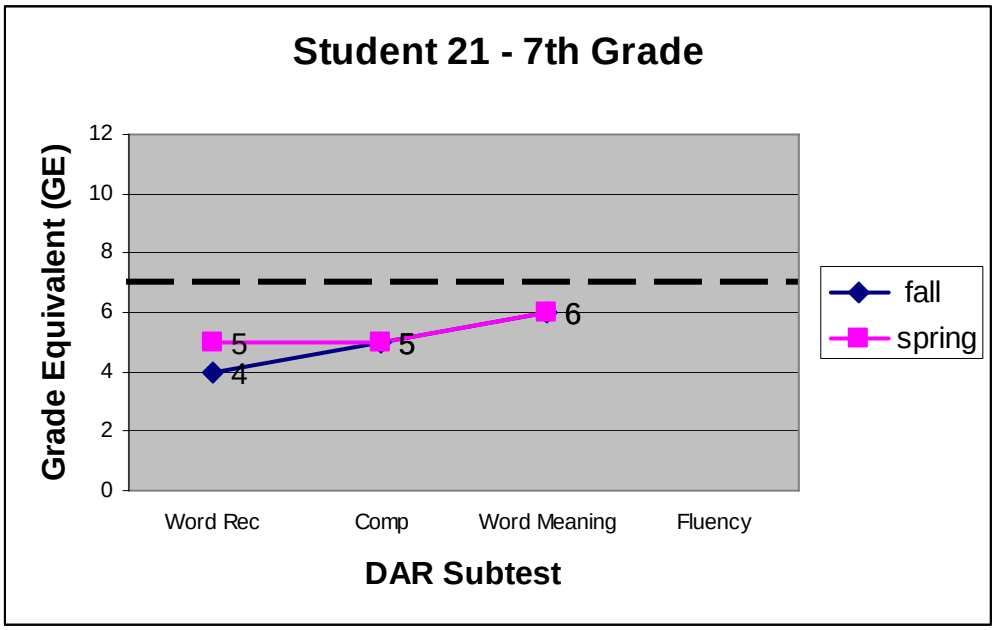
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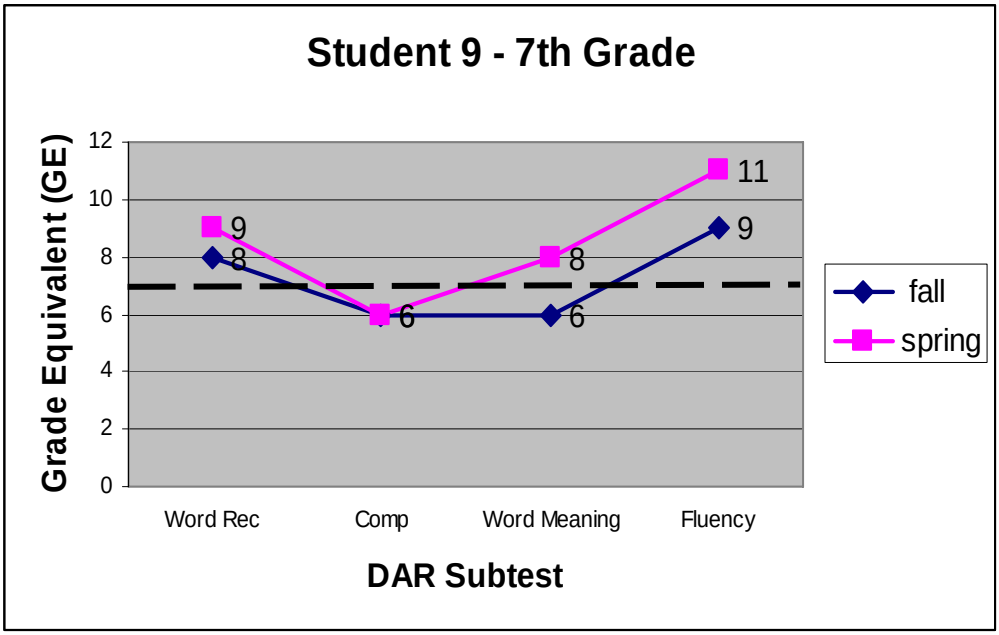
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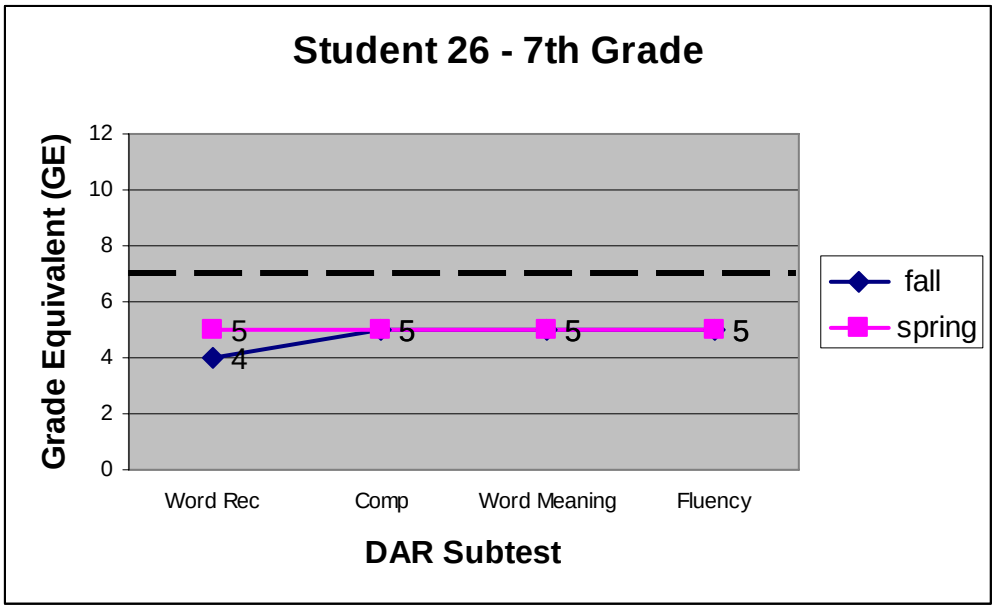
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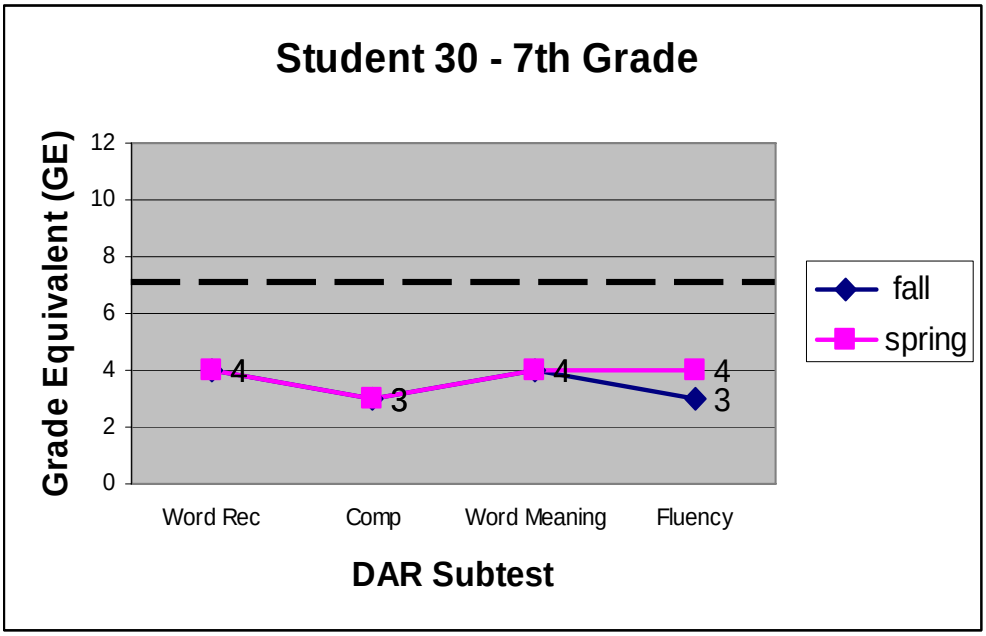
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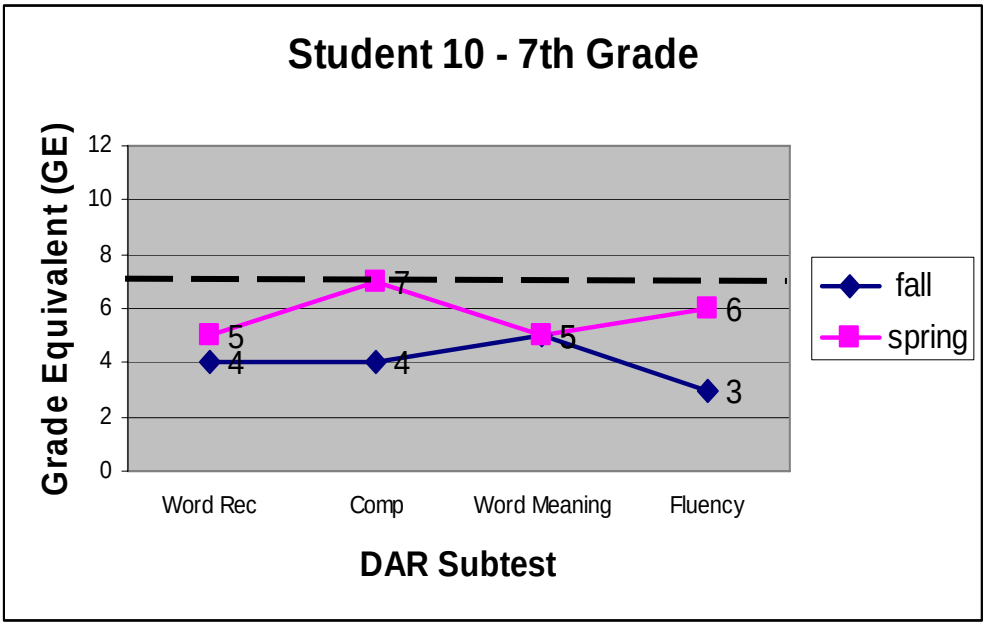
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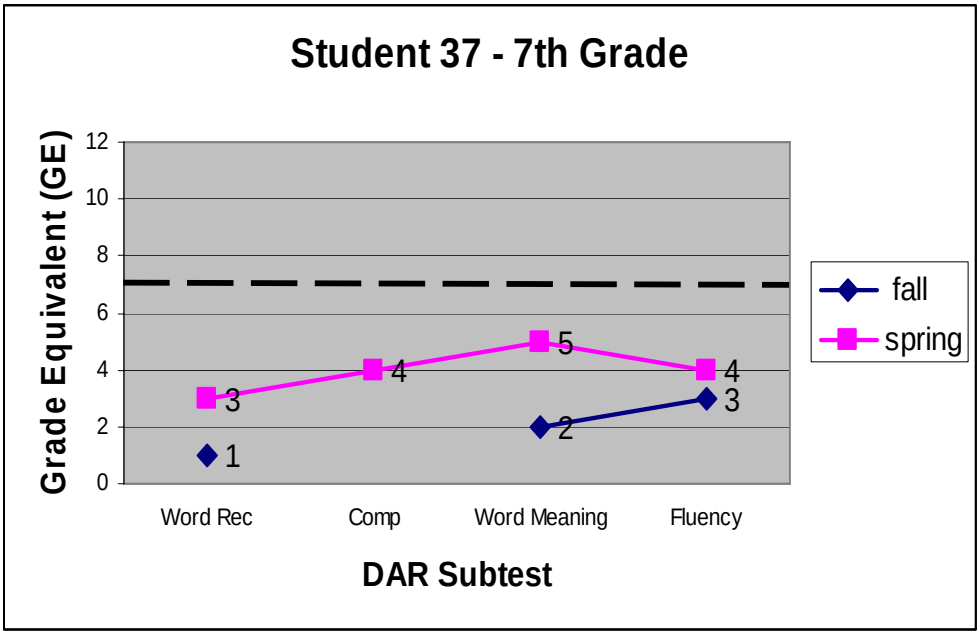
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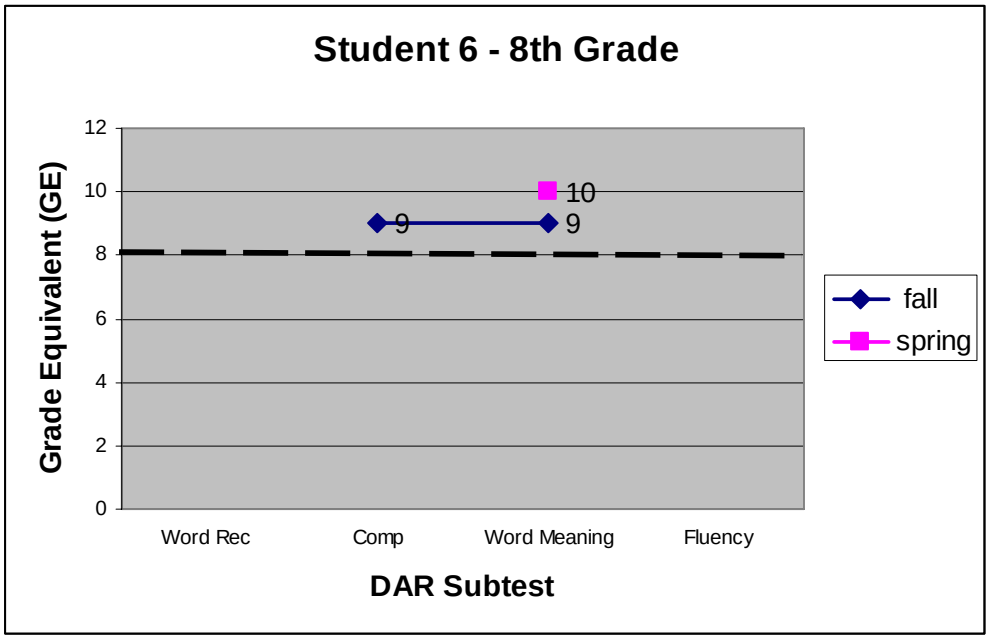
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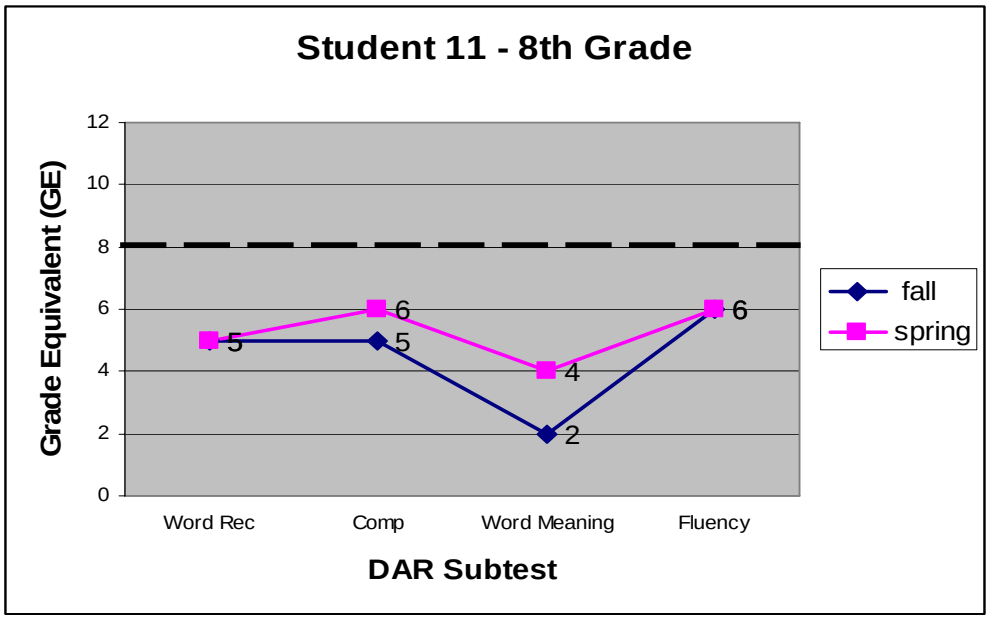
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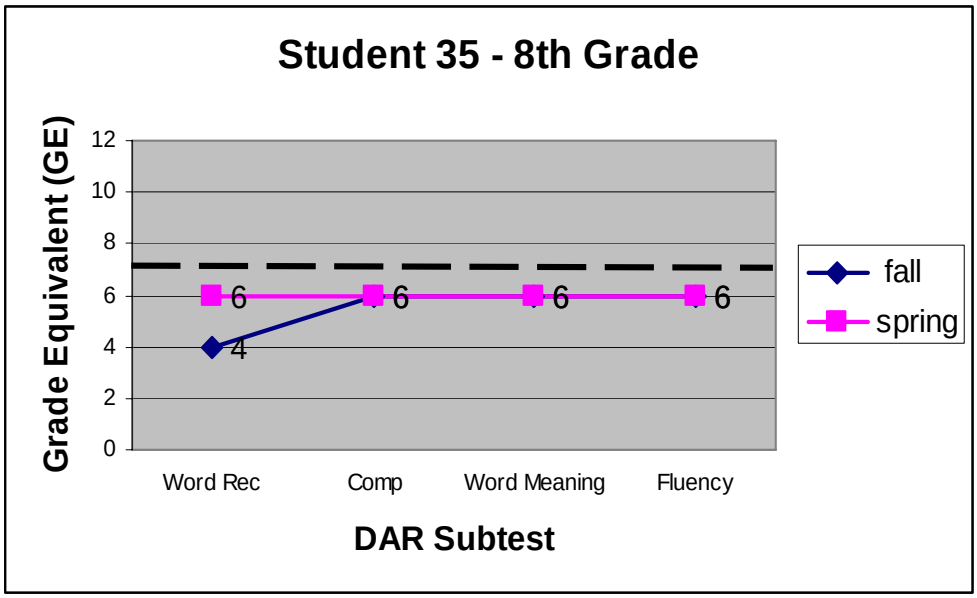
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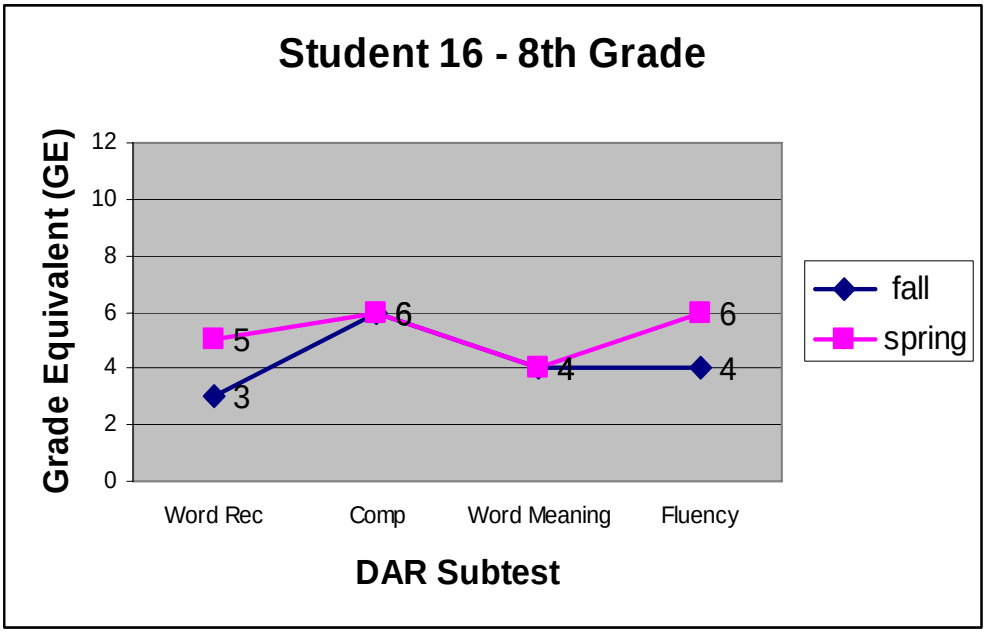
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Grade Equivalent (GE)
12
10
8
6
4
2
0
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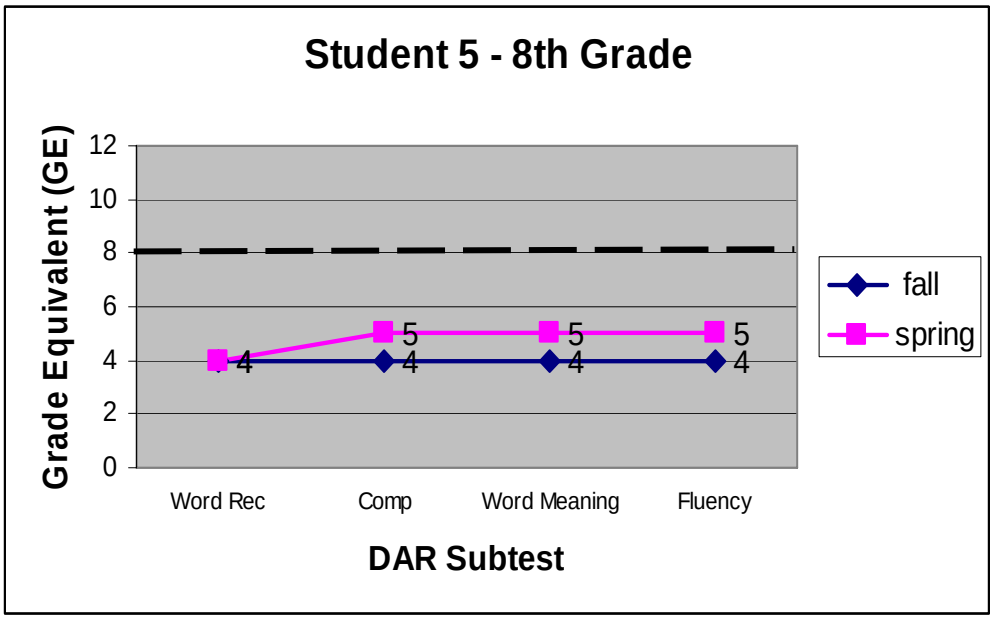
6
3
4
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring


Student 5 - 8th Grade
Grade Equivalent (GE)
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10
8
6
4
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4
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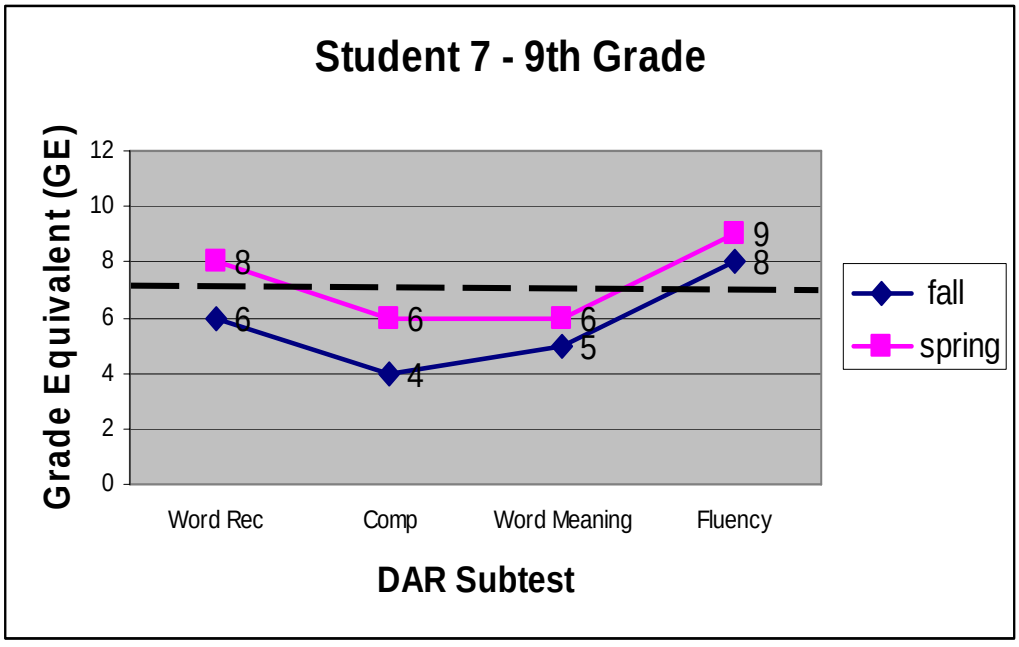
4
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring


Student 7 - 9th Grade
Grade Equivalent (GE)
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10
8
6
4
2
0
8
6
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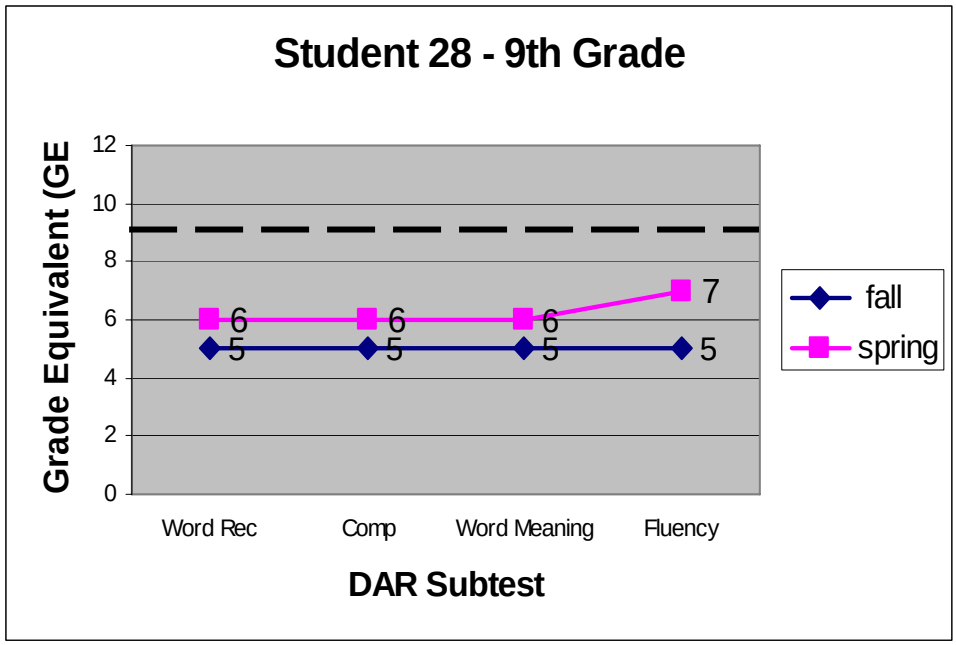
4
5
9
8
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring


Student 28 - 9th Grade
Grade Equivalent (GE
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10
8
6
4
2
0
6
6
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7
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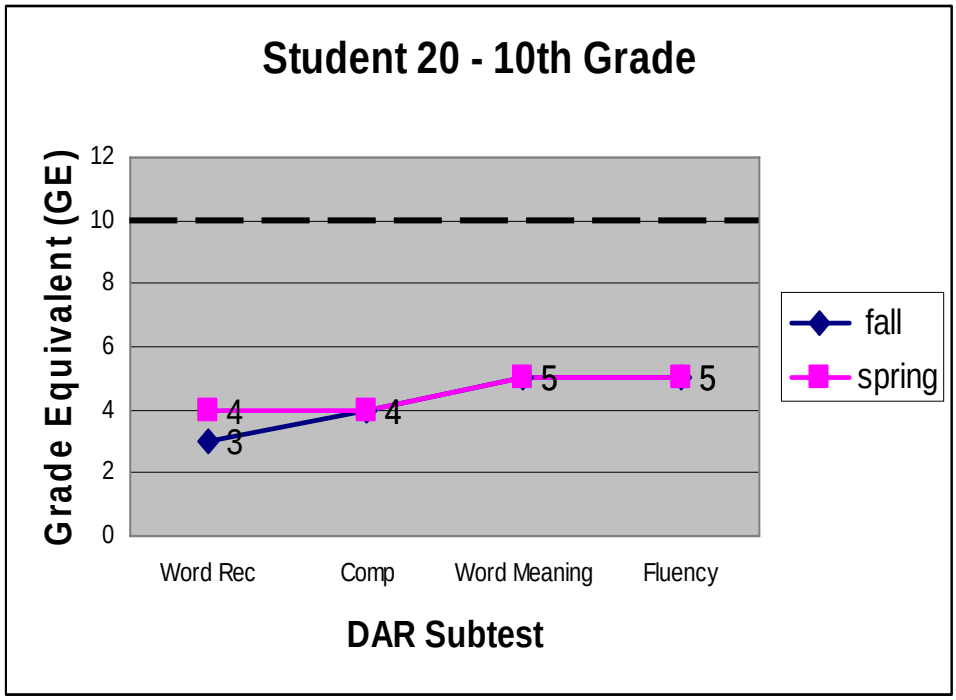
5
5
5
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring


Student 20 - 10th Grade
Grade Equivalent (GE)
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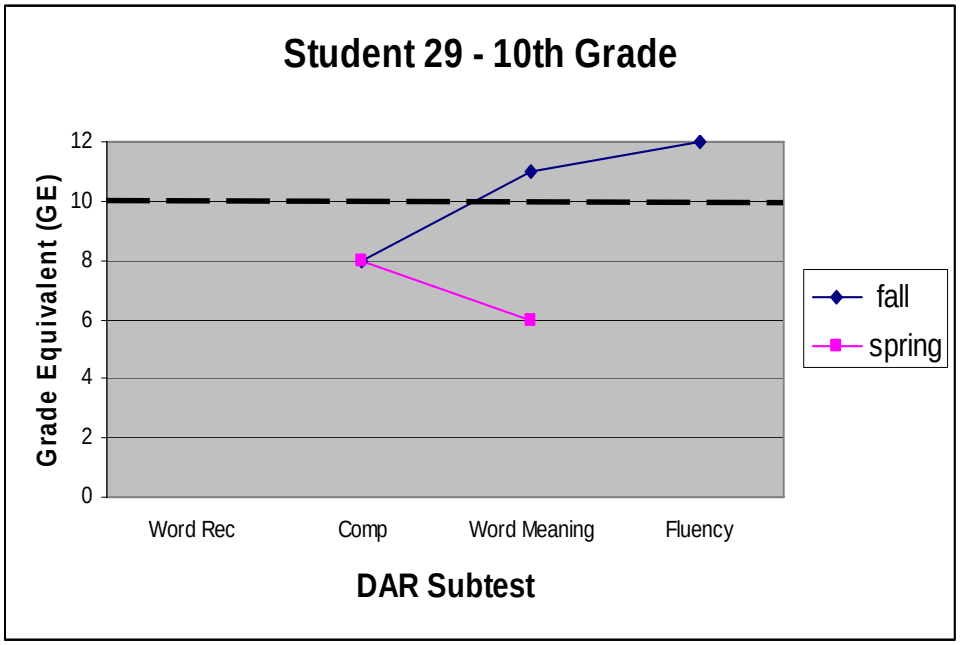
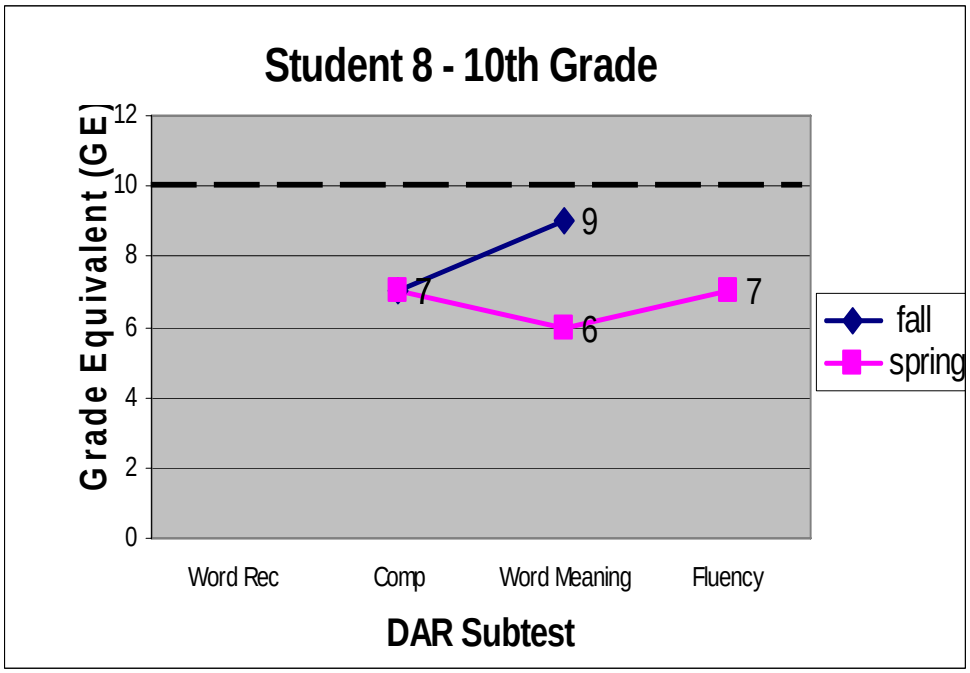
2
0
4
4
5
5
3
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring


Student 29 - 10th Grade
Grade Equivalent (GE)
12
10
8
6
4
2
0
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring


Student 8 - 10th Grade
Grade Equivalent (GE)
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2
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9
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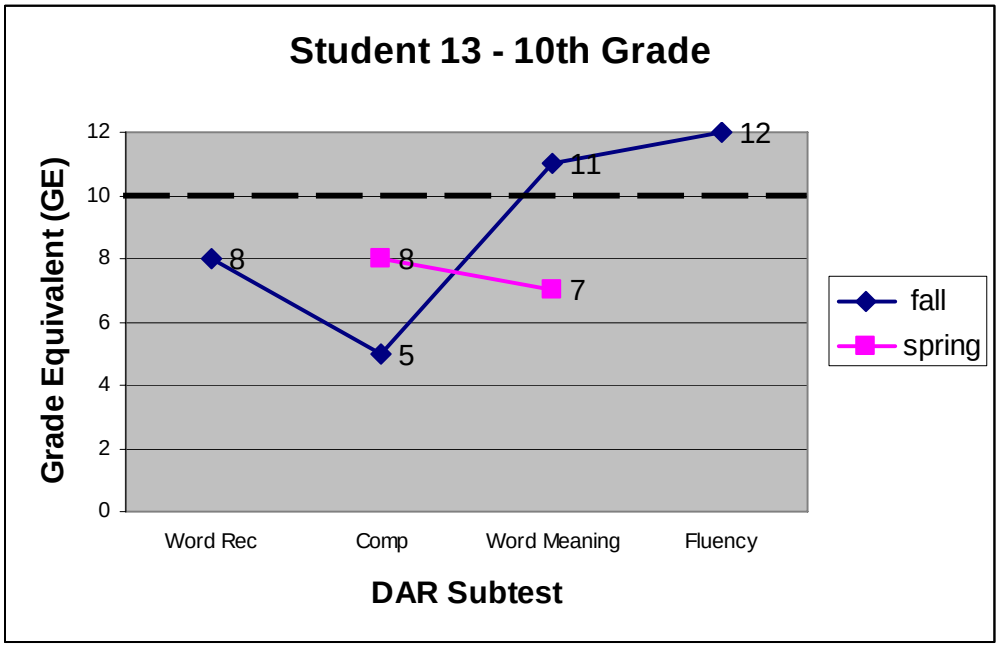
7
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring


Student 13 - 10th Grade
Grade Equivalent (GE)
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10
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4
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0
8
8
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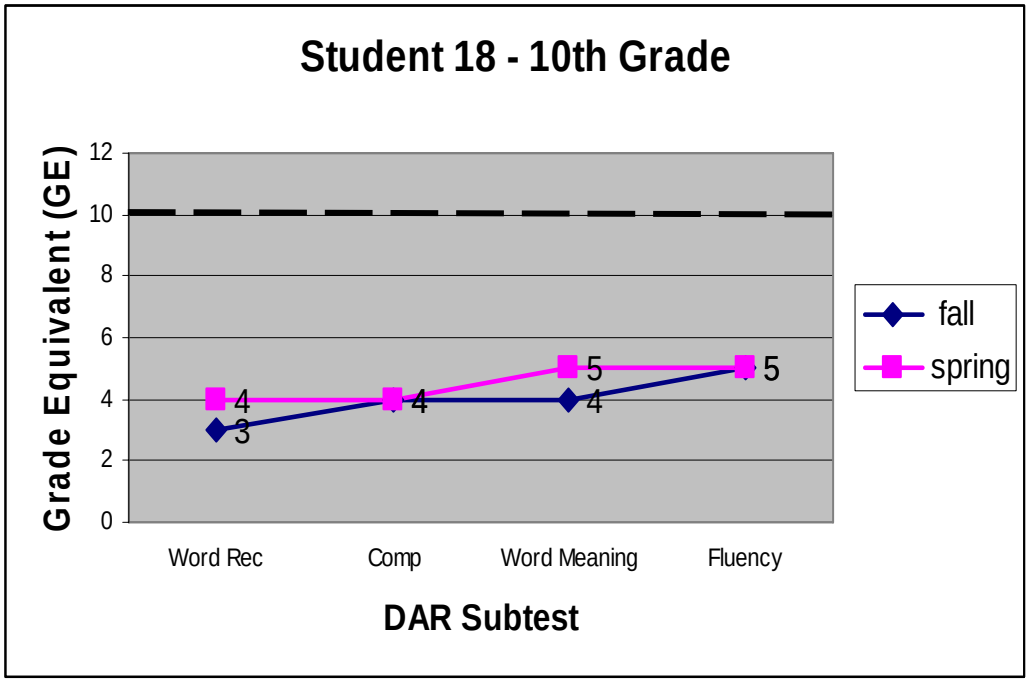
5
11
12
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring


Student 18 - 10th Grade
Grade Equivalent (GE)
12
10
8
6
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4
Word Rec
Comp
Word Meaning
Fluency
DAR Subtest
fall
spring

Appendix B: DAR-IMPACT Survey Protocol and Results

1. District:	
Total Respondents	**23**
(skipped this question)	**0**

2. Has your instruction changed based on your students' DAR scores?

		Response Percent	Response Total
Yes		**82.6%**	**19**
No		17.4%	4
	Total Respondents		**23**
	(skipped this question)		**0**

3. If yes, name the most important change you have made in your instruction to the struggling readers.

1. “Finding the weak area in reading and working to make that area stronger.”
2. “Integrating significant "mini-lessons" into reading workshops to target known weaknesses. For example, I had a student who showed a lack of knowledge of silent e rule and I was able to integrate instruction at opportune moments without using the whole classes time for the intervention.”
3. “Phonics instruction”
4. “Extra homework assignments. Tutoring programs. Work one on one with struggling students.”
5. “tailoring instruction to their needs in the 5 areas of reading.”
6. “Trying different strategies that I have not used before”
7. “This year I began using the Fast Track Comprehension series which included many of the comprehension strategies that were presented in my SSSR and Impact modules. The series had reading units that were engaging to my students. Also, I have been able to incorporate phonetic awareness strategies into each unit.”
8. “more focus on word analysis”
9. “The most important change is to add more explicit teaching.”
10. “Reading aloud to them, instructing in specific elements that authors use, and having students read actively daily.”
11. “Spending more time on fluency practice and allowing students to practice reading with others in the class.”
12. “I have spent more time discussing the story using KWL charts and note-taking and summarizing.”
13. “instruction based on individual needs”
14. “I am really making an effort to use explicit teaching. I'm giving the students more practice time with the strategy that I introduce. I am having the students pair-share and work in groups more.”
15. “Students were assigned to tutoring groups.”
16. “I did a lot of modeling of how I think about what I'm reading. I tried to make my vocabulary instruction meaningful, not just giving them a list of words. I taught them intensive phonics for the vowel sounds they were lacking. I did more before, during and after reading activities.”
17. “I've implemented some strategies from the impact training.”
18. “I have been able to better differentiate my instruction, better meeting the specific needs of individual students.”
19. “the use of word walls and vocabulary instruction during activating activities”
20. “I placed a larger emphasis on prefixes and suffixes to figure out larger words and focused more on improving students’ fluency when needed.”

Total Respondents	**20**
(skipped this question)	**3**

4. To what do you attribute the change or stability in your students' test scores from fall to spring?			
		Response Percent	**Response Total**
IMPACT training		0%	0
targeted instruction		0%	0
both IMPACT training and targeted instruction		**100**%	**23**
other		0%	0
		Total Respondents	**23**
		(skipped this question)	**0**

5. In retrospect, what would be the one, most important instructional change you would make based on your students' DAR scores?

1. “Allowing for more reading and giving them time to discuss the reading either with a peer or small group. My student's results showed they could read better then they could understand.”
2. “The most important instructional change based upon the DAR scores results would be the attention given to comprehension.”
3. “More fluency practice.”
4. “Test all students with DAR at beginning and every quarter and make reading THE priority.”
5. “small groups within the classroom. Have students help each other more. More like peer tutoring.”
6. “Comprehension after reading, to make sure that the students are actually understanding the text.”
7. “None, The students who are interested in learning have proved their reading ability substantially. This is evident by the gains made on their NWEA tests as well as the improvement they've made overall in their regular ed TAM classes over the past year. 8. continue pre and post testing so I can see what works and prove there is growth”
9. “more learn center teaching”
10. “provide time daily for students to practice the skills they have while reading aloud”
11. “I would spend additional time on fluency, but my students' major barrier to reading achievement is inferential comprehension.”
12. “Nothing, I have tried many different strategies to help my students who scored 1's and 2's.”
13. “vocabulary instruction”
14. “My students made the greatest gain in fluency. I like the idea of having them practice their reading orally. They had to learn the material while they were reading it. I think they gained confidence as they went along too.”
15. “These students who score low on the DAR test to receive some type of extra instruction. Only one of the students received title one services due to the other receiving math title one.”
16. “Showing the students how good readers do things. Modeling how to think and take notes and question while you're reading.”
17. “More one on one instruction on various reading skills”.
18. “Increased vocabulary instruction and word work. Also better practice to help increase fluency.”
19. “My students DAR scores increased significantly on the silent comprehension and word meaning subtests. For the future I'd like to incorporate strategies that increase fluency to that level as well. (Remember I am a math teacher! Smile)”
20. “Providing more individualized instruction or instructional plans for students”

Total Respondents	**20**
(skipped this question)	**3**

6. Please select the most significant barrier to instruction you noticed when instructing your students based on their DAR scores.

		Response Percent	Response Total
lack of materials		13.6%	3
lack of time		**59.1%**	**13**
lack of administrative support		4.5%	1
class size		31.8%	7
other		18.2%	4
	Total Respondents		**22**
	(skipped this question)		**1**

7. Did you find the Assessment for Teaching and Learning IMPACT Module helpful in instructing your DAR students?

		Response Percent	Response Total
Yes		**90.9%**	**20**
No		4.5%	1
Did not attend		4.5%	1
	Total Respondents		**22**
	(skipped this question)		**1**

8. Did you find the Word ID and Fluency IMPACT Module helpful in instructing your DAR students?

		Response Percent	Response Total
Yes		**95.5%**	**21**
No		4.5%	1
Did not attend		0%	0
	Total Respondents		**22**
	(skipped this question)		**1**

9. Did you find the Vocabulary IMPACT Module helpful in instructing your DAR students?			
		Response Percent	**Response Total**
Yes		**100%**	**22**
No		0%	0
Did not attend		0%	0
	Total Respondents		**22**
	(skipped this question)		**1**

10. Did you find the Comprehension IMPACT Module helpful in instructing your DAR students?			
		Response Percent	**Response Total**
Yes		**91.3%**	**21**
No		4.3%	1
Did not attend		4.3%	1
	Total Respondents		**23**
	(skipped this question)		**0**

11. Did you find the Motivation and Instructional Management IMPACT Module helpful in instructing your DAR students?			
		Response Percent	**Response Total**
Yes		**82.6%**	**19**
No		17.4%	4
Did not attend		0%	0
	Total Respondents		**23**
	(skipped this question)		**0**

12. Overall, did the IMPACT training influence your instruction with your DAR students?			
		Response Percent	**Response Total**
Yes		**95.7%**	**22**
No		4.3%	1
	Total Respondents		**23**
	(skipped this question)		**0**

13. Overall, for those DAR students that improved, do you believe your instruction influenced growth in their reading achievement?			
		Response Percent	**Response Total**
Yes		**100%**	**22**
No		0%	0
	Total Respondents		**22**
	(skipped this question)		**1**