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Improving Comprehension for Students with Learning Disabilities Using
The Comprehension Improvement Strategy

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Creative Project

Utah State University

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Abstract

Students with learning disabilities generally have a difficult time meeting all of the course deadlines and gaining necessary skills in each of their rigorous high school courses. There are students who have difficulty showing what they learn and completing all the requirements for each class. For many years, there have been teachers that have looked for the best ways to instruct students and give them the tools they need to find success. There have been some strategies that have worked through the years and proved to be a great benefit for the students. There are other strategies that must be revamped and updated to fit the diverse needs of the 21st century learner. In order for students to be successful, one must ask if the learning strategy is effective for students and the teacher and whether the strategy can be implemented by students in practical situations. The main goal of this creative project was to determine if the implementation of the Comprehension Improvement Strategy in a reading prompt would improve students' reading comprehension. To answer this question, data were collected for the number of accurate synonyms generated and the number of correctly answered comprehension questions answered. When synonyms were used within a reading prompt, the objective was for students to begin to put information together and enhance comprehension. However, the data suggest that this was not always the case for all students- while use of synonyms increased for some students, the number of correctly answered comprehension questions did not.

Improving Comprehension for Students with Learning Disabilities:

The Comprehension Improvement Strategy

Literature Review

The importance of vocabulary to school success, in general, and reading comprehension, in particular, is widely documented (Anderson & Nagy, 1991; Baker, Simmons, & Kame'enui, 1998; Becker, 1977; Cunningham & Stanovich, 1998). Vocabulary use in all classrooms can produce rich opportunities for learning to take place, but there are other tools that must accompany the vocabulary and word use. Vocabulary and word knowledge can also contribute to improved comprehension, and it provides a sound rationale for increased emphasis on vocabulary instruction (Snow, 2002). This is a main goal for learning: students need to understand and comprehend what is being asked of them.

Vocabulary is one of five key areas of reading instruction for adolescent readers (Roberts, Torgeson, Boardman, Scammacca, 2008). According to research, academic vocabulary knowledge affects adolescents' access to subject-area content and predicts their overall academic achievement (Townsend, Filippini, Collins, Biancarosa, 2012). In addition to this, researchers have documented a strong relationship between students' vocabulary knowledge and reading comprehension over time (Cunningham & Stanovich, 1998). Despite the important role that vocabulary knowledge plays in key student outcomes, many teachers allot minimal time to explicit instruction on word meanings (Lesaux, Kieffer, Faller, Kelley, 2010). The key in vocabulary knowledge being a benefit for students in reading comprehension is that a sufficient amount of time must be provided

for students. Having explicit vocabulary instruction is essential to improve the academic achievement for diverse students who may struggle with reading and have limits with word knowledge.

Carefully crafted, systematic vocabulary instruction improves struggling readers' word knowledge (Kennedy, Deshler, Lloyd, 2015) and high quality instruction is the key to success for students with learning disabilities (Kauffman, 1999). Students with learning disabilities have a need to be engaged in strategies that will help them gain access to and retain the information being taught (Ellis et al, 1991), and changing the way instruction is presented so that students of all abilities are better able to acquire and preserve the information given is critical (Bulgren et al, 1988; Deshler et al, 2001; Ellis 1994).

One specific strategy that has been effective in assisting struggling readers is the cloze procedure. Much has been said and written on what it is that cloze does. Cloze has been used for various purposes like measuring text readability, language proficiency and reading comprehension, but the fact is that nobody knows what cloze tests measure (Lee 1985; Sadeghi 2003). Apart from being used in high-stakes tests as CAE (Certificate in Advanced English), cloze tests are currently used mainly as research tools for testing listening comprehension (Huang, Liu & Gao 2005), reading comprehension (Cunha & dos Santos 2007; Friedman & Hoffman-Goetz 2007; Miller, DeWitt, McCleary & O'Keefe 2009; Schmitt & Sha 2009; Sharp 2009; Ulusoy 2008), proficiency (Keshavarz & Salimi 2007), collocational knowledge (Keshavarz & Salimi 2007; Stuart & Eve 2009), as well as a pedagogical tool (Dastjerdi & Talebinezhad 2006; Lee 2008). Research on cloze has moved beyond the classical standard cloze and many versions or modifications to cloze

have been offered and experimented upon. With this information, it has come to light that the cloze procedure cannot be used by itself as an effective comprehension tool.

Additionally, research on vocabulary teaching and learning in the last two decades has focused on different ideas of vocabulary acquisition and the relationship vocabulary has with comprehension (Anderson & Freebody, 1981; Baumann & Kameenui, 1991; Beck & McKeown, 1991; Stahl & Fairbanks, 1986). In many instances, there may be minimal ties between vocabulary knowledge and reading comprehension, but it has shown that vocabulary knowledge illustrates the complexity of this relationship (Ruddell, 1994). As mentioned previously, time restraints can be a major factor in vocabulary usage and vocabulary knowledge in relation to comprehension reading tasks. Also mentioned by Ruddell was the fact that explicitness in vocabulary usage tasks in reading comprehension must remain intact by the instructor or small gains in comprehension may be the result.

Research has been done to understand different levels of knowing a word (Beck, McKeown, & Omanson, 1987; Dale, 1965), the size of a reader's vocabulary and the impacts therein (Nagy & Herman, 1987), the instructional formats for promoting vocabulary development (Beck et al., 1987; Graves, 1987; Jenkins, Matlock, & Slocum, 1989), the text features that support word learning (Drum & Konopak, 1987; Sternberg, 1987), and the role and process of incidental word learning (Jenkins, Stein, & Wysocki, 1984; Nagy, Anderson, & Herman, 1987; Nagy, Herman, & Anderson, 1985). However, researchers have not come to a consensus with linking of those purposes to maintain a unified strategy of vocabulary acquisition (Ruddell, 1994). In fact, researchers have contrasting views concerning the role of instruction in vocabulary learning, and

distinctions between deliberate and incidental word learning from written contexts have been strongly debated (Baumann & Kameenui, 1991; Beck & McKeown, 1991).

In relation to students using synonyms in a reading class or language arts class, the students do not use synonyms with vocabulary as often as one may think. Some studies have examined the effects of synonym generation on second language learners in reading and vocabulary settings. Two types of vocabulary learning are present when students acquire new words. Incidental vocabulary learning is where students are acquiring words in context with no intention to do so. New words are learned when a student is doing free reading. The other type of vocabulary learning is called intentional vocabulary learning where a student is learning new words with an intention to do so. This occurs when a student is purposely targeting new words in a list or completes activities in a workbook while targeting those new words. One cannot say which vocabulary learning type will help a reader gain more words because each word that is learned intentionally or incidentally falls on a continuum of word acquisition. Different types of vocabulary learning can be viewed as points on a continuum between incidental and intentional (Coady, 1997) because attention is not a dichotomous entity (Gass, 1999; Wesche & Paribakht, 1999).

Studies on incidental and intentional vocabulary learning have demonstrated benefits for intentional orientation (Hulstijn, 1992) and direct vocabulary learning activities (Paribakht & Wesche, 1997). Hulstijn (1992, Experiment V), compared incidental and intentional orientations. There were some nonnative learners of Dutch that took two tests on how they acquired word meanings in a reading prompt. In the first test, the participants were told to read the text and were not informed that they would be tested

on word meanings. The second test was administered and participants were told that they would be tested on word meanings from the text. They were also allowed to read the text again. The scores on the second test were much higher as they were associated with intentional vocabulary learning. The results showed that the reading plus direct vocabulary learning resulted in greater vocabulary learning performance. The findings of these studies demonstrate that vocabulary learning is typically greater in more intentionally oriented vocabulary learning contexts (Barcroft, 2009).

Problem Statement and Evaluation Questions

Vocabulary is critical to success in every work setting and essentially in everything we do. If a student does not know what the vocabulary means in the context of the reading material, they will not be successful in their comprehension of text. Special education students who struggle with reading comprehension are particularly at risk in terms of understanding high school-level reading materials or work place materials. Cloze procedures have been effective in assisting struggling learners to improve comprehension.

The major question that was addressed through this project was:

To what extent were improvements in accuracy of responses to comprehension questions during a high school remedial reading class associated with the use of the Comprehension Improvement Strategy?

Students were expected to master tasks associated with the standard on 11th grade English/Language Arts SAGE. This project attempted to implement an intervention that

addresses this standard: while, reading informational text, determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful. (RI.9-10.4) (<http://schools.utah.gov/CURR/langartelem/Core/StandardsC.aspx>)

Methods

Participants and Setting

This project was conducted in a remedial 11th grade English class in a public high school in Roosevelt, Utah. The school has approximately 850 students. I teach seven 11th grade students whose reading levels range from grade 8.0 to grade 8.9. Students' Lexile scores are included in Appendix G. The students in this study are all classified under IDEIA as Specific Learning Disability (SLD).

In order to have been a participant in this study, students must have been enrolled in my Reading Interventions class. Students were invited to participate, and interested students and their parents signed an Informed Consent form (Appendix A).

The classroom that the project was conducted in has two white boards at the front of the room that all participants were able to view from their desks. There are 4 rows of desks with 4 desks per row and during this project all the students were in the first two rows for assessment and instructional purposes. There was a projector in the room for

instructional purposes as well as a sound and audio system connected to a smart board at the front of the room. A large window was on the left side of the room with the blinds down to eliminate distractions during the course of the project. The classes ran for 70 minutes and the students met every other day on a block schedule (A and B days). The class began at 8:00 a.m. and ran until 9:10 a.m. If a student was absent, they were permitted to make up the assigned task so that data for each assignment could be collected and recorded.

Dependent Variable

A dependent variable is what is measured in the experiment and what is affected during the experiment. The dependent variable responds to the independent variable. It is called dependent because it "depends" on the independent variable. In a scientific experiment, you cannot have a dependent variable without an independent variable.

(<https://www.ncsu.edu/labwrite/po/dependentvar.htm>)

During this project, an attempt was made to impact the accuracy of responses to comprehension questions about a reading passage. The dependent variable was the accuracy of answering questions in a reading prompt as measured by a 10 question quiz that asked questions specifically from a reading prompt read by students.

Independent Variable

The independent variable was the comprehension improvement strategy called Synonym Finder. It consisted of 3 twenty-minute trials per week in which students chose a word that was synonymous to the highlighted word in a sentence in a reading prompt.

The framework for this strategy came from the *Fundamentals of Summarizing and Paraphrasing Strategy Series* (Schumaker, Knight & Deshler, 2007). In this strategy, C was for correct. Was the synonym used by the student correct? O was for own words. Was the sentence, including the new synonym, in their own words? M was for make sense. Did the sentence make sense in the way that the synonym had been arranged in the text? If yes was answered to all of these, the student was correctly making words synonymous and was on their way to effectively make sense of the text that was in front of them. One must understand that not all words were able to be made synonymous. This was important to understand by the students because the teacher explicitly chose the word that the students found a synonym for. Another note on this was that a word such as “emerges”, in the sentence, “the boy emerges from his room”, was difficult to turn into a single word or synonym. A student was allowed to use 2 words or a short phrase to make a word synonymous. For example, “emerges” also means, “comes out”. “the boy emerges from his room.” “the boy comes out from his room.” Was this a correct synonym? Yes. Was the synonym and sentence in your own words? Yes. Did the synonym and new sentence make sense? Yes.

Dependent Measure

The dependent measure was a 10 question quiz to measure accuracy of answering questions correctly from each reading prompt. The dependent measure consisted of 10 questions for each reading prompt that students read. An example of a 10-question quiz is included in Appendix E.

Evaluation Design

An AB design was used to evaluate the impact of the use of the Comprehension

Improvement strategy (Synonym Finder) on reading comprehension during and after the intervention phase.

Procedures

Step 1: Recruit Project Participants

Prior to the beginning of data collection, students were invited to participate in the project, and informed consent was obtained from the parents of students, or the students if they were age of majority. A copy of the informed consent was included in Appendix A.

Step 2: Baseline

Students read non-fiction reading prompts for baseline data collection and answered a set of 10 questions that pertained to each reading prompt. An example of a reading prompt that was used for the baseline phase is included in Appendix D. The number correct was recorded for each student, and baseline data collection continued for 2 weeks or 5 testing sessions to show that sufficient baseline data had been established. The baseline phase was 2 weeks long and the students had 5 testing sessions where they were to read a specific story and then asked to answer the questions based on the text they just read. The questions were in the short answer format. After the allotted time of 2 weeks for each students' baseline was over, the students recorded their baseline score. Next, the students moved into the intervention phase.

Step 3: Synonym Finder Intervention

Participants were given 3 twenty-minute trials per week for students to choose a word that was synonymous to the highlighted word in a sentence in their reading prompt.

Per the directions in the *Fundamentals of Summarizing and Paraphrasing Strategy Series* (Schumaker, Knight & Deshler, 2007), the teacher highlighted a word that the students chose a synonym for. If they needed assistance during this intervention phase, they were allowed to use thesaurus.com as a resource if they did not know a synonym for the highlighted word. After completing the Synonym Finder Strategy, students received a 10 question quiz based on their reading and answered those 10 questions to determine their comprehension level during the intervention stage.

The students graphed how many correct synonyms they were able to change in the reading prompt to see their progress. Their goal was to reach 37 correct words changed in a reading prompt by the end of the 4 week data collection. They were given 10 separate opportunities where they had a reading prompt and were given time to use the Synonym Finder strategy during the intervention phase.

In the intervention phase, the students were given 4 weeks of time to practice the intervention and focus on explicit instruction to find synonyms in the text for words. Over the course of the 4 weeks, the students were given 10 testing sessions for the intervention phase of this project. The students were also given a different reading prompt each day that they tested. During this phase, there were at least 37 different words highlighted in the text for the students to make a synonym for. Students were given 20 minutes to complete the task of finding a synonym for the word in the text so it would be a correct synonym, put into their own words, and make sense in the context of the reading passage.

Students were given access to laptops in the classroom in order to use an online thesaurus. If they needed assistance, they used the online thesaurus to find a word that

was synonymous during their 20 minute reading prompt. The students were allowed to use thesaurus.com as a tool to find words that made sense in the Synonym Finder framework.

Also at this time, there were questions about the text that would test their understanding of what they just read. These questions were again in the short answer format. Once the determination was given to where the students felt comfortable in the intervention phase, then they went into the maintenance phase.

Step 4: Maintenance

At the end of the intervention phase of the Synonym Finder strategy, the students were to resume their pre-intervention condition with no prompts from the teacher to change key words into synonyms. They were to receive expository readings each day and were told to answer the 10 comprehension questions. They were also informed to continue putting data on their graphs for the purpose of seeing their comprehension levels.

Finally, the students were given an opportunity to use the skills that they just learned in the intervention phase as they were presented with a reading prompt that looked similar to the baseline phase reading prompts. There were no words highlighted for the students to find a synonym in the text. For 20 minutes, the students were able to read the prompt and then they were given the 10 question quiz. The questions were in the same short answer format as they were in the baseline and intervention phase.

During the entire project, students were progress monitoring how they did each time they

were assessed.

Results

The evaluation question that was addressed in the project was:

To what extent were improvements in accuracy of responses to comprehension questions during a high school remedial reading class associated with the use of the Comprehension Improvement Strategy?

According to the data that were collected for the baseline, intervention, and maintenance phases, there is no significant evidence that improvements in accuracy of responses to comprehension questions during a high school remedial reading class were associated with the use of the Comprehension Improvement Strategy.

The data show that during baseline phase, the average scores across all students in answering questions from the text were 4.94 questions answered correctly.

Table 1

Questions Correctly Answered (Reading Comprehension Baseline)

STUDENT	14-Mar	16-Mar	18-Mar	22-Mar	24-Mar	AVG
1	7	7	4	4	2	4.8
2	4	5	6	6	5	5.2
3	2	3	3	6	4	3.6
4	2	3	1	5	3	2.8
5	8	6	9	7	7	7.4
6	7	7	6	9	4	6.6
7	3	5	5	7	1	4.2
TOTALS	4.7	5.1	4.9	6.3	3.7	4.94

The data also show that during the intervention phase, there was not a significant change in the scores for students in answering questions from the reading. The scores of

the students on average was 4.99 during the intervention phase, therefore showing no major change in scores with the use of the Comprehension Improvement Strategy.

Table 2

Questions Correctly Answered (Reading Comprehension with Intervention)

STUDENT	4-Apr	6-Apr	8-Apr	12-Apr	14-Apr	18-Apr	20-Apr	22-Apr	26-Apr	28-Apr	AVG
1	5	8	2	2	6	5	5	4	8	6	5.1
2	8	3	4	6	4	2	7	6	6	5	5.1
3	4	4	4	5	3	1	3	7	6	1	3.8
4	4	2	3	1	3	7	1	3	3	1	2.8
5	9	8	9	6	7	4	6	10	10	7	7.6
6	3	5	8	6	2	8	8	5	6	9	6
7	4	7	3	4	6	3	3	5	5	5	4.5
TOTALS	5.3	5.3	4.7	4.3	4.4	4.3	4.7	5.7	6.3	4.9	4.99

However, the scores of the student’s comprehension questions decreased slightly when they went to the maintenance phase as their scores were 4.83 on average.

Table 3

Questions Correctly Answered (Reading Comprehension with Maintenance)

During the maintenance phase, student 1 scored lower on average for the

STUDENT	2-May	4-May	6-May	10-May	12-May	16-May	18-May	20-May	AVG
1	3	6	6	9	2	3	3	4	4.5
2	3	4	8	7	5	3	4	7	5.1
3	4	5	2	5	2	2	3	7	3.8
4	3	4	2	6	5	1	4	3	3.5
5	4	5	6	6	9	8	9	6	6.6
6	3	3	5	7	9	9	7	2	5.6
7	4	9	2	3	8	5	2	5	4.8
TOTALS	3.4	5.1	4.4	6.1	5.7	4.4	4.6	4.9	4.83

comprehension quiz receiving a score of 4.5 (see Table 3). Other students scored

similarly in regards to baseline, intervention, and maintenance phases.

Table 4

Correct Words Changed into Synonyms (During Intervention Phase)

STUDENT	4-Apr	6-Apr	8-Apr	12-Apr	14-Apr	18-Apr	20-Apr	22-Apr	26-Apr	28-Apr	AVG
1	29	29	30	27	10	25	12	15	10	13	20
2	20	33	26	30	35	32	39	32	32	37	31.6
3	9	12	10	15	18	20	25	19	16	13	15.7
4	7	9	12	18	20	20	18	18	25	16	16.3
5	28	38	35	36	31	31	32	26	37	37	33.1
6	30	37	33	25	21	17	19	15	27	23	24.7
7	15	15	17	23	26	31	29	21	23	26	22.6
TOTALS	19.7	24.7	23.3	24.9	23	25.1	24.9	20.9	24.3	23.6	23.4

Using the Comprehension Improvement Strategy that allowed students to find familiar synonyms for unknown vocabulary words did help to facilitate comprehension of words, phrases, and sentences. However, the vehicle (Comprehension Improvement Strategy) of making specific words synonymous in the reading prompt did not necessarily expedite the comprehension of secondary reading materials by answering varying levels of response questions regarding the text. The purpose of this project was to evaluate a procedure that combines a cloze procedure with the use of synonyms to improve reading comprehension in a secondary English class.

Discussion

There were so many factors that came about during the entire project as far as why the data look the way they do. It was noted that individual student scores were impacted throughout the process of baseline, intervention, and maintenance phases. For instance, student 1 had an impact when his baseline score for answering comprehension

questions from the quiz was 4.8 on average see Table 1. During the intervention phase, his comprehension quiz score increased to 5.1 on average (see Table 2), but this is not conclusive evidence that the intervention helped the student score higher on the comprehension quiz. This shows that the Comprehension Improvement Strategy had little to no evidence in the improvements of comprehension. See appendix P.

Originally, I wanted the students to show understanding of words and phrases in text by reading a passage and giving a word that was synonymous to the highlighted word in a text. I wanted the students to be able to do this with 90% accuracy over 6 trials. The data show that the students were able to do this strategy with 63% accuracy in 8 out of 10 trials. On average, students were only able to change 23.4 words in the reading prompt out of the possible 39 words on this specific reading. There were times that student 2 reached 39 words changed into synonyms in the reading prompt and received a score of 7 out of 10 on the comprehension quiz by answering questions. Later, the same student received a score of 37 words changed into synonyms in the reading prompt and received a score of 5 out of 10 on the comprehension quiz by answering questions, See Appendix J.

As the intervention phase began to be implemented, I saw immediately that 20 minutes was not going to be long enough for the students to change 37 words into synonyms in the reading text. I did not account for 20 minutes being allotted to them for reading the story as well. When I did this myself to see what the students were experiencing, I found myself reading each word in a sentence and gaining insight as I did this. When I came upon a word that was highlighted, I read in my head the original word, then put the synonymous word in my head to replace that word and it made sense to me.

For students with learning disabilities, some are not able to do this. They will usually attend to one thing at a time and the student's focus was placed on making words be synonymous. They did not always go back and check if the word that they replaced was correct, in their own words, and made sense in the context of the reading.

Along with changing words in the story, some students found some stories dry, boring, and not interesting to them. They also expressed to me that the stories were too long and they would have paid more attention if the stories were more concise. Some distractions arose such as the lighting in my classroom with 1 buzzing light, the air conditioning system, test anxiety that blocked their thinking, and common sounds in the hallways or outside the classroom. All of these are factors when attempting to compile data for a research project and have impacts on why the data look the way they do.

By implementing the Comprehension Improvement Strategy, the students were able to couple the vocabulary and word use with reading a passage. One particular student mentioned, "I like this strategy because it helps me understand words and sentences better, but the words in the reading prompt that were highlighted were not always the words that I needed help with." This strategy, indeed, helped some students understand key points in the story. In some cases, the students put such a great focus on changing words in the story that they did not account for the allotted time of twenty minutes to change the necessary words in the story and read the story as they were doing this strategy. Some students also internalized what was being read as they did this strategy, but became distracted because they wanted to read on through the story. In doing this, they felt pressured to make sure they changed the required words.

For my purposes in utilizing the Comprehension Improvement Strategy, one must

understand that utilizing synonyms in reading prompts is mostly used by students who are learning a new language. Synonym usage for second language learners is a skill that they use to understand the meaning of a difficult word, it is not used simultaneously while trying to improve reading comprehension in a language they are not used to reading. Similarly, a student who does not understand a word in a reading prompt would have to stop their reading progress to look up a word in the dictionary that they have not yet acquired. The focus of the Comprehension Improvement Strategy was placed on looking up a word with an online thesaurus and trying to plug it back into the context of a reading prompt. During the implementation of the Comprehension Improvement Strategy it became clear that all students learn differently. Specifically, when a struggling reader came across a word in a reading prompt that they knew a synonym for and plugged in the synonymous word to make sense of the reading, this was beneficial to their understanding of the text in a reading passage. This was simply because that word was a focus word that helped them understand what the rest of the sentence was talking about in the text.

There were days that students were absent during the baseline, intervention, and maintenance phases and even days where I was absent for extra-curricular duties. This had effects on why the data presented itself because there were some explicit instructions that I was not able to give and insight for students that had questions. On one occasion, student 5 had to stay after class to finish her tasks for that day, which made her late for her next class, this impacted her score on that particular day during the intervention phase.

I found some major problems with how the intervention was being implemented, how the questions did not always reflect understanding of the text, and irregularities of

students graphing abilities. The words that I chose in a reading prompt did not always assist the students because sometimes they already knew the word that was highlighted. They needed a different word in the sentence to help them understand the meaning in context. They also mentioned that too much focus was placed on changing words in the reading prompt and they did not understand that by doing this, it would help them with important information from the text.

A simple change in how the cloze procedure was taught with the use of synonyms was able to help some students with the comprehension of reading. Furthermore, some students also began using this skill in their conversations and writing assignments. They would mention how to say a sentence in a specific way and then they would be able to say a similar sentence that had the same meaning, but different key words.

Although several different reading comprehension improvement strategies have enabled students to increase their understanding and comprehension, synonym use has not been thoroughly explored. The value in using synonyms during the Comprehension Improvement Strategy was helpful for some populations of special education students because some students took the literal meanings and were able to interpret words to support their own understanding.

That was the next problem, the questions did not always reflect what the student understood in the text and some questions did not ask deeper meanings for the students to draw inferences. Many questions were simple recall questions or identification questions in the reading prompt, but very few questions asked students to draw conclusions, synthesize ideas, and prove why or how specific parts of the reading were important. The questions came from a question bank for other learning purposes without keeping the

struggling reader in mind for this specific project.

Students often commented about the end of the school year and how they just did not care about a lot of things at the moment. This impacted how they did their progress monitoring. There were major irregularities in how they graphed because they would skip dots, not count correctly on their self-grading, and I even observed some students make their graphs look as if they scored higher on the comprehension quiz portion. All of these irregularities had an effect in why the data looked the way it did.

Conclusion

This was such a great experience because even though the data showed that using the Comprehension Improvement Strategy was not always effective in improving comprehension for readers with learning disabilities, there were still moments of success. One student pointed out that he enjoys using the strategy because it helped him understand meanings of words, phrases, and sentences. He also mentioned that he started to use this in his writing when he had to write a five paragraph essay and needed more details, he would just write down sentences that had similar meanings. Another student said that when she had conversations with someone, she tried to say words in a different way, but with the same meaning. Is this evidence enough that using synonyms can be effective for students with disabilities?

The most important lesson for me in this project is understanding that all students can learn, but we have the difficult job in finding how they learn. I have concluded that this Comprehension Improvement Strategy was effective in some ways, but it can be

improved. Using smaller reading prompts would be helpful to students because they would not feel overwhelmed. Cutting down the number of words that they need to find synonyms for would be helpful because students were still able to gain insight of what the story talked about. Choosing very precise questions that trigger responses from readers that actually gauge comprehension, not recall, identification, and retell questions. Perhaps adding a section to summarize what the reading prompt was about in either verbal settings, written expression, or both. If I were to do this again, I would be more explicit about how this information is very important to have fidelity, consistency, and cooperation. Some students felt the pressure because they thought it could be a detriment to their grade. Being more explicit and consistent in the intervention phase would have been more helpful to the students, perhaps having a longer amount of time to use this strategy and use it in conversation or in writing.

I had very high expectations for my students before this project was put into effect. Originally I wanted the students to have 80% accuracy on the short quiz, but many of them could not do that in the baseline, intervention, or maintenance phases. This again was due to the lack of effective questions, the reading prompt being too long, and a focus placed on changing words into synonyms instead of finding what the reading prompt was about. This project helped me understand more fully that all students learn differently. It solidified my knowledge that there is so much more to reading than comprehension. Some students were very good readers and could read fluently, but they did not always understand what was being read. Other readers struggled with words and the Comprehension Improvement Strategy helped them identify gaps in their reading.

From here, the next steps would be to implement this again in my teaching. I

would find other ways to do this to help all learners understand what they read. A variation of this would be to use this in written expression. A way to do this is to have the student write a sentence to support a topic. Next, the student would write down a similar sentence with the same meaning. This would enable them to add supporting details in their writing. Vocabulary has always been important to me because it is involved in everything we do. Instead of boring and repetitive traditional vocabulary acquisition, the use of synonyms can impact student learning to a great extent. These are a few steps that I would use to implement and extend this project further.

Overall, this has been a wonderful learning experience. There is a great deal of hard work in the creative project that I did not realize. Through data collection, fidelity of the project, and consistency throughout the entire learning and teaching process, students did find success in the Comprehension Improvement Strategy. There were successes that were not seen in plain view and did not always correlate with using synonyms to improve comprehension. Given the correct tools, a prime setting, and a willing group of learners, this project has been a major impact on my teaching and learning career. It will motivate me to explore other paths for student achievement and help foster growth in my settings as a lifelong teacher, learner, and reader.

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Appendix A

Dear Students and Parents,

A major goal this year in all classes that I am teaching at Union High School is to improve reading comprehension. In order to do this, there are certain lessons and strategies that are being taught and it is very exciting to see the progress of our students.

I am sending this letter home to allow an opportunity for your student to occur in my classroom dealing with using synonyms in their reading to help them understand what is being read. The Synonym Finder strategy is a strategy that I want to use so the students can put meaning into their own reading and make sense of reading prompts.

This strategy will be used every day in class as they read and will take some time for the students to make gains.

Confidentiality is important to me and Duchesne County School District. Your child's name and all information will be held confidential. A summary and results of this study will be available to you upon your request by contacting me.

By signing below and returning this form, you are allowing your student to

participate in this study. Your consent for your child is needed for this important strategy that will help your child succeed in reading comprehension. Thank you for your time.

Contact me for any questions you may have.

Sincerely,

Mr. Payne

Student Name (please print)_____

I give my consent for my child to participate in the Synonym Finder strategy that is being conducted in Mr. Payne's Reading Intervention class.

Parent

Signature_____Date_____

I am willing to participate in the Synonym Finder strategy that is being conducted in Mr. Payne's Reading Intervention class.

Student

Signature_____Date_____

Appendix B

February 27, 2016

Dear administrator,

For the purposes of conducting a study at Union High School, I am seeking authorization to follow through on this study, which includes a number of Union High School students in a Reading Interventions class. I, Ryun Payne, would be conducting this study in a Reading Interventions class that takes part of every other morning for my students from 8:00 to 9:10 A.M.

The purpose of the study is to determine if the Compehension Improvement Strategy is effective in helping these students with their reading comprehension in class. The population I would be serving is special education students with mild to moderate disabilities in reading comprehension.

Thank you for your time and consideration of my proposal.

Sincerely,

Ryun K. Payne

Union High School Special Education Team Leader

Appendix C

Scoring Procedure

The students will be able to change 37 words with 90% accuracy at the end of the 3 weeks to ensure the Comprehension Improvement Strategy is successful. I chose this as the scoring procedure because according to Florida Maze Risk Levels, the students needed to choose 37 words or more that they could fill in the blank to make sense of a reading prompt. For 11th graders, 34+ words that they are able to change are considered as Low Risk readers at the secondary level.

Florida Maze Risk Levels - Secondary				
Grade	Fall	Winter	Spring	Risk
6	27+	30+	33+	Low Risk
	11-26	13-29	14-32	Medium Risk
	0-10	0-12	0-13	High Risk
7	25+	28+	31+	Low Risk
	14-24	16-27	17-30	Medium Risk
	0-13	0-15	0-16	High Risk
8	28+	31+	34+	Low Risk
	17-27	19-30	20-33	Medium Risk
	0-17	0-18	0-19	High Risk

9	28+	31+	34+	Low Risk
	17-27	19-30	20-33	Medium Risk
	0-16	0-18	0-19	High Risk
10	28+	31+	34+	Low Risk
	17-27	19-30	20-33	Medium Risk
	0-16	0-18	0-19	High Risk
11	28+	31+	34+	Low Risk
	17-27	19-30	20-33	Medium Risk
	0-16	0-18	0-19	High Risk
12	28+	31+	34+	Low Risk
	17-27	19-30	20-33	Medium Risk
	0-16	0-18	0-19	High Risk

Appendix D

Comprehension Improvement Strategy example

Hedgehog Experience

Henri lived with his father and grandmother in a small house in a tiny village in the country of Senegal, West Africa. His grandmother had an uncanny sense of weather and time and had been able to predict every major storm for the past thirty years and could, without a glance at a calendar, tell how many days remained until the next full moon.

Henri was fascinated by hedgehogs, little animals that thrived in his native country. If you have never seen a hedgehog, you will have to imagine it. Picture in your mind a small football shaped body of spikes, with a long, soft nose poking out. Then picture those spikes moving in tiny waves as the hedgehog moves, and when it is defending itself, curling up tighter and tighter to form a compressed impenetrable ball of spikes. The spikes are so numerous and fine that you're almost fooled into thinking that you're looking at a fine coat of soft fur. But beware and approach it with extreme caution because it is actually covered with stone-stiff blades sticking out evenly in every direction. This is a hedgehog, and the spikes are why few animals try to eat it.

Henri loved to watch hedgehogs move at their careful deliberate pace. They had no need to hide or run away, and Henri found them to be rather pleasant and soothing animals to observe. Henri had a fascination with just about everything to do with hedgehogs. Henri's father, however, would have nothing to do with them and was always irritated when Henri brought home his new hedgy friends.

"Henri," shrieked his father, "you've brought home another one of those spiked rats! You know I can't stand them! Those thorny things belong OUTside, not inside! Take it outside immediately!"

"But father," pleaded Henri, "I'll keep it far away from you. I'll keep it just for tonight, and then release it first thing in the morning." It was not that Henri actually lost these arguments with his father; they usually just reached a stalemate and stopped talking

about it, whether Henri released the new friend or hid it away from his father's view.

"A plague is coming," his Grandmother said one morning as she stood over the fireplace making porridge for breakfast. "It's going to be a big one. Ants, probably."

Despite the overwhelming history of accuracy of Grandmother's predictions, Henri's father rarely gave her any credit until the foretold events came to pass, and then he would reason that she couldn't possibly have known anything of such great importance. "How can there be a plague in this day and age?" Henri's father said, waving his hands in the air at her. "The government takes care of those things with modern technology. That kind of thing doesn't happen anymore."

Grandmother was unperturbed by her son's disbelief saying, "No, a plague is coming, and it will be a swarm of ants thicker than this porridge, and hungrier than a nation of giants. If something doesn't stop them, then they'll eat every edible crop for miles around."

As he always did, Henri listened intently to his grandmother. A plague of ants certainly sounded frightening. But, then again, perhaps this time his father was right to take the opposite viewpoint. Henri had never seen such a thing in his own lifetime.

Henri's thoughts quickly turned back to the school day ahead. After school he would play soccer with his friends until sunset, and then he would go hunting for hedgehogs to watch them emerge and start their evening's activities.

Finding hedgehogs was usually easy for Henri because countless numbers of them lived near Henri's village. Henri tried to be content just to follow or watch them, but often he couldn't resist the temptation to take one home. Scooping the spiky ball up with a flat board, he would spill it into a shoebox and then try to sneak it into the house without his father noticing. If his father found out about the hedgehog, the time-worn debate would be on again.

As time passed, Henri started to have a surprisingly difficult time finding hedgehogs nearby. Each day he began to notice fewer and fewer hedgehogs. In the following days, he ventured farther and farther away from the village to seek out his favorite friends, eventually finding none at all, no matter how far he went.

Henri spent most of each day the next week in his old routine, but he felt an absence in his life. At first he felt anxious, then increasingly depressed. His life didn't seem to go very smoothly without the ability to pursue his favorite distraction. Finally, Henri had had enough, and he needed to do something about his predicament. So, one day after school, Henri set out walking away from the village, leaving his friends behind on the soccer field. He set out traveling away from the sunset, beyond the village limits, amidst the surrounding small farms in the dry countryside.

Henri walked so long he lost all track of where he was. All he knew was that he was heading east, away from the sun. He became thirsty beyond belief, and was beginning to wonder if he had been gone too long. He watched the hot sun make mirages that looked like silvery pools over the grasslands and decided that he should start to walk back.

Just as he turned around to leave, Henri noticed a movement on the plains unlike the typical, magical waviness of a mirage. At a distance, it looked like the ground was moving and seething with hills of moving bushes. He knew right away that this was not something he had ever seen in all of his years in the village.

As he peered more intently, attempting to discern exactly what was happening, he

began to make out familiar shapes. He saw an undulating line of round spiky balls moving at their characteristically slow speed of confidence and safety. There were hundreds of long noses poking out from those spiky balls, dipping down to the ground, up and down, up and down.

Just beyond the long row of hundreds of hedgehogs was an enormous, moving mass of black life - as though the inky night sky had fallen to earth and was now crawling across the grasslands. Grandmother had been right!

The black vastness looked unstoppable! Then Henri remembered Grandmother's one condition on the wide destruction she had predicted: "If something doesn't stop them." Henri thought about what his grandmother had said as he watched the thick wall of hedgehogs aggressively and systematically gobbling up whole piles of tiny ants at a time.

Watching hedgehogs eat the occasional beetle, holding them in a shoe box, or keeping them at home wasn't the same as watching them here. Henri never knew the true power, the potential, the amazing appetite, or the critical importance that his cute companions held in the wide world of nature. With awe, he witnessed the hedgehogs work. For the first time, he truly saw why they belonged where they belong and why his father was right about them.

Henri raced home, following the sun to his village and family. He burst inside the house, thrilled to share the awesome spectacle he had just witnessed, but he couldn't speak and just stammered, gasping and panting. He finally shouted, "Father! Grandmother! Hedgehogs! Out there! Hundreds! Hedgehogs! Plague!"

"Hedgehogs, hedgehogs, hedgehogs!" his father spoke sharply as he cooked dinner. He immediately became upset. "I don't want to hear another word, Henri! Besides, you're late for supper." He pointed his knife at Henri and said, "All week you've been depressed, and now you're panicked, and the only words you can get out are 'hedgehog' and 'plague'? Perhaps it's a plague of hedgehogs, right? Just one of them is plague enough for me! I'd rather never see, nor hear about hedgehogs ever again. Enough already! Now, go wash up for dinner!"

"Ah... but... you don't understand..." tried Henri, still panting. He looked at Grandmother for understanding, and she quenched Henri's thirst for recognition with a knowing smile. Grandmother had heard all she needed to hear, and understood exactly what Henri had seen and knew just how amazing it was.

Grandmother thought it advisable to explain the situation to Henri's father at a better time. She brought Henri a glass of water to drink and led him out to wash up, saying, "We'll tell your father all about this over dinner." As he left with his grandmother, Henri looked back at his father and said, "Okay, Father, no more hedgehogs around here anymore. They'll stay right where they belong: outside, not in."

Appendix E

10 Question Quiz Hedgehog

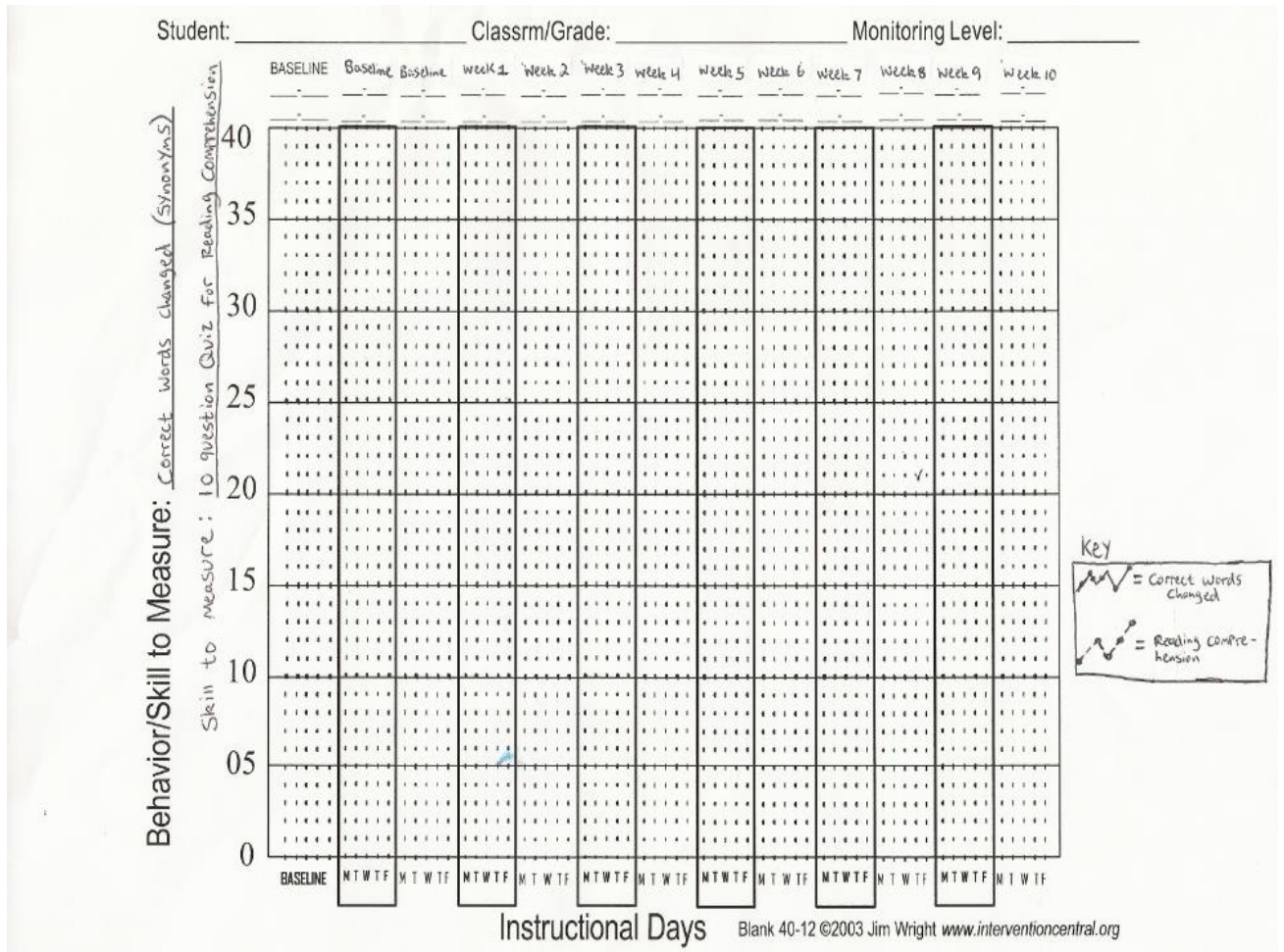
1. In what part of Africa did this story take place?
2. What prediction was Henri's grandmother able to make for many years?
3. Why did hedgehogs have no need to hide or run away from people?
4. How did Henri's father feel about Hedgehogs?
5. What was Henri's father like?
6. How did the disappearance of hedgehogs affect Henry?
7. How will Henri's father probably react when he finds out that there was an ant plague?
8. What did Henri do when he could find no hedgehogs around his village?
9. What made Henri think about returning home when he was far from his village looking for hedgehogs?
10. What was this story mostly about?

Answer Sheet for 10 question quiz Hedgehog

1. West Africa
2. Predict when there would be a major storm.

3. They had a way to protect themselves so they were safe.
4. He strongly disliked them and thought they belonged outside.
5. He had strong opinions about things and stuck to them.
6. He felt an absence in his life and he was depressed.
7. He will agree that Grandmother was right but will say it was a lucky guess.
8. He went on a long walk to search for them elsewhere.
9. He was heading away from the sun and he was getting thirsty.
10. The relationship between man and nature.

Appendix F



Appendix G

Name of Student	Lexile Range	Reading Grade Level
Student 1	950-1075	8.4
Student 2	975-1075	8.5
Student 3	925-1025	8.0
Student 4	925-1025	8.0
Student 5	975-1125	8.9
Student 6	975-1100	8.7
Student 7	925-1050	8.2

Appendix H

Bamboo Rescue Readability: 8.8 Grade Level

David lived in a small village in a large bamboo forest in China. For miles around his village, there was nothing but bamboo. David loved his beautiful home, but he often found himself wondering if he would ever **experience** any excitement living as he did in such a small village.

People in David's village had everything they needed. They had fresh water to drink. They had plenty of food - wild vegetables, nuts, fruits, and fish from the stream. They had **entertainment** - musical instruments made from bamboo and village gatherings every night where they sang and told stories. But David sometimes **wished** he lived someplace exciting like the cities he read about in books. Nothing new ever seemed to happen where he lived.

One day, however, that all changed. David had been out collecting feathers from the brilliant red roost-birds that **flocked** to the bamboo forest in the spring. On that day, he had followed the birds to the edge of the bamboo forest before he decided he'd better head back home.

As David turned, he heard a **distant** roaring. He rushed back to the edge of the forest and peered out. Across the rice fields and small villages that spread out in all directions, he saw a wide open plain of dirt with giant machines **tearing** up the land. He felt his heart begin to race as he thought about those machines pushing the bamboo down and tearing up the soil. **Horrified**, he knew he had to try to do something.

David ran to the nearest village, looking for someone he knew. He came across Liana, a young woman who **waved** beautiful clothes. David was gasping for breath as he slid to a stop before her.

"What's going on, Liana?" David panted.

"Oh, you must mean the developers," Liana said, handing David a water jug to drink from. "Here, take a drink, you must have been running. They're coming to build on all of this land. First they tear up the land, and then they put up huge buildings and giant houses and wide roads to go between them - and they call it 'development.' They're coming to **develop** the whole valley."

The water sprayed right out of David's mouth. "The whole valley? That means the forest and our village too! They can't do that!"

Liana looked at David with **pity**. "You must not have heard," she said with a frown. "I'm sorry to give you the bad news. But, yes, I'm afraid they can do it. They have a paper from the government saying they have **permission** to develop this land. They told us last week that we would need to move further to the south."

David couldn't believe what he was hearing. "But, Liana, why don't you stop them?" he asked.

She shrugged. "What can we do? We must leave, and we don't have much time to pack. If we spend time trying to fight the government, we may not be able to get all our things together before the machines reach our village." As she said these words, Liana leaned down and picked up a large basket. She gave

David one last sad look and told him, "You'd better get on home now. I have work to do."

David ran back home with the news. "We've got to do something! We may lose our home!" he **shouted** as soon as he got close enough for people to hear.

All the people gathered to listen to what David said. The village elders stepped out of the crowd to stand in front of everyone. It was their job to make sure everyone had a chance to speak their ideas and to ask the most important questions to help the people **decide** what to do.

After a lot of discussion, Tia, the eldest elder, asked the most important question: "What is it worth to keep our home?" Everyone paused to **reflect** on that question, and soon they had an answer everyone could agree on. They immediately went to work.

A group of young people headed straight for the capital city. They brought gifts of feathers, bamboo instruments, and some of their best stories to share with the people at the local television station. A group of adults began to build large **structures** out of bamboo - using lots of bamboo poles tied tightly together. The elders began to walk to the other villages surrounding the bamboo forest to talk to the elders of those villages. David was sent to sit **atop** the highest bamboo stalks at the edge of the forest to watch for the developers and call down when he saw them coming closer.

Within a few days, all of their plans began to take shape. The group of youths returned to the village, smiling and laughing with the news reporters, who carried their cameras and microphones. The youths **guided** the reporters around to see their village, the beautiful bamboo forest, and their way of life, all the while treating the reporters like **royal** guests and joking and laughing with them.

When the reporters interviewed David, he was surprised to find he had a hard time getting words out. The elders had advised everyone to make sure the reporters were impressed by how wonderful life in the village was. David tried to smile when he talked about the bamboo forest, but it **seemed** like every time he started to explain how he felt, his tongue would freeze, and he had to blink to keep tears from escaping. "How can people destroy the natural world?" he wanted to ask. "How can they take our land?" But David was afraid that the elders would be **disappointed** in him if he didn't smile for the camera. Finally, he just shook his head when the reporters asked him if he wanted to **comment** and climbed back up to his perch high in the bamboo to keep watch.

Fortunately, others in the village were able to share how much they loved life in their village. The adults sang as they worked on the long bamboo walls that they carried to the **outskirts** of the forest. At the end of each day, everyone laughed and joked as they prepared their evening meal. The reporters watched it all, filming scenes they thought their viewers would enjoy watching. They filmed the **elders** coming back with news that the other villages wanted to work together to save their homes. They filmed David on his tall perch watching the developers moving closer to Liana's village.

A few days after the reporters had left, word came that a story about their village was going to show on television. The elders smiled when they heard the news. In the **meantime**, the adults continued to work with the people of the other villages to put up bamboo walls and dig the wall supports deep into the ground, all along the path that the developers were taking toward their homes. The elders of all the villages continued to plan how their people were going to stand together against the **oncoming** machines. David watched the walls go up and the developers come closer, and when the giant digging **dozers** began to move within sight of the walls, he cried out with all his might to warn everyone below.

A group of youths ran to warn the news reporters. David came down to join the other villagers **banding** together to stand hand-in-hand behind the walls that blocked the machines. They formed a human chain as wide as the fields and villages, and ten or twenty people deep. Meanwhile, the elders grouped front and center, ready to speak with the developers if they **requested** a meeting.

The machines did not wait long to start crashing against the walls. They must have thought the walls would be **weak**, because they came slowly. The walls of thick bamboo were terribly strong, however, and the machines kept crashing and bashing, harder each time, only to find that the walls did not give an inch. The villagers waited like this for hours, all the time fearing the walls would break. David was torn between feeling **terrified** and feeling as strong as those walls, and stronger than any machine, as he stood there hand-in-hand with his neighbors.

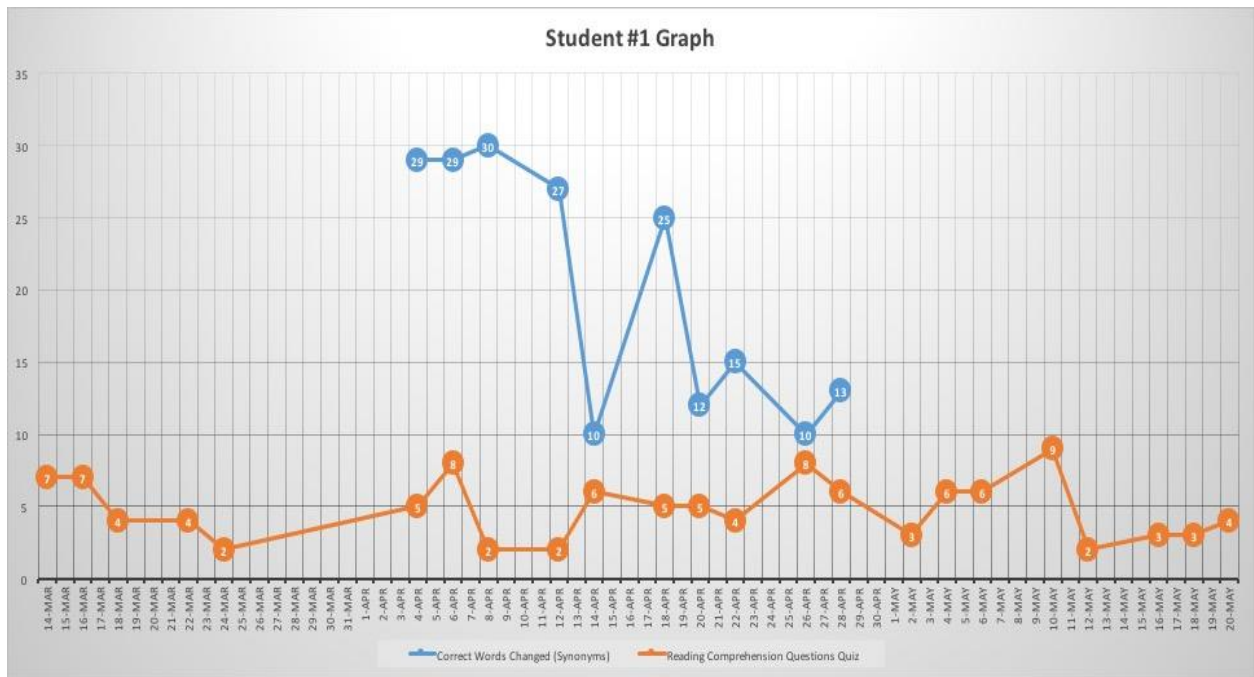
Eventually, however, the walls began to make loud **crunching** sounds, and David had to **choke** back tears as he began to see places where the machines were starting to break through. The villagers held their hands together strongly and stood closer together, ready for anything! Looking around him, David felt incredibly proud of his friends and neighbors.

Suddenly, they heard a loud sound overhead. David looked up to see a helicopter with the news station logo on it! With the coming of the helicopter, the machines slowed down and stopped. Eventually, a man in a suit **squeezed** through a crack in the wall. He wanted to speak with the elders **privately**.

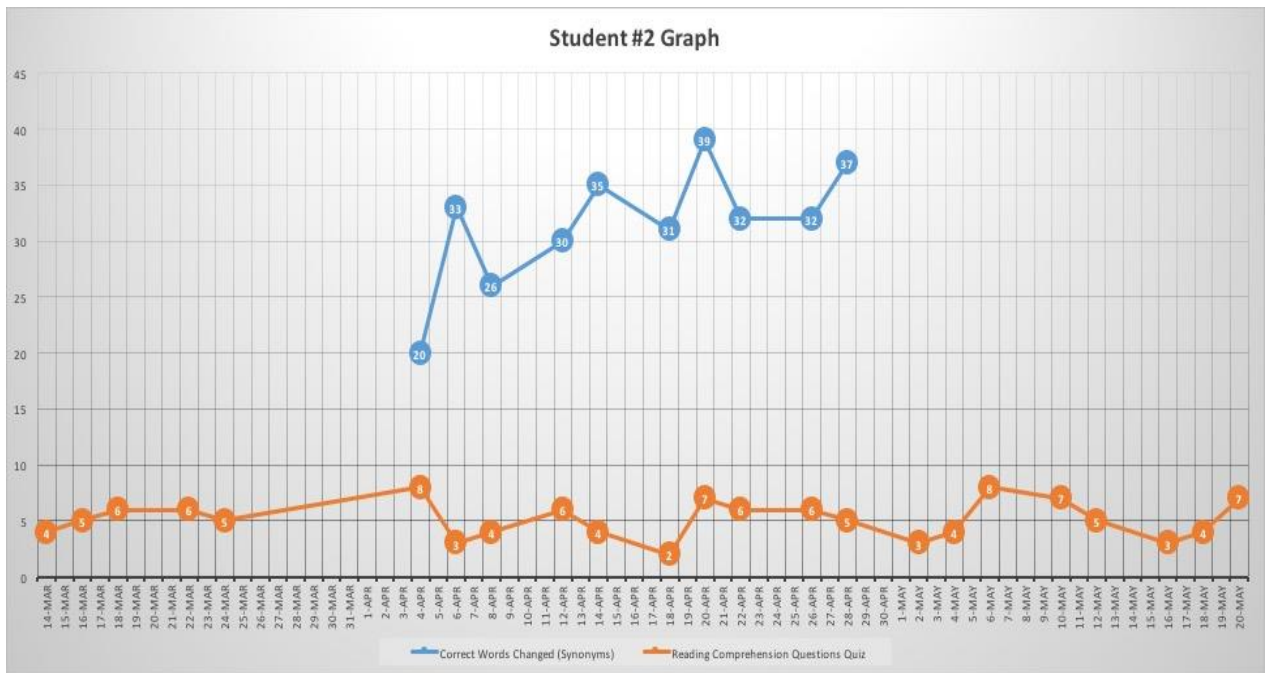
They spoke for what seemed like hours to David, but when the elders came back their eyes were shining, and they walked with a spring in their steps. The man in the suit had said that he was a spokesperson from the developers. They had seen the news story about the forest and the village, and they were afraid to continue to dig up the valley. They didn't want people saying bad things about them. The developers agreed to leave the rest of the valley alone if the villagers did not follow them or try to stop them from developing land anywhere else. This was a **tough** decision for the elders, but they knew that it was possible that people in other places had already learned how to save their homes by watching how they had done it on the television news.

When they heard the elders' news, everyone started to cheer and hug each other. They found David, put him up on their shoulders, and **paraded** him around all the villages. As he witnessed the celebrations in each of the villages, David reflected that maybe his life had plenty of excitement in it after all. He smiled as he thought about how much he loved life in the small village. "No," he thought to himself, "I don't think I need to **explore** city life!"

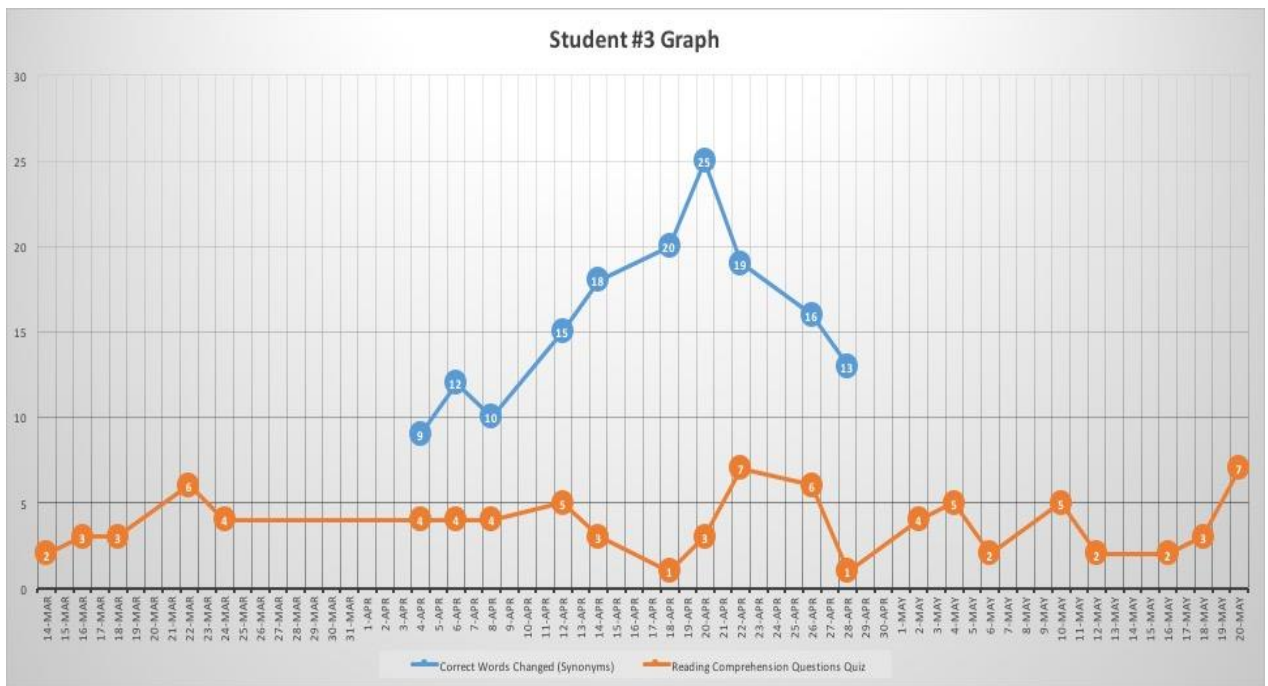
Appendix I



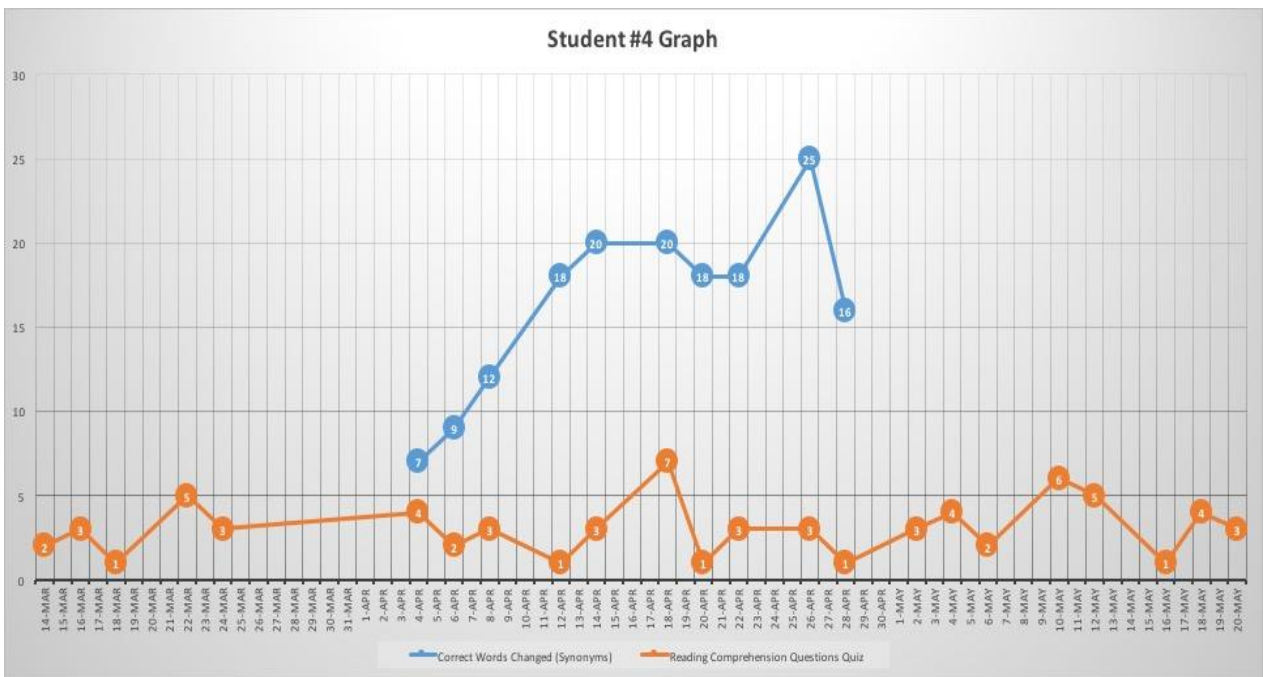
Appendix J



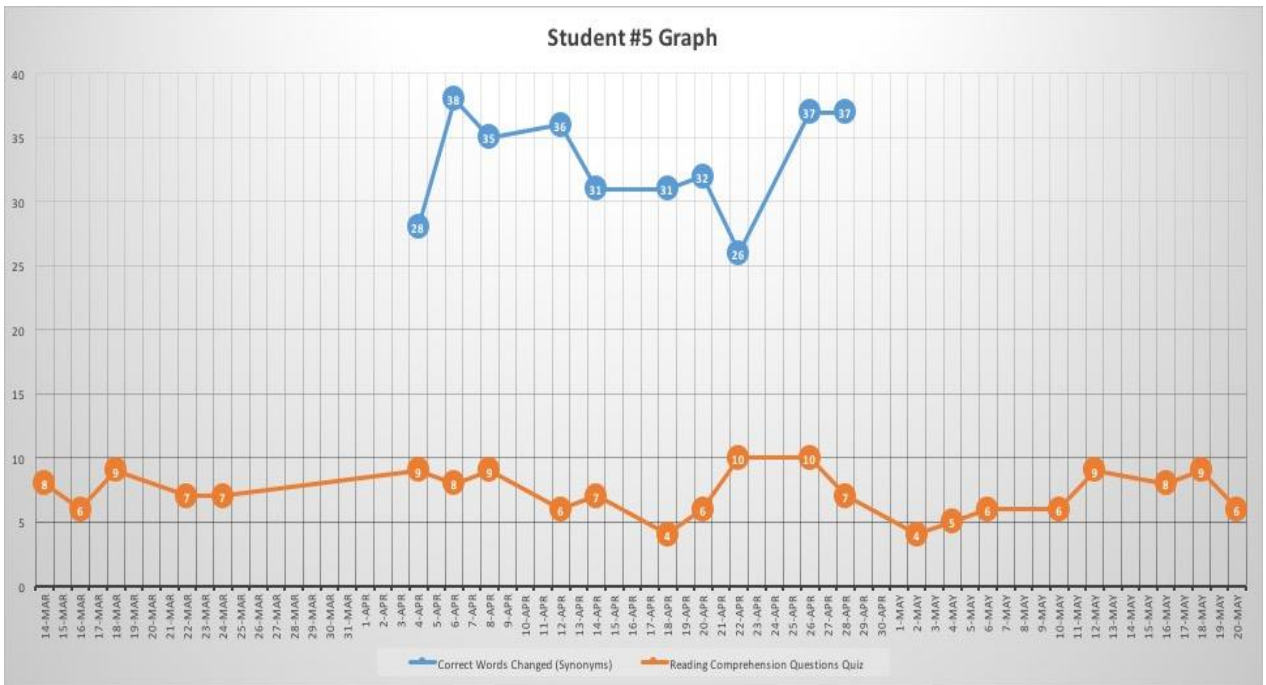
Appendix K



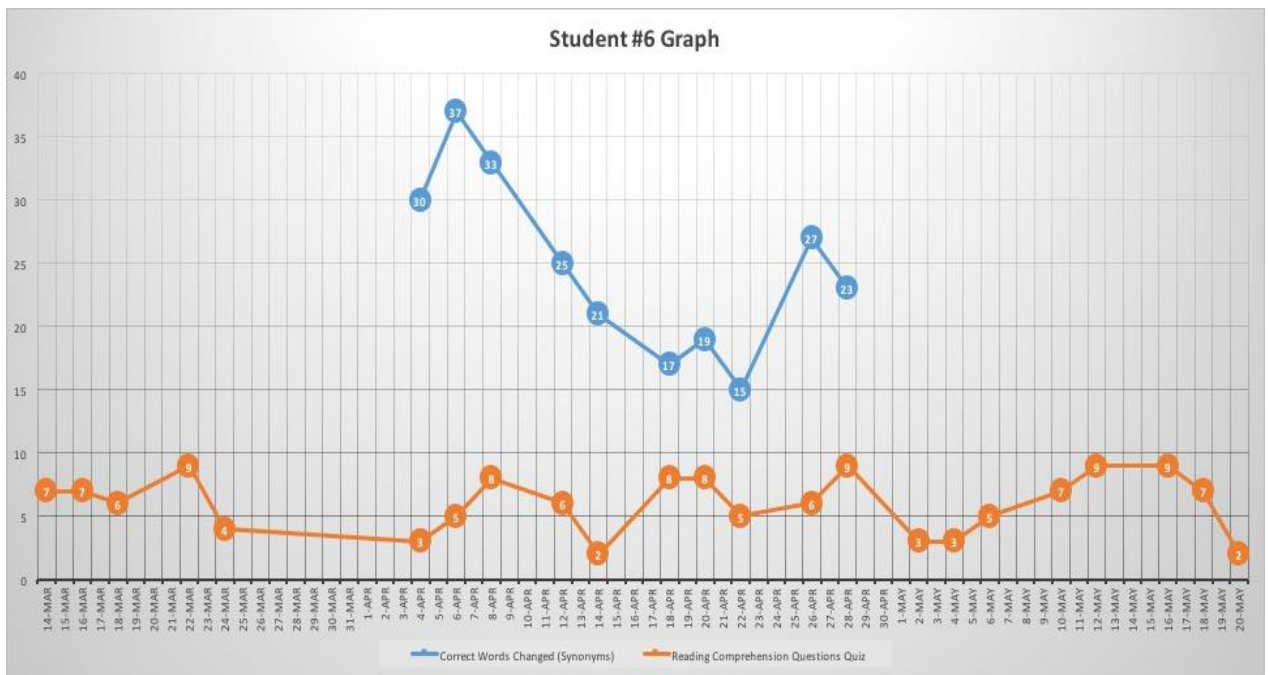
Appendix L



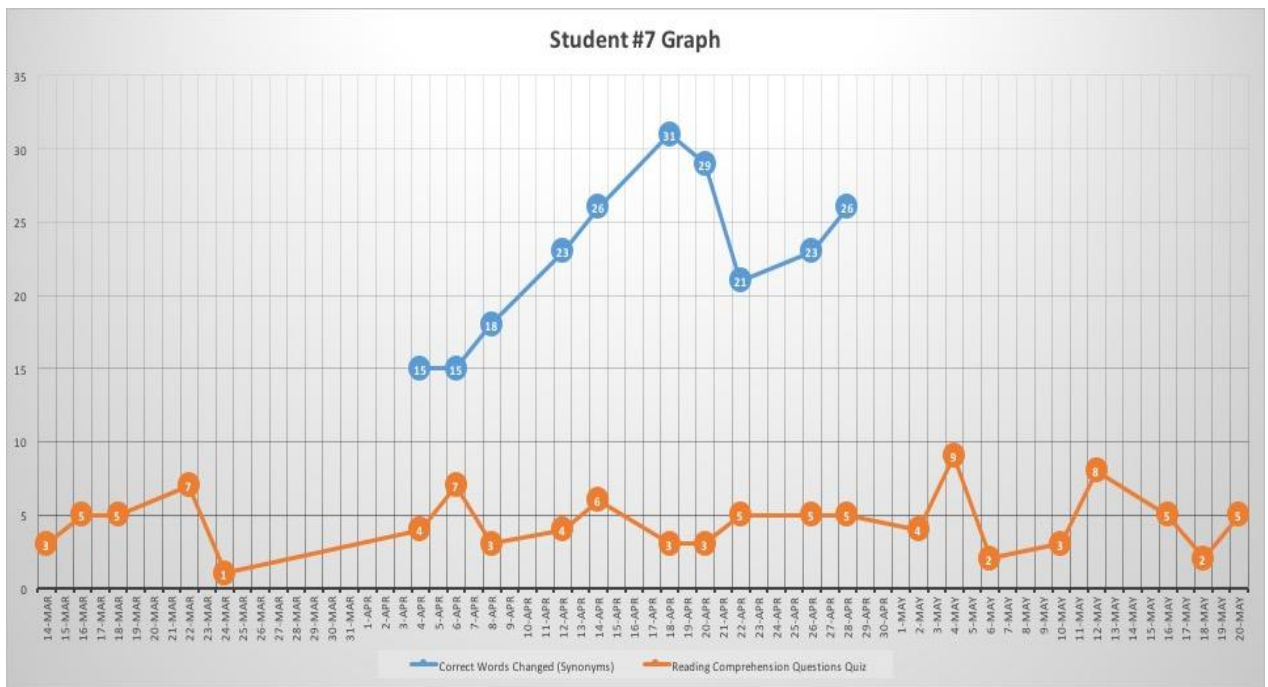
Appendix M



Appendix N



Appendix O



Appendix P

STUDENT	4-Apr	6-Apr	8-Apr	12-Apr	14-Apr	18-Apr	20-Apr	22-Apr	26-Apr	28-Apr	AVG
1	29	29	30	27	10	25	12	15	10	13	20
2	20	33	26	30	35	32	39	32	32	37	31.6
3	9	12	10	15	18	20	25	19	16	13	15.7
4	7	9	12	18	20	20	18	18	25	16	16.3
5	28	38	35	36	31	31	32	26	37	37	33.1
6	30	37	33	25	21	17	19	15	27	23	24.7
7	15	15	17	23	26	31	29	21	23	26	22.6
TOTALS	19.7	24.7	23.3	24.9	23	25.1	24.9	20.9	24.3	23.6	23.4