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How Oral Reading Fluency and Reading Comprehension are Intertwined

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How Oral Reading Fluency and Reading Comprehension are Intertwined

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STUDY ABSTRACT

The purpose of this study was to determine if there was a correlation between oral reading fluency and reading comprehension. Specifically, the study focused on finding if a student who is a highly fluent reader is also strong is comprehension and if a student is a low fluent reader, then they are also low in comprehension. Students were baseline tested at the beginning of the second semester to see where their oral reading fluency and reading comprehension scores were. Throughout the second semester of school, students were progressed monitored based on their baseline scores. Through careful analysis of the data collected, there was no specific correlation found between oral reading fluency and reading comprehension.

Chapter 1

General Problem/Issue

As part of a developmental process of building decoding skills, fluency can form a bridge to reading comprehension (Pikulski & Chard, 2005). When looking at reading as a whole, you come to find there are 5 critical components that come to mind: phonics, phonemic awareness, vocabulary, fluency, and comprehension. When looking at each one individually, the one that has been referred to as the "neglected" aspect of reading by the National Reading Panel would be fluency (Pikulski & Chard, 2005). Now, though, fluency is being given substantial attention not only by researchers, but practitioners.

The National Reading Panel defined reading fluency as "the ability to read text quickly, accurately, and with proper expression" (Pikulski & Chard, 2005). *The Literacy Dictionary: The Vocabulary of Reading and Writing* defined fluency as "freedom from word identification problems that might hinder comprehension" So, to form a comprehensive definition between the two would have us looking at fluency in the following words:

> "Reading fluency refers to efficient, effective word-recognition skills that permit a reader to construct the meaning of text. Fluency is manifested in accurate, rapid, expressive oral reading and is applied during, and makes possible silent reading comprehension" (Pikulski & Chard, 2005).

With the above statements being made, I chose the specific topic of how reading fluency and reading comprehension are intertwined. When the Common Core State Standards (CCSS) were introduced in 2009, a focus was brought onto reading. Throughout the years, the exposure that the students have had with the CCSS had shown how little rigor and complex material had been incorporated into their daily lives previously. Specifically, this past year, I have noticed a

large disconnect between the two components spoken specifically about above: fluency and comprehension. In recent years, there had been an emphasis by reading teachers and researchers on developing fluency word reading in struggling readers to improve their comprehension (Walczyk & Griffith-Ross, 2007).

If reading fluency contributes to reading comprehension, then highly fluent readers should be expected to perform well in comprehension when reading materials at are at their current grade level, right? (Applegate, Applegate, & Modla, 2009). This is the question that plagues me daily. If my students have high fluency rates, shouldn't they be able to comprehend exactly what they are reading? On the opposite hand, if my students have low fluency rates, they should have difficultly comprehending even the simplest passages.

Constructing meaning while reading fluently means making inferences, responding critically, and so on, along with always being able to pay attention. (Pikulski & Chard, 2005)

Subjects and Setting

Description of subjects. The participants of this study were 6 fifth-grade students from a Midwestern elementary school. Of the participants, 1 was African American, whereas the other 5 were Caucasian. One student was currently on an IEP (Individualized Education Plan), and 3 students had qualified for Title I services. There were 2 females and 4 males ranging from the ages of 10 to 11 years of age. All 6 participants' first language was English. Two students were from single parent families, one was part of a divorced family, and the rest were from two parent families.

Selection criteria. The students selected for this study were my students for the 2017-2018 school year. These students were chosen because of the day to day time spent with them, along with the oral reading fluency and comprehension scores currently seen.

Description of setting. Wilton was a small, rural community centrally located in North Dakota just 20 miles north of the capital, Bismarck. In the district, there were 240 students PK-12. Approximately 140 of these students were in grades PK-12. The district was made up of one building where the high school and elementary school were connected. There were less than 20% of students that qualify for free and reduced lunches. Students had a number of scholarship opportunities both at the state level and through local contribution. At least 30% of seniors qualified for $6,000 or more in scholarships to two years and/or four years in state institutions. 70% of students grades 4-12 participated in at least one extra-curricular with many students participating in more than one. A typical student has taken 17 standardized tests over their high school career. Of those tests, five were state mandated for graduation. The ACT test is the only timed text.

Informed consent. Protection of human subjects participating in research was assured. Participants were informed of the purpose of the research and any procedures required by the participant, including disclosure of risks or benefits. Confidentiality was protected through the use of pseudonyms without identifying information. The choice to participate or withdraw at any time was outlined both verbally and in writing. Students, along with parents were aware of the nature of the study and given ample time to provide permission for their child to participate.

Review of Literature

"Reading is a complex interaction between the text, the reader and the purposes for reading, which are shaped by the reader's prior knowledge and experiences, the reader's knowledge about reading and writing language and the reader's language community which is culturally and socially situated" (Hughes, 2007)

The reading process contains 5 stages that each reader goes through; stage 1 – prereading, stage 2 – reading, stage 3 – responding, stage 4 – exploring, and stage 5 – applying. Throughout the reading process, readers use a variety of strategies, sometimes multiple strategies at once, to help them make meaning from a text (Hughes, 2007). Along with the 5 stages a reader goes through while reading a text, a reader is also using 5 critical components to drive their reading: phonics, phonemic awareness, vocabulary, fluency, and comprehension.

For many years, reading education has been a focus for research. One specific focus would be reading comprehension. Many researchers have focused on the many aspects of reading comprehension and how to teach it. The same is not able to be said about fluency. Fluency was once famously described as a "neglected goal" of American reading education (Applegate, Applegate, & Modla, 2009). Fortunately, this is no longer the case. Since reading comprehension and reading fluency are in the sights of researchers, we are starting to see how the two are intertwined.

A historical perspective of fluency. As stated above, fluency is one of the concepts that has been overlooked for many years. In recent years, reading fluency has begun to gain more attention because of the realization of its importance to reading comprehension. A brief look at the history of research on reading fluency reveals how complicated and how important it is for reading's development in the child (Wolf). One of the first researchers who contributed to our

understanding of fluency was William MacKeen Cattell (1886), a 19th century psychologist who became intrigued by the discovery that we can read a word faster than we name a picture (Wolf). William emphasized that humans become almost "automatic" when they read, much more so than speaking (Wolf).

The importance of speed and automaticity in reading development was also suggested by Huey (1905). He suggested the importance of practice in learning something new, the end result being speed, automaticity, and the role of the conscious mind in completing the act (Path to Reading Excellence in School Sites (PRESS)). After Huey, not much research was conducted for many decades.

When the 1960s and 1970s came along, researchers began to describe the process of reading. For example, LaBerge and Samuels (1974) published their paper on automatic information processing in reading. Within the paper, they would explain why fluent word reading facilitates comprehension. Along with why fluent word reading facilitates comprehension, LaBerge and Samuels also discussed the importance of automaticity. This is a complex task for many students. They stressed that reading fluency is based on the rapidity of microlevel subskills (e.g., knowing letter sound rules, letter combinations, and the meaning of words and their connections.) (Path to Reading Excellence in School Sites (PRESS)). They also argued that only when these lower-level micro skills become automatic can time be allocated by the reader to more sophisticated comprehension skills (Path to Reading Excellence in School Sites (PRESS)). Other theories and definitions of reading fluency have come out since, but LaBerge and Samuels' theory is still important and influential in research today. Most of the research around reading fluency and reading fluency assessment has been focused on

establishing appropriate use for assessment data and ensuring assessment are reliable and valid for their designated purposes (Path to Reading Excellence in School Sites (PRESS)).

Katzir and Wolf summed it up best: "In its beginnings, reading fluency is the product of the initial development of accuracy and the subsequent development of automaticity in underlying sub lexical processes, lexical processes and their integration in single-word reading and connected text. These include perceptual, phonological, orthographic, and morphological processes at the letter-, letter-pattern, and word-level; as well as semantic and syntactic processes at the word-level and connected-text level. After it is fully developed, reading fluency refers to a level of accuracy and rate, where decoding is relatively effortless; where oral reading is smooth and accurate with correct prosody; and where attention can be allocated to comprehension." (Path to Reading Excellence in School Sites (PRESS)).

Connection between fluency and comprehension. You would think that there is a simple answer to the question, "Are fluency and comprehension linked?". Most people would agree that fluency and comprehension are linked, but how? Though reading and listening are certainly related, a fundamental difference between them is often overlooked (Walczyk & Griffith-Ross, 2007). When listening to teachers or parents, children typically have little control over how quickly and in what order verbal information enters their minds compared to reading (Walczyk, 2000). Many theorists agree that in the definition of fluency, comprehension is never mentioned. Still other theorists add to this by saying the essential elements of comprehension and the construction of meaning are understood in the meaning of fluency.

LaBerge and Samuels proposed the idea that reading requires two central tasks of our limited cognitive resources: word recognition and comprehension (LaBerge & Samuels, 1974). If readers have not developed automaticity in word recognition, then the efforts they must expend

in decoding will almost necessarily limit the efforts they can direct to comprehension (Applegate, Applegate, & Modla, 2009). Based on these ideas, there are some researchers who have suggested that once these additional resources are freed up, they can be directed towards comprehension. Researchers deduced that once fluency achievement increases, reading achievement should increase, particularly in comprehension.

Other researchers beg to differ when it comes to the relationship between fluency and comprehension. Some believe that the relationship is much more complex that we give it credit for. Some, for example, have called attention to the fact that readers' comprehension and fluency strategies are affected by the extent to which they find the material interesting (Walczyk & Griffith-Ross, 2007). Others have insisted that the fluency instruction given to struggling readers must be multidimensional if they are to achieve the ultimate goal of reading: the ability to respond to text reflectively and intelligently (Pikulski & Chard, 2005). Lastly, some have suggested that the development of fluency requires opportunities to engage in critical and meaningful discussions of text. (Griffith & Rasinkski, 2004).

Common Problems: There are many reasons for compensation while reading, or sources of confusion that may arise. Normally, students will use the least disruptive compensation first, then move into later ones and use those as a backup. There are seven common compensations that are seen in reading: slowing reading rate, pause, look back, read aloud, sounding out, or contextual guessings, jump over, and rereading of text.

Slowing a student's reading rate will help to prevent many confusions by allowing inefficient readers to read text at a pace that their skills can handle, whereas faster reading might overwhelm skills (Walczyk & Griffith-Ross, 2007). Less skilled readers pause longer and more often than do skilled readers (Walczyk & Griffith-Ross, 2007). When reading slowly does not

allow enough time, pausing may be a student's backup compensation. When readers use the looking back compensations, they will briefly glance to text that has been read previously. Walczyk et. All (2001) defined it as the reprocessing of three words or less, which is slightly more disruptive of word reading than slowing their reading rate or pausing.

Reading aloud often occurs spontaneously to difficult text or noisy reading environments (Chall, 1996), suggesting that it is compensatory. Reading aloud provides less fluent readers with more opportunities to learn about words and assists those more fluent to reading with expression (Development, 2000). Ehri described four ways children read words: reading by sight, sounding out, when readers look at a word's spelling and bring to mind similarly spell words, and contextual guessing (Ehri, 1994).

One other way of dealing with confusion when reading words can be added to previously mentioned compensations. If readers encounter a word that is unfamiliar and takes too much time figure out, students will skip this word, or jump over it. When jumping over words too often, comprehension will be lowered. Lastly, rereading is compensatory when it resolves confusion noted on an earlier pass through text but is more disruptive of reading than the preceding compensations (Walczyk & Griffith-Ross, 2007). Reader who are skilled will often use this compensation after they have used others to help clarify their confusion. With each of these compensations, comprehension and fluency may directly be affected each time. When deploying a compensation, fluency rate is disrupted, and comprehension abilities will become lower.

Intervention: Research overwhelmingly supports that reading skills are closely link to overall school success. Poor readers are more likely to experience behavioral and academic difficulties than students meeting grade level standards in reading (Juel, 1994). Literacy skills

begin during the infancy stage and continue to progress throughout a child's life. Prevention of failure in reading is crucial to a student's academic future. If prevention of reading failure is unsuccessful, early intervention is a must. According to Good, Gruba, and Kaminski, a system designed to prevent reading failure must incorporate the following three factors:

1. Ongoing and frequent measurement of growth in foundational reading skills.
2. A mechanism to predict success or failure based on an established criterion.
3. Provision of instructional goals related to assessment data

DIBELS is an intervention that was developed at the University of Oregon for the purpose of monitoring the growth and acquisition of early literacy skills. They were designed to prevent reading difficulties by identifying students in need of intervention and evaluating how well students are responding to the interventions given. The DIBELS intervention measures reading skills in the following areas:

- Phonological awareness: the ability to hear and manipulate the sounds of language
- Alphabetic principle: knowledge that letters represent sounds and sounds can be blended into words
- Accuracy and fluency: smooth and immediate recognition of words

The data that is collect from the DIBELS interventions should be used to drive literacy instruction in the classroom. According to the DIBELS website, he advantages of using DIBELS are as follows (Dynamic Measurement Group, n.d.):

- DIBELS has been specifically designed to be used within a problem-solving, outcomes-driven model of decision-making and response to intervention.
- The DIBELS measures are reliable and valid.

- Research-based benchmark goals are available which define a level at which the odds are in the student's favor of meeting later reading outcome goals.

Chapter 2

Research Question

As a 5th grade elementary teacher, I've often see students who are strong, fluent readers, but are unable to comprehend what they are reading and vice versa. Students are taught at a young age different skills and strategies for both fluency and comprehension while reading but were unable to apply these specific skills and strategies at the same time. I've noticed students giving up on reading a text in their reading level just because it doesn't sound "right", or not answering questions on an assessment because "it doesn't make sense".

This has been extremely concerning to me, especially because these two skills are used continuously throughout later graders, and life. After reflecting upon this problem, I've begun wondering how connected fluency and comprehension really are, and if you can have one without the other. This had lead me to formulate the following research question: do reading fluency scores predict reading comprehension scores of students?

Research Plan

Methods and rationale. One measuring instrument was used. The measuring instrument used was DIBELS NEXT. The first test within the measuring instrument focused on oral reading fluency, or DORF. This test was centered around a reading passage that students were given 1 minute to read as much as they can, with fluency and accuracy. The second test within the measuring instrument was focused on student comprehension, or DAZE. This test was similar to a cloze reading passage, where key words were taken out of each sentence, and students needed to use context clues to fill in each blank. Both instruments focused on student achievement, progress monitoring, and were alike in reading levels, time periods, and length.

This measuring instrument was chosen for a variety of reasons. One, it can be used as a universal screener, which helps to identify those students who may be at risk. Second, it gives the options for progress monitoring for those students who were still receiving whole group instruction, along with any additional instruction. Lastly, it was a quick and easy way to assess where student's fluency and comprehension are without having to add extra pressure onto students.

The first test given (DORF) consists of a reading passage at/near grade level that students were given one minute to read. The time limit was the same for all students. Students read the passage to the best of their ability without rushing themselves. When the minute expired, students took one to two minutes to retell the information they just read. This was one way to determine student comprehension of the passage read.

The second test given (DAZE) consisted of a reading passage at/near grade level that had specific words removed from the sentences. Students had three minutes to look through the reading passage and fill in the missing word with specific words from a word bank. The DAZE test was given to focus specifically on students' comprehension of what each sentence was saying.

Once students were given their baseline test, they were then broken up into 3 groups based off of their DORF and DAZE scores. Red was the students whose fluency and comprehension scores were not on grade level. Yellow was the students whose fluency and/or comprehension were on grade level, but the other was not. Green was the students who were on grade level for both fluency and comprehension.

Schedule. The schedule for this research took place over the course of nine weeks. On day one, all students were given the DORF and DAZE tests. This became the starting point. On

day seven, the students who scored within the red and yellow groups were assessed. This gave them and myself a chance to see if the work we had been doing daily had affected not only their fluency rates, but comprehension skills. On day fourteen, all students were assessed with the DORF and DAZE. This same pattern continued until the nine weeks were up. When the end of the nine weeks came, I again did a baseline DORF and DAZE to see how much growth (if any) was made for students within the three groups.

Chapter 3

Data Analysis and Interpretation:

Description of Data

The purpose of my study was to find how oral reading fluency and reading comprehension are intertwined using DIBELS for progress monitoring and the Write-In Reader located in my Journeys reading curriculum as an intervention. There were two phases to my study: progress monitoring and daily intervention, which lasted 6 weeks. Prior to the start of data collection, each student was given their Spring Benchmark assessment using DIBELS. Then, for the following 5 weeks, students were given a daily intervention, along with progress monitoring happening each week. Data was collected using the DIBELS progress monitoring booklets for oral reading fluency and retell scores, along with DAZE for reading comprehension. Throughout the intervention phase, I worked with the students to see if given skills to help with overall comprehension, would it help to increase their oral reading fluency?

Method of Analysis:

Participant Data

For this study, I used to DIBELS Benchmark data to identify students who were below or well-below benchmark standards. Of the 14 students who were currently in the 5th grade class, 6 of them fell into those specific categories. Throughout the process of data collection, I continually compared the beginning benchmark data to where the students were during progress monitoring. Winter Benchmark testing for DIBELS was administered on January 8-10, and Spring Benchmark testing for DIBELS was administered on March 29-31. Both data points were used and analyzed throughout the study. All students were in the general education classroom.

Research Question: Do reading fluency scores predict reading comprehension scores of students who are below or well below DIBELS benchmarks?

When comparing the students baseline Winter and Spring DIBELS Benchmarks, one of the six students had made growth in their DORF (oral reading fluency), and five of the six students had made growth in their DAZE (reading comprehension). As seen in the table below, of the six students, only two were in the at/above benchmark range for DAZE. No students were in the at/above range for DORF. There were no specific correlations between a rise/fall in DORF as compared to a rise/fall in DAZE. As seen in Table 1 below, Student A dropped 3 words per minute, but gained 10 points in comprehension, Students B and C both dropped in words per minute but stayed within the at/above benchmark range. Students D and E both dropped in words per minute but rose in comprehension points. Student F was the only student to make gains in words per minute and reading comprehension, even though they were still below benchmark.

Table 1:
Winter and Spring Benchmark Data

DIBELS WINTER BENCHMARK

At/Above Benchmark	120+	20+
Below Benchmark	101-119	13-19
Well Below Benchmark	100 - below	12 – below

DIBELS SPRING BENCHMARK

At/Above Benchmark	130+	24+
Below Benchmark	105-129	18-23
Well Below Benchmark	104 - below	17 – below

	DORF	DAZE
Student A	104	13
Student B	111	29
Student C	119	26
Student D	97	11
Student E	97	9
Student F	113	13

	DORF	DAZE
Student A	101	23
Student B	109	26
Student C	106	27
Student D	96	15
Student E	82	16
Student F	129	23

Between the Winter and Spring Benchmark dates, students were progress-monitored based on where they fell in the benchmark ranges. If a student fell into the Red, they were progress-monitored every week. If a student fell into the Yellow, they were progress-monitored every other week. If a student fell into the Green, they were only progress-monitored during Benchmark times.

Table 2 below shows student progress through each stage of progress monitoring. At the beginning, all six students were below or well below the benchmark standard set for them. After the Feb. 27 progress-monitoring, the daily intervention was put in place to help students with not only fluency strategies, but comprehension strategies. This intervention time spent with the students was 85% of the time individual. This gave me the opportunity to dig deeper into their individual data and helping them progress at their own pace.

After each progress monitoring data point, the intervention used was adjusted to meet the student's specific needs at that time. As seen in Table 2 below, through the months of February, March, and April, Students B, C, and D were all at/above benchmark standard. Students B, C, and D still followed the same intervention throughout the duration of the study.

The once piece of data I was consistently searching for focused on the correlation between the oral reading fluency and comprehension. I had found that in the broader view of fluency and comprehension, they do tie together. I can see the student's initial comprehension score rise when the fluency of a passage was mastered, but it was not consistent enough to define at direct correlation.

Table 2:
Progress Monitoring Winter/Spring

DIBELS WINTER BENCHMARK

At/Above Benchmark	120+	20+
Below Benchmark	101-119	13-19
Well Below Benchmark	100 - below	12 – below

DIBELS SPRING BENCHMARK

At/Above Benchmark	130+	24+
Below Benchmark	105-129	18-23
Well Below Benchmark	104 - below	17 – below

	Jan. 29	Feb. 12	Feb. 12	Feb 27	Mar. 13	Mar 13.
	DORF	DORF	DAZE	DORF	DORF	DAZE
	Red/Yellow	Red/Yellow	ALL	Red/Yellow	Red	ALL
Student A	110	110	26			23
Student B	112	112	25	137		21
Student C	112	95	25	137		21
Student D	99	91	12	101	98	12
Student E	94	70	22	79	96	15
Student F	112	112	25	121		22

	Apr. 9	Apr. 23	Apr. 23	May 7
	DORF	DORF	DAZE	DORF
	Red/Yellow	Red	ALL	Red/Yellow
Student A	129		19	
Student B	133		32	
Student C	140		33	
Student D	115		13	
Student E	93	92	15	
Student F			29	

Chapter 4

Action Plan:

After studying how oral reading fluency and reading comprehension are intertwined, I plan to continue the interventions for the remained of the 2017-2018 school year and in the next upcoming school year. The positive outcomes from using the specific progress monitoring and intervention has me very excited for the future school year. I feel that I have helped not only myself, but my students become aware of how important both fluency and comprehension are, and how in certain instances they go hand in hand.

Looking into future years, I will adjust some aspects of this study. The students loved the one on one time that was spent with me, only with the intervention used. I plan to make sure that in the following years, a specific time and day(s) is set aside for each student and I to conference and reflect on individual needs. I would also like to place a specific time for students to work with each other for certain aspects of the intervention used. This is a great time for them to work through different comprehension strategies together, along with working with the fluency strategies given to them.

I also plan on continuing to read the most current research on oral reading fluency and reading comprehension to help myself grow as an educator and also help my students grow each and every day. This study was actually inspired by my instructional coach, who is in charge of all of our DIBELS Benchmarking in the Fall, Winter, and Spring. She and I have very similar views when it comes to how oral reading fluency and reading comprehension are intertwined.

Chapter 5

Plan for Sharing:

Throughout the study, not only was my instructional coach interested in my findings, but the majority of my colleagues and administration as well. I was fortunate enough to be able to share my findings with them during one of our PreK – 6 PLCs (professional learning community). I shared with them that even though we feel that fluency and comprehension go hand in hand, each student we encounter will be different, and will need their own adjustments. I encouragement them use the intervention provided to use in our Journeys reading curriculum, as this was the intervention I used throughout the duration of my study.

Moving forward, I will continue to use this information to drive my own day to day practices. I will also encourage and mentor my colleagues to do the same, or something of a similar nature. I am excited to see what the future brings with a new set of students entering my classroom this fall.

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