FLUENCY AND READING COMPREHENSION: THE CORRELATION BETWEEN
THE TWO

A Research Proposal Submitted
in Partial Fulfillment of the Requirement
for EDMA 5691

Jesse Magraw
Northwest University
Masters in Teaching Program
June 2014

Acknowledgments

First and foremost I want to thank my 3rd grade class of 2013-2014. Not only did these students inspire my research, but they gave it meaning and purpose. A huge thank you to my teammates for giving me guidance and insight throughout this research. I am also grateful for the resources and direction from the Lake Washington School District. I am proud to work in a school district that works hard to provide context and rubrics to the assessments that are mandated. Finally, I am so blessed to have a supportive cohort. Lisa, Stephanie, Donis, and Katie, I would not have been able to do this without you.

Table of Contents

List of Tables

Table 1: Correlation of Data

		Rate 1	Rate 2	Accuracy 1	Accuracy 2	Expression 1	Expression 2	Comprehension 1	Comprehension 2
Rate 1	Pearson Correlation	1	.813**	.b	.619**	.563**	.570**	-.370	.290
	Sig. (2-tailed)		.000	.	.001	.004	.004	.075	.169
	N	24	24	24	24	24	24	24	24
Rate 2	Pearson Correlation	.813**	1	.b	.793**	.429*	.445*	-.413*	.168
	Sig. (2-tailed)	.000		.	.000	.036	.029	.045	.433
	N	24	24	24	24	24	24	24	24
Accuracy 1	Pearson Correlation	.b	.b	.b	.b	.b	.b	.b	.b
	Sig. (2-tailed)	.	.	.	.	.	.	.	.
	N	24	24	24	24	24	24	24	24
Accuracy 2	Pearson Correlation	.619**	.793**	.b	1	.438*	.443*	-.237	.154
	Sig. (2-tailed)	.001	.000	.		.032	.030	.266	.474
	N	24	24	24	24	24	24	24	24
Expression 1	Pearson Correlation	.563**	.429*	.b	.438*	1	.711**	-.598**	.082
	Sig. (2-tailed)	.004	.036	.	.032		.000	.002	.704

	N	24	24	24	24	24	24	24	24
Expression 2	Pearson Correlation	.570**	.445*	.b	.443*	.711**	1	-.425*	.217
	Sig. (2-tailed)	.004	.029	.	.030	.000		.038	.309
	N	24	24	24	24	24	24	24	24
Comprehension 1	Pearson Correlation	-.370	-.413*	.b	-.237	-.598**	-.425*	1	-.239
	Sig. (2-tailed)	.075	.045	.	.266	.002	.038		.260
	N	24	24	24	24	24	24	24	24
Comprehension 2	Pearson Correlation	.290	.168	.b	.154	.082	.217	-.239	1
	Sig. (2-tailed)	.169	.433	.	.474	.704	.309	.260	
	N	24	24	24	24	24	24	24	24

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

b. Cannot be computed because at least one of the variables is constant.

Table 2: Correlation of Data (Added)

		RATE	ACCURACY	EXPRESSION	COMPREHENSION
RATE	Pearson Correlation	1	.733**	.576**	-.155
	Sig. (2-tailed)		.000	.003	.469
	N	24	24	24	24
ACCURACY	Pearson Correlation	.733**	1	.475*	-.081
	Sig. (2-tailed)	.000		.019	.706
	N	24	24	24	24

EXPRESSION	Pearson Correlation	.576**	.475*	1	-.313
	Sig. (2-tailed)	.003	.019		.137
	N	24	24	24	24
COMPREHENSION	Pearson Correlation	-.155	-.081	-.313	1
	Sig. (2-tailed)	.469	.706	.137	
	N	24	24	24	24

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3: Correlation of Data (Average)

		RateAVG	AccAVG	ExpAVG	CompAVG
RateAVG	Pearson Correlation	1	.733**	.576**	-.155
	Sig. (2-tailed)		.000	.003	.469
	N	24	24	24	24
AccAVG	Pearson Correlation	.733**	1	.475*	-.081
	Sig. (2-tailed)	.000		.019	.706
	N	24	24	24	24
ExpAVG	Pearson Correlation	.576**	.475*	1	-.313
	Sig. (2-tailed)	.003	.019		.137
	N	24	24	24	24
CompAVG	Pearson Correlation	-.155	-.081	-.313	1
	Sig. (2-tailed)	.469	.706	.137	
	N	24	24	24	24

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

List of Figures

Figure 1: Passage 1

Special Times

Martin's grandfather was moving, and Martin was sad about the change.

"Grandpa Howard is not moving too far away," Martin's mom said. "You will still see him every week."

Martin sat in the backyard of Grandpa Howard's old house and thought about all the hours they had spent reading books and playing. Martin wanted to do something to remind his grandpa of all those great times.

He went home and printed photographs off the computer that showed Grandpa Howard and him reading or playing. He wrote sentences under each photo and stapled the pages together like a book. Then Martin took the book to Grandpa Howard the following week.

"How do you like your new home?" asked Martin.

"I like it," said Grandpa Howard, "but I miss having a backyard. I so enjoyed the time I spent with you outside."

Martin handed the book to Grandpa Howard and said, "I miss the backyard, too, so I made a book about our special times together."

Grandpa Howard smiled at the photographs. "You know, there is a park nearby. Let's go see if it has a playground."

✔ Why was Martin sad?
✔ What do you think Grandpa Howard and Martin will do next?

Figure 2: Passage 1 Assessment Guide

Name: _____ Date: _____

Special Times

8	Martin's grandfather was moving, and Martin was sad
11	about the change.
20	"Grandpa Howard is not moving too far away," Martin's
29	mom said. "You will still see him every week."
38	Martin sat in the backyard of Grandpa Howard's old
49	house and thought about all the hours they had spent reading
59	books and playing. Martin wanted to do something to remind
66	his grandpa of all those great times.
75	He went home and printed photographs off the computer
85	that showed Grandpa Howard and him reading or playing. He
95	wrote sentences under each photo and stapled the pages together
107	like a book. Then Martin took the book to Grandpa Howard the
109	following week.
118	"How do you like your new home?" asked Martin.
129	"I like it," said Grandpa Howard, "but I miss having a
140	backyard. I so enjoyed the time I spent with you outside."
149	Martin handed the book to Grandpa Howard and said,
162	"I miss the backyard, too, so I made a book about our special
164	times together."
172	Grandpa Howard smiled at the photographs. "You know,
185	there is a park nearby. Let's go see if it has a playground."

✔ Why was Martin sad?
✔ What do you think Grandpa Howard and Martin will do next?

Oral Reading Fluency

Total Words Read	-	Total Errors	=	wcpm

Oral Reading Fluency wcpm	**Score**
Reading Foundational Skills: Fluency	

Enter in Skyward as _____.OralReadingFluency

Oral Accuracy Rate

wcpm	÷	Total Words Read	=	Accuracy %

Oral Accuracy Rate	**Score**
Reading Foundational Skills: Fluency	

Enter in Skyward as _____.OralAccuracyRate

Reading Comprehension Notes

Prosody

Prosody	**Score**
Reading Foundational Skills: Fluency	

Enter in Skyward as _____.Prosody

Figure 3: Passage 2

Skunked

Mario and Anna sat outside their home in the dark relaxing one quiet summer evening. The silence was suddenly interrupted by the howling of their dog, Blue.

"It sounds like Blue discovered something," Mario said.

Anna began sniffing and then wrinkled her nose. "Yuck! I think Blue found a skunk!" Holding her nose, Anna pointed to the backyard.

Mario looked up to see a skunk running toward the house with its tail raised up in the air. Blue trailed closely behind.

"Come here, Blue!" Mario called excitedly. "Stay away from that—." Before Mario could finish the sentence, he saw a small cloud float up into the air. Blue gave a sharp yip and swiftly backed up. The skunk disappeared into the bushes.

"Oh, no," Anna groaned. "After being sprayed five times before, you would think that Blue would have learned."

Mario sighed, "I will get Blue, if you will go get the tomato juice for his bath."

"I hope Mom has lots of cans of juice," laughed Anna. "Blue will need to be bathed at least three times to get that horrible smell off."

Figure 4: Passage 2 Assessment Guide

Name: _____ **Date:** _____

Skunked

10	Mario and Anna sat outside their home in the dark
19	relaxing one quiet summer evening. The silence was suddenly
27	interrupted by the howling of their dog, Blue.
35	"It sounds like Blue discovered something," Mario said.
44	Anna began sniffing and then wrinkled her nose. "Yuck!
56	I think Blue found a skunk!" Holding her nose, Anna pointed to
58	the backyard.
69	Mario looked up to see a skunk running toward the house
81	with its tail raised up in the air. Blue trailed closely behind.
89	"Come here, Blue!" Mario called excitedly. "Stay away
100	from that—." Before Mario could finish the sentence, he saw a
113	small cloud float up into the air. Blue gave a sharp yip and
122	swiftly backed up. The skunk disappeared into the bushes.
131	"Oh, no," Anna groaned. "After being sprayed five times
140	before, you would think that Blue would have learned."
152	Mario sighed, "I will get Blue, if you will go get the
157	tomato juice for his bath."
168	"I hope Mom has lots of cans of juice," laughed Anna.
181	"Blue will need to be bathed at least three times to get that
184	horrible smell off."

✔ What happened to Blue?
✔ What do you think Anna and Mario will do next?

Oral Reading Fluency

Total Words Read	-	Total Errors	=	wcpm

Oral Reading Fluency wcpm	**Score**
Reading Foundational Skills: Fluency	

Enter in Skyward as _____OralReadingFluency

Oral Accuracy Rate

wcpm	÷	Total Words Read	=	Accuracy %

Oral Accuracy Rate	**Score**
Reading Foundational Skills: Fluency	

Enter in Skyward as _____OralAccuracyRate

Reading Comprehension Notes

Prosody

Prosody	**Score**
Reading Foundational Skills: Fluency	

Enter in Skyward as _____Prosody

Figure 5: Fluency Rubrics (Rate, Accuracy, Prosody)

Third Grade | Wonders Oral Reading Fluency

Scoring Level	Oral Fluency Rate					Oral Accuracy Rate	Prosody
	First	Second	Third	Fourth	Fifth		
4	Fall Not Reported Winter +47 wcmp Spring +82 wcmp	Fall +79 wcpm Winter +100 wcpm Spring +117 wcpm	Fall +99 wcpm Winter +120 wcmp Spring +137 wcmp	Fall +119 wcpm Winter +139 wcpm Spring +152 wcpm	Fall +139 wcpm Winter +156 wcpm Spring +168 wcpm	96 – 100% Words read correctly	Reads in large, meaningful phrases; may occasionally repeat words or short phrases, but the overall structure and syntax of the passage is not affected; reads at an appropriate rate of speed with expressive interpretation.
3.5	Fall Not Reported Winter 35-46 wcpm Spring 68-81 wcpm	Fall 65-78 wcpm Winter 86-99 wcpm Spring 103-116 wcpm	Fall 85-98 wcpm Winter 106-119 wcpm Spring 122-136 wcpm	Fall 107-118 wcpm Winter 126-138 wcpm Spring 138-151 wcpm	Fall 125-138 wcpm Winter 142-155 wcpm Spring 154-167 wcpm	93 – 95% Words read correctly	Reads in large phrases; may repeat words or short phrases, but the overall structure and syntax of the passage is not affected; reads at an appropriate rate of speed with some expressive interpretation.
3	Fall Not Reported Winter 23-34 wcpm Spring 53-67 wcpm	Fall 51-64 wcpm Winter 72-85 wcpm Spring 89-102 wcpm	Fall 71-84 wcpm Winter 92-105 wcpm Spring 107-121 wcpm	Fall 94-106 wcpm Winter 112-125 wcpm Spring 123-137 wcpm	Fall 110-124 wcpm Winter 127-141 wcpm Spring 139-153 wcpm	90 – 92% Words read correctly	Reads in three- and four-word phrases; reads primarily in phrases that preserve the passage's syntax and structure; attempts to read expressively; generally reads at an appropriate rate of speed.
2.5	Fall Not Reported Winter 18-22 wcpm Spring 41-52 wcpm	Fall 38-50 wcpm Winter 57-71 wcpm Spring 75-88 wcpm	Fall 58-70 wcpm Winter 77-91 wcpm Spring 93-106 wcpm	Fall 81-93 wcpm Winter 100-111 wcpm Spring 111-122 wcpm	Fall 98-109 wcpm Winter 113-126 wcpm Spring 124-138 wcpm	88 - 89% Words read correctly	Reads in mostly three–word phrases; reads mostly in phrases that preserve the passage's syntax and structure; attempts to read with some expression; sometimes reads at an appropriate rate of speed.
2	Fall Not Reported Winter 12-17 wcpm Spring 28-40 wcpm	Fall 25-37 wcpm Winter 42-56 wcpm Spring 61-74 wcpm	Fall 44-57 wcpm Winter 62-76 wcpm Spring 78-92 wcpm	Fall 68-80 wcpm Winter 87-99 wcpm Spring 98-110 wcpm	Fall 85-97 wcpm Winter 99-112 wcpm Spring 109-123 wcpm	86 - 87% Words read correctly	Reads mainly in two-word phrases, with some longer phrases and at times word-by-word; may group words awkwardly and not connect phrases to the larger context of the passage; reads sections of the passage excessively slowly or quickly.
1.5	Fall Not Reported Winter 7-11 wcpm Spring 16-27 wcpm	Fall 12-24 wcpm Winter 19-41 wcpm Spring 32-60 wcpm	Fall 22-43 wcpm Winter 37-61 wcpm Spring 49-77 wcpm	Fall 46-67 wcpm Winter 62-86 wcpm Spring 73-97 wcpm	Fall 62-84 wcpm Winter 75-98 wcpm Spring 84-108 wcpm	84 – 85% Words read correctly	Reads in two-word phrases and at times word-by-word; groups some words awkwardly and connects some phrases to the larger context of the passage; reads sections of the passage excessively slowly or quickly.
1	Fall Not Reported Winter 0-6 wcpm Spring 0-15 wcpm	Fall 0-11 wcpm Winter 0-18 wcpm Spring 0-31 wcpm	Fall 0-21 wcpm Winter 0-36 wcpm Spring 0-48 wcpm	Fall 0-45 wcpm Winter 0-61 wcpm Spring 0-72 wcpm	Fall 0-61 wcpm Winter 0-74 wcpm Spring 0-83 wcpm	0 – 83% Words read correctly	Reads word-by-word, with some longer phrases; does not phrase meaningfully or at the appropriate rate of speed; reads the passage excessively slowly.

Figure 6: Comprehension Questions and Cut Scores

Passage 1: *Special Times*
Level 2 and 3 Questions - 1 point each
   1. **Why was Martin sad?**
      a. Martin was sad about the change
   2. **What did Martin make for his Grandfather?**
      a. A book of photographs
   3. **What did the book of photographs have in it?**
      a. Photos of them reading or playing, wrote a sentence under each photograph and stapled the pages together in a book.
   4. **Why did Grandpa Howard miss his backyard?**
      a. Spending time with his grandson, outside

Level 4 Questions – 2 points each
   5. **What do you think Grandpa Howard and Martin will do at the playground? Why?**
      a. Something outside or read, like they used to
   6. **Martin said, "I made a book about our special times together." What do you think some of those special times would have been? Why**
      a. Reading, playing, outside activities

Cut Score

1	1.5	2	2.5	3	3.5	4
0 points	1pt	2pts	3pts	4-5pts	6-7pts	8pts

Skunked
Level 2 and 3 Questions – 1 point each
   1. **What was Mario and Anna doing before Blue howled?**
      a. Sitting outside and relaxing
   2. **What happened to Blue?**
      a. Sprayed by a skunk
   3. **How did Blue react to the skunk's spray?**
      a. Sharp yip and backed up
   4. **How did Anna and Mario plan on cleaning up Blue?**
      a. Tomato juice bath

Level 4 Questions – 2 points each
   5. **Why would the skunk spray Blue? How do you know?**
      a. Skunks spray when they try to protect themselves, defense behavior
      b. Blue was trailing the skunk
   6. **Do you think Blue learned his lesson? Why**
      a. Sprayed 5 times already, hadn't learned yet.

Cut Score

1	1.5	2	2.5	3	3.5	4
0 points	1pt	2pts	3pts	4-5pts	6-7pts	8pts

Abstract

With the shift to the Common Core, third graders are now assessed on their fluency. This study addresses my research question regarding this new standard: Is there a correlation between the three elements of fluency (accuracy, rate, and expression) and reading comprehension? When discussing reading fluency, I am addressing a student's accuracy, rate, and expression when reading a given text aloud. The research design for this study is quantitative. The correlation will be determined through data. I will be using two fluency assessments that will be testing students on their accuracy, rate, and expression. After each passage I will ask the student six comprehension questions. The data showed no correlation between reading fluency and comprehension. I have realized how complex reading fluency, and comprehension are.

Fluency and Reading Comprehension: The Correlation between the Two

Two years ago I moved from teaching first grade to teaching third grade. I am so grateful for the experience to have taught at the primary level. I can see the progression of development. There are so many changes and it is eye opening to see how students grow throughout the years. One of the most significant changes from primary to intermediate is the jump in reading comprehension. In primary the teachers are so focused on word recognition, fluency, and using picture clues to in order to improve reading comprehension. The report card for first grade included a fluency grade. I used the DIBELS assessment to calculate a child's fluency rate. Fluency rate is the amount of words a student can read in one minute. The assessment tool would calculate the average score after three passages and produce the child's correct words per minute. I would then compare that child's score to the districts table that indicates where that child should be by fall, winter, or spring in reading fluency. I would score fluency using that assessment three times a year. The fluency score was an indicator of child's reading ability. Improving reading fluency was a majority of my reading instruction in first grade.

By third grade, reading ability was solely focused on reading comprehension. Reading fluency was no were to be seen. Students are taught how vocabulary, background knowledge, and inferring increases reading comprehension. There was no fluency grade and the fluency piece was not in the third grade reading curriculum. With the shift to the Common Core, third graders are now assessed on their fluency. Fluency has also become more than just rate. With all of these changes this year, I am left with a lot of questions: What does fluency look like at the third grade level? Is fluency more

than the correct words per minute? Should I be teaching fluency independently? How much time do I spend on teaching comprehension versus fluency? Does better fluency help improve a student's comprehension? These questions have led me to my research question: Is there a correlation between the three elements of fluency (accuracy, rate, and expression) and reading comprehension?

Literature Review

When searching for research on the correlation of fluency and reading comprehension, I looked for research articles published in the last fifteen years in order to understand the newest studies and research methodologies. I choose articles that examined fluency, especially keeping in mind the common cores expectations for third graders. My students should leave my class at the end of the school year with, "sufficient accuracy and fluency to support comprehension (United States of America)." The reading foundational standard expands fluency into three components: a) read grade-level text with purpose and understanding, b) read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings, and c) use context to confirm or self-correct word recognition and understanding, rereading as necessary (United States of America). This standard combines reading comprehension (a), fluency (b), and the relationship between the two (c) as the foundation of reading skills for third graders. I will be using the national standard as well as some exemplar articles when assessing and recording data for my research.

Trends in the research

A variety of trends have emerged from the articles selected. The first trend from the articles is how fluency is defined. The research on fluency has shifted in the past 20 years and become more complex (Hudson, Pullen, Lane & Torgesen, 2009). Reading fluency has many variables and elements. Fuchs, Fuchs, Hosp, and Jenkins (2001) help define this complexity:

Oral reading fluency represents a complicated, multifaceted performance that entails, for example, a reader's perceptual skill at automatically translating letters into coherent sound representations, unitizing those sound components into recognizable wholes, and automatically accessing lexical representations, processing meaningful connections within and between sentences, relating text meaning to prior information, and making inferences to supply missing information.

Two of the elements included in reading fluency are speed and accuracy, which is tested through the oral reading fluency assessments (Hasbrouck & Tindal, 2006). Speed and accuracy can also be tested through the DIBELS oral reading fluency assessment (Paleologos & Brabham, 2011). These are assessments I am most familiar with and have used to grade fluency in the past. After reading a handful of the articles, I have found that expression is the third and newest component of fluency. This is the element of fluency that I have the least experience with, yet from the research articles, expression seems to play an important role in comprehension (Klauda & Guthrie, 2008; National Reading Panel, 2000). Without expression, students will be fast and accurate readers, but their comprehension will be lacking (Rasinski, 2006). From these definitions fluency has

three major elements: rate, accuracy, and expression, and I will use this definition of fluency throughout my research.

Expression is a complex element of fluency, which has recently been explored and tested (Klauda & Guthrie, 2008; National Reading Panel, 2000). From the articles, I am gathering that expression, in itself, is a complex element to define. When readers read with expression they are pausing at appropriate punctuation and phrasing, they change their pitch, and they are using syntactic structures within the text to construct rhythm as they read aloud (Klauda & Guthrie, 2008; Rasinski, 2004). The Lake Washington School District's Introduction and National Fluency Norms goes on to expand the definition of expression too appropriate volume and tone (Third grade Wonders, 2013a). Many of the articles alluded to the importance of expression and some of its components to comprehension, but only a few used it to measure fluency in the methodology. Accuracy and speed are the easiest and quickest forms of assessing fluency, and they are the most widely used when researching fluency. There are a variety of scales used to rate expression. All of the scales used a four point system to evaluate expression, but the wording for each level varies. The common trend is that expression can be scored, like accuracy and speed, except expression needs to be judged using a scale (Rasinski, 2004). It is important to my research that I include all three elements of fluency in order to draw stronger and more accurate conclusions about the correlation between fluency and comprehension. I will be using the Lake Washington School District Rubric to score the three elements of fluency, (Figure 5).

Once I noticed the trend of the three major elements of fluency, I noticed a trend about the description of a "fluent reader" versus a "non-fluent reader." A fluent reader

can perform multiple tasks, such as word recognition, proper syntax, pace, accuracy, and comprehend (Klauda & Guthrie, 2008; Rasinski, 2004). A reader who is not fluent can only perform one of these tasks at a time, reads slowly and laboriously, frequently ignores punctuation, and shows little certainty when reading high-frequency words (National Reading Panel, 2000; Third grade Wonders, 2013a). Rasinski (2006) expands on the attitude of a non-fluent reader, a reader who lacks enthusiasm for reading and sees themselves as a failure at reading. There were a lot of questions and theories about how this lack of multitasking when reading can lead to poor comprehension, but I have had readers who don't use proper syntax and pacing yet comprehend the main idea of the text. I have also taught students who can use accuracy, pace, and word recognition, but did not grasp the main idea from the reading. The research from various articles mention the lack of understanding of what part of fluency plays the biggest role for fluent readers.

This is one of the main reasons I want to conduct my own research. I have a student in my class whose fluency is hard to listen to. She is choppy, slow, and word-by-word. I rarely call on her to read, because it is hard to listen to her. Her rate is below grade level, her accuracy is about grade level, and she attempts expression. The amazing part is that her comprehension doesn't seem to be lacking after she reads aloud.

A different trend amongst the comprehension and fluency relationship is that comprehension and fluency are so closely linked because they share syntactic processing (Klauda & Guthrie, 2008). Without fluency, a child has to make meaning of the words, before the child can put those meanings together to grasp the full comprehension of the full text. Either way, based on the research there is a correlation between fluency and comprehension.

The common conclusion from all the articles is that fluency is somehow related to reading comprehension. Hollenbeck (2006) makes the claim that fluency is the mark of a proficient reader…and fluency enhances comprehension for both themselves and potential listeners. Every article shed light on the theory that when a student can use expression, accuracy, and rate, the student is able to focus on the comprehension strands: predicting, retelling, making connections, and inferring. Some articles mentioned that fluency is an aspect of comprehension (Paleologos & Brabham, 2011; Tsou, 2011). There is more to comprehension that is at play when a child is reading. Fluency is one of those influences, but if a child is struggling with comprehension, it might not be a fluency issue. Comprehension could also be affected by background knowledge, vocabulary, and syntactic knowledge (Klauda & Guthrie, 2008).

Although most of the articles claim that there is a correlation between fluency and comprehension, it is unclear how that correlation looks. As fluency increases, does comprehension improve as well? As I taught first grade it was more obvious that children who could not read the words aloud accurately, would not understand the text, but by third grade students have gained more background knowledge and vocabulary to develop stronger comprehension. How influential is fluency by third grade to a student's comprehension?

A variety of methodology

The articles had a variety of methodology approaches. All but one of the research articles used quantitative research to collect data. Some of the articles used an oral reading fluency assessment, but only two of the articles used that as the only source of data. Most used another type of assessment to find a correlation. Hasbrouck and Tindal

(2006) set out to create the correct words per minute cut scores for every grade from kindergarten to eighth grade. The other research articles try and find a correlation between parts of fluency to reading comprehension.

Only one article explored the correlation between fluency and reading comprehension by isolating the elements of fluency. Until this article, I was going to use a single passage to score a student's correct words per minute by giving the student one minute to read as many words as possible and record errors to calculate the accuracy as well, but no expression scores. Klaude and Guthrie (2008) isolated the three components of fluency to find a correlation to reading comprehension. The researchers had four research questions, but the one that was most helpful was, "To what extent does each type of fluency – word, syntactic, and passage – correlate with reading comprehension when the other types of fluency, inferring, and prior knowledge are statistically controlled? (Klauda & Guthrie, 2008)." The idea that prior knowledge needs to be controlled will influence my research, but I will not statistically control for it. From the handful of fluency passages I will be choosing from, I will keep in mind to choose a topic that students would have little prior knowledge with. I will choose passages with prior knowledge in mind. Students have more experience reading fiction aloud to their peers and can make more text-to-self connections, so I will also use passages that are fiction.

In order to isolate the three fluency strands I looked through the articles for rubrics or charts for assessing the reader. To find the rate of a reader, all the articles used a similar formula that the Lake Washington School District uses. I will count the total words read and subtract the errors, which will equal words correct per minute (Third grade Wonders, 2013b). To isolate accuracy, I will use the words correct per minute

divided by the total words read equals an accuracy percentage (Third grade Wonders, 2013b). Expression is not formula based score. I have used rubrics designed by Zutell and Rasinski (1991); Knoblock and Rasinski (2007) to check the validity of the Lake Washington School District's recommended expression rubric (Third grade Wonders, 2013a). All three mentioned that a student at standard in fluency expression reads at generally appropriate rate of speed and attempts to read expressively. Below standard students will read slowly and read two to three words at a time. This type of language for each score were very similar and provides more confidence and understanding when using the district's rubric.

Two of the articles used standardized tests as a reading comprehension piece. Klaude and Guthrie (2008) used the Gates-MacGinitie Reading Test, while Paleologos and Brabham (2011) used the SAT-10 as the reading comprehension assessment. Due to the time restraints, I will not be able to use the standardized test required for students in the third grade in the state of Washington for a comprehension score.

Gaps in the research

One question I was constantly asking throughout my research was, "When does fluency development end?" I couldn't find an answer. All the articles had varied answers. All of the research form these fluency articles are done at the elementary level, yet some articles mentioned how fluency is still an important concept for junior high and high school students. The National Reading Panel (2000) stated, "Although there has been some speculation that fluency development is complete for most students by grade 3 or 4, the Panel's analysis found that these procedures continue to be useful far beyond that – at lease for some readers." Rasinski (2004) briefly mentions a study he did at the

high school level and comes to the conclusion, "We found that variations in the reading fluency of these students accounted for approximately 30 percent of the variance in their performance on Ohio's High School Graduation Test." If fluency development continues through the high school level, why is fluency not addressed more or provided in reading curriculum? This gap of fluency development is part of the reason I have chosen this research topic. How come third graders are now required to meet fluency standards?

Exemplars

After reading a variety of articles, two articles have stood out as exemplars. One of the articles was referenced in every single article I read. The National Reading Panel (2000) published a summary of previous research articles regarding teaching children how to read. One chapter of that study was devoted to fluency. The Panel used guidelines to collect research that would be relevant to the study. Most articles reference the Panel's findings, when discussing the definition of fluency and other reading terms. This study provided a platform for researchers to develop questions about fluency and reading comprehension, because the Panel address that the research up to that point in 2000, was limited and lacked longitudinal evidence.

The other article that I will be referring to often was the research article written by Klauda and Guthrie (2008). They researched the relationship between fluency and comprehension, but they examined the correlation using the three elements of fluency: speed, accuracy, and expression. Klauda and Guthrie also tried to identify background knowledge and inferring as variables. This was really insightful and I will be using parts of their methodology to structure my research. Mostly isolating the three fluency strands in order to find more correlations.

Summary

This research has helped me define terms I will be using throughout my research. When discussing reading fluency, I am addressing a student's accuracy, rate, and expression when reading a given text aloud. I have realized how complex reading, fluency, and comprehension are. Although there is a lot of research regarding reading, fluency, and comprehension, very few researchers have isolated the elements of reading fluency to find a correlation with reading comprehension. It is my hope to explore the three elements of fluency and determine if there is a correlation to reading comprehension.

Methodology

The research design for this study is quantitative. The correlation will be determined through data. I will be using two fluency assessments that will be testing students on their accuracy, rate, and expression. After each passage I will ask the student six comprehension questions. Fluency rate will be scored using correct words per minute. I will use a timer and subtract the number of words read minus the errors made. To score accuracy, I will use the number of words divided by the number of words read total in one minute. I will find the accuracy percentage. I will also use the expression scale provided from the district to score each student's reading expression. I will use the scores from each fluency strand and compare it to the Lake Washington School District rate scale to determine if a student is below, at, or above standard, (Figure 5). I will have two isolated scores in each strand to use for the correlation data.

The reading comprehension component will be from the same fluency passage. Students will read the entire passage aloud. After the student has finished the reading,

they will answer six questions. Four questions will be within text comprehension (below standard or at standard) and two questions will be inference questions (beyond standard). From this data, I will be able to identify a correlation or not. The rubric was generated using the Angoff Method that the district uses, (Figure 6).

The sampling is chosen out of convenience. The population is made up of 24 students in my third grade class. Twelve of these students are girls and twelve of the students are boys. The students range in age from 8 to 9 years old. One student has an Individual Education Plan in reading and receives pull out services three to four days a week. I will meet with each student individually in a small and isolated room for convenience and quiet.

There are potential threats to validity in this research. The expression scale is a new assessment rubric, which I have never used before. These are new assessments mandated by the Common Core and written by the Lake Washington School District. I have never graded a student's expression, before. Human error and biases are a possible threat when assessing a student's expression. In addition, the sample is also not random and small. I am isolated to similar socio-economic levels. Our school is known for having above average readers. This could cause the data to not be as valid. The sample size is only 24 and it is important that all 24 students participate and consent to help the validity of this research.

Results

This research was designed to look for significant correlations between each fluency strand and comprehension. Tables 1, 2, and 3 show the correlations based on the data collected. The first table looks at the raw scores and the correlation between each

strand and comprehension. The second table shows each strand's data added up and then correlated. I added the scores for rate passage 1 to rate passage 2, and so on. The correlation numbers looked very similar to table 1. Since each table's numbers were similar, I decided to do one last correlation using the average score for each strand. The third table is the table I will use to discuss my results and my discussion.

When calculating correlations, I was looking for significant relationships. When fluency rate increases does reading comprehension increase? In order for the data to show a strong significance, the data will have a p-value of less than .05.

The average rate score correlated significantly with accuracy and expression. Rate and accuracy were highly correlated (r=.733), and this correlation was significant at the .01 level (p=.000). Rate and expression were less highly correlated (r=.576), and was significant at the .01 level (p=.003).The three fluency strands were highly correlated. Accuracy and expression showed some correlation (r=.475). This was significant at the .05 level (p=.019). If a student's accuracy is strong, there is some significance that that child's expression and rate will also be strong.

What I really wanted to know was how these three correlate with comprehension. Table three shows that all three strands show no correlation with comprehension. Rate and comprehension had no correlation (r=-.155) and the significance was way above the 0.05 level (p=.469). There was no correlation, of the students sampled, between a fast reader and strong comprehension scores. Accuracy and comprehension also had no correlation (r=-.081) and the significant was above the 0.05 level (p=.706). Again, no correlation. Finally, expression and comprehension had somewhat of a negative

correlation (r=-.313), but was not significant acording to the .05 level (p=.137). As a student was more expressive, their comprehension score decreased, from this sample.

Discussion

What this data means

Having experience with fluency at the primary and intermediate elementary level, I was surprised by the results of the correlation. The literature I read prior to research had led me to believe that fluency played a huge role in reading. When I think of good readers in my class, I think of students who can read smoothly, with an appropriate pace, and fluctuate their voice based on conventions. I was shocked as I was conducting the study, to hear a student read beautifully and then miss all of, or most of the comprehension questions. I felt tricked!

The fluent reader is having to think about how to read the passage, instead of understanding the meaning of what they are reading. At third grade, students are still working on how to be both fluent and understand the story at the same time. In first grade, students have to be fluent in order to understand. They may not have to be expressive yet, but first graders need more time to practice fluency to increase the amount of words read and accuracy. The necessity of fluency in first grade seems more important to reading comprehension and indicator into understanding how a student is reading, but by third grade the balance lies with how we help students become a fluent reader, while understanding the higher level meaning at the same time.

Future research

The fluency Common Core standard is the same for 3 through 5th graders. I would be curious to conduct this study in 4th and 5th grade to see if the correlation

changes. Would the fifth graders be able to read with expression and understand the text at the same time? Would there be a positive and significant correlation in that study? I am more curious about how the 4th and 5th graders grade and teach fluency. With this study behind me, I feel more confident to ask and discuss fluency with the rest of the intermediate teachers.

I decided early on not to pick a nonfiction text, but now I am curious how the study would have gone, if I had chosen a nonfiction text. I gave three fluency tests this past school year: fall, winter, and spring. In the winter I gave a nonfiction text and I had more students score below standard. The students were only scored on accuracy and rate at the time. I wonder how adding expression and comprehension would have changed the results. Nonfiction requires more reading for meaning than fiction, because the students can fill in their imagination with prior knowledge and predictions as they read. In nonfiction, most students, have little no prior knowledge with the passages. How is fluency different when reading nonfiction versus fiction? Are there differences in expression and comprehension between the two types?

Since this research was strictly looking for a correlation, I would be curious if there is a teaching method that would increase fluency and comprehension. I taught fluency during our poetry unit this past year, because students would be reading poems aloud often. I taught the three elements of fluency. Students were reading aloud with more expression and fluent pace. Part of me wonders if there would have been a more significant correlation if I would have taught fluency better and allowed the students to practice more. I could create a new study with a control group and test in a similar way,

to see how teaching fluency can impact the correlation between fluency and comprehension.

My future teaching

The fluency standard is not going away, therefor I need to teach and assess fluency in my class. Based on the results, I can think about fluency now as a component of reading. I can approach it has an element of reading comprehension and what good readers do, but not stress that students have to do both at the same time. They are still learning how to read fluently and understand when reading aloud.

Once a week, I had reading partners meet up and read a passage from our reading curriculum aloud to each other. Although, I will still have them practice their fluency at this time, I can try and also teach how to read aloud and comprehend at the same time. Students can practice both at the same time. I would want to start the year teaching fluency components, so students are focusing on those three components, but eventually in the year I could add the comprehension piece. It would be really beneficial for students to see how different it is when comprehending as readers read aloud. I can now see that it is a different skill entirely.

This study will also help me inform parents about their child's reading. I always get worried parents in September either saying, "When I read with my child they rush and miss words," or "My child can read aloud so well, he/she needs to be challenged with higher reading level books." I can reply to these parents with actual results and educate them on reading fluency, similar to how this study has taught me about fluency and it's relationship with reading comprehension.

References

Fuchs, L. S., Fuchs, D., Hosp, M. D., & Jenkins, J. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading, 5*, 239-259.

Hasbrouck, J., & Tindal, G. A. (2006). Oral reading fluency norms: A valuable assessment tool for reading teachers. *The Reading Teacher, 59*(7), 636-644. doi: 10.1598/RT.59.7.3

Hollenbeck, K. M. (2006). *Fluency practice read-aloud plays*. New York: Scholastic.

Hudson, R., Pullen, P., Lane, H., & Torgesen, J. (2009). The complex nature of reading fluency: A multidimensional view. *Reading & Writing Quarterly, 25*, 4-32.

Klauda, S. L., & Guthrie, J. T. (2008). Relationships of three components of reading fluency to reading comprehension. *Journal of Educational Psychology, 100*(2), 310-321. doi: 10.1037/0022-0663.100.2.310

Knoblock, K., Fry, E., & Rasinski, T. (2007). *Increasing fluency with high frequency word phrases*. Huntington Beach, CA: Shell Education.

National Reading Panel. (2000). Report of the national reading panel, teaching children to read: Evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. *NIH Publications*, (00-4769), 3-1-3-43.

Paleologos, T. M., & Brabham, E. G. (2011). The effectiveness of DIBELS oral reading fluency for predicting reading comprehension of high- and low-income students. *Reading Psychology, 32*, 54-74. doi: 10.1080/02702710903341262

Rasinski, T. (2006). Reading fluency instruction: Moving beyond accuracy, automaticity, and prosody. *International Reading Association,* 704-706.

Rasinski, T. (2004). Creating fluent readers. *Educational Leadership*, 46-51.

Third grade Wonders oral reading fluency [Assessing and reporting handbook]. (2013, June). Lake Washington School District.

Third grade Wonders oral reading fluency [Introduction and national fluency norms]. (2013, June). Lake Washington School District.

Tsou, W. (2011). The application of readers theater to FLES (foreign language in the elementary schools) reading and writing. *Foreign Language Annals*, *44*(4), 727-748.

United States of America, Council of Chief State School Officers and the National Governors Association. (n.d.). *Common core state standards for english language arts & Literacy in history/social studies, science, and technical subjects* (p. 17).

Zutell, J., & Rasinski, T. V. (1991). Training teachers to attend to their students' oral reading fluency. *Theory Into Practice,* (30), 211-217.