THE MOST EFFECTIVE FLUENCY STRATEGIES TO USE IN THE CLASSROOM

by

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CERTIFICATION OF THESIS/PROJECT CAPSTONE WORK

We, the undersigned, certify that this project entitled The Most Effective Fluency Strategies to
Use in the Classroom by Natalie Parrotta, Candidate for the Degree of Master of Science in
Education, Literacy Education, is acceptable in form and content and demonstrates a satisfactory
knowledge of the field covered by this project.

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ABSTRACT

Many adolescent students have often struggled with reading fluently which hindered other aspects of literacy, such as comprehension. Therefore, it was necessary that elementary school teachers used more effective fluency strategies to remove this deficit in middle and high school. To address this problem the principal investigator asked the question, "What are the most effective fluency strategies that elementary teachers can use in the classroom?" Since technology has been an up-and-coming feature in the classroom, specific studies that focused on technology-based fluency strategies were selected along with repeated reading, peer-assisted tutoring, and Readers Theatre. Studies had taken place only in the elementary classroom (grades one through six). After a review of the literature and a research synthesis, it was found that technology-based fluency strategies contributed to student motivation and contained a student-centered approach, more so than the other fluency strategies. Improvements in reading fluency were also noticed with the technology-based fluency strategies. These findings formed the basis of a professional development project presented through a workshop for elementary school teachers (grades one through six). Technology-based fluency strategies were explained and practiced during the workshop, and then implemented in the classroom.

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Chapter 1: Introduction

Statement of the Problem

Fluency has been defined as the ability to read quickly and accurately (Malouf, Reisener, Gadke, Wimbish, & Frankel, 2014). These researchers have found that fluency was fundamental to master reading. Kupzyk, Daly, and Andersen (2012) stated that 40% of fourth-grade students have oral reading fluency difficulties. The topic being discussed in this proposal is implementing the most effective fluency strategies in general education classrooms in elementary school. An academic skill that infuses through all other areas of academics is reading. Fluency is a very important part of reading and it is often an area in which students may experience difficulty.

Too many adolescents still have continued to struggle with overall reading fluency and have therefore been disadvantaged in the process of applying the increasingly sophisticated comprehension skills that complex text requires (Paige, 2011). This could have been the result of ineffective fluency strategies used in previous years of schooling. Therefore, the problem related to this topic is that teachers have not used the most effective fluency strategies in the classroom in earlier grades. To address that problem from the perspective of a literacy specialist, this thesis proposal asks the question, "What are the most effective fluency strategies that elementary teachers can use in the classroom?" To answer that question, a literature review of the research will be conducted and synthesized to determine the most effective fluency strategies, which will be turned into a professional development project to increase teacher knowledge.

Background

Determining the most effective fluency strategies that teachers and parents can implement is becoming more of an interest to me as I continue to spend more time in the classroom. Working as an English Language Arts (ELA) teacher for Academic Intervention Services (AIS) and as a literacy specialist candidate in the field, I notice more and more students

who struggle with fluency which is also hindering their comprehension skills. I have learned many fluency strategies throughout college, and have read many textbooks that provide strategies to use. However, I am interested in discovering which fluency strategies have been proven to be effective and have reliable research to support it. Another reason why this topic interests me is because until recently, I never thought of myself as being a very fluent reader. I used to be nervous to read aloud in fear of sounding "choppy." Discovering which fluency strategies are most effective in the classroom is important to me, so that unsure students might become confident in their reading skills.

Terminology

For the purpose of this proposal, terms have been defined below to provide the reader with a better understanding of the topic. "Fluency" has been defined as the ability to read quickly and accurately (Malouf et al, 2014). The term "elementary" has been defined in this proposal as students in grades 1 through 6. "Repeated reading" is used throughout this proposal and it required students to reread short passages a designated number of times or until a certain criterion was met (Begeny et al., 2010). "Readers Theatre" has been defined as students performing a story while reading directly from a script without relying on costumes, props, movement, or scenery to express meaning (Mraz et al., 2013).

Theoretical Stance

The theoretical stance selected for this research was the Mental Discipline Theory. This theory explained that the mind is like a muscle, and its various parts need to be exercised regularly. This relates to fluency in that a person must constantly practice reading in order to become a strong and fluent reader. Bigge and Shermis (1992) stated that the central idea in mental discipline is that the mind lies dormant until it is exercised. That being said, a person will

not become a fluent reader until they continuously practice reading and participate in effective

fluency programs and strategies to support them.

The proposed research synthesis has been aligned with the International Reading

Association (IRA) Standards for Reading Professionals (2010). Standard 1: Foundational

Knowledge stated that candidates understand the theoretical and evidence-based foundations of

reading and writing processes and instruction. This standard has been addressed in this proposal

because throughout the process we have gathered and understood research and related it to

theory. We read and understood research about factors that contribute to reading success. By

completing a professional development project, this proposal is also informing other educators

about major theories of reading and writing processes, components, and development with

supporting research evidence. In this case it is informing teachers of effective fluency strategies

to use with their students.

Rationale

Several authors (Malouf et al., 2014; Wu & Gadke, 2017) have noted that fluency is

crucial for achieving reading comprehension. Fluency is necessary for comprehension because a

student is better able to concentrate on the meaning of the material once the student is able to

read quickly and accurately (Malouf et al., 2014). As a result, it is important for elementary

school teachers to use the most effective fluency strategies with their students since fluency is

the basis for comprehension. Malouf et al. (2014), as well as, Mitchell, Rearden, and Stacy

(2011) agreed that fluency is fundamental to master reading and it is a vital component for

success in core subject areas. The purpose of this research is to identify the most effective

fluency strategies or programs that elementary school teachers can use in their classroom. This

research is important to the field of education because it will contribute knowledge that is

applicable for educators on how to strengthen fluency skills and improve their students' reading

achievements.

Chapter 2: Literature Review

Introduction

In order to address the research question of which fluency strategies have been the most effective and can be used in an elementary school classroom, a review of the empirical research studies on the topic was conducted. The literature review began with a search of the major databases: ERIC Database, Education Source, and Educators Reference Complete. Key words and phrases in the searches included fluency, fluency strategies, fluency in elementary school, fluency and technology, repeated reading, Readers Theatre, and peer tutoring. In order to find more technology-based articles, the following keywords/phrases were used: iPads, computers, digital books, computer-assisted instruction, and online reading programs.

The studies most relevant to this proposed research were grouped below and arranged according to specific themes. The elementary grade range in this proposal is 1 to 6. The first theme are the studies that used repeated reading to improve fluency. The second theme are the studies that used technology to improve fluency. The third theme are the studies that used Readers Theatre to improve fluency. The fourth theme are the studies that used peer tutoring or peer-assisted learning to improve fluency.

Repeated Reading Strategy

Several researchers (Begeny, Krouse, Ross, & Mitchell, 2009; Wu & Gadke, 2017; Begeny et al., 2010; Begeny, 2011) have compared repeated reading to other types of fluency strategies. The implementation of repeated reading throughout the studies was somewhat different, but both still had the same types of positive results. In an earlier repeated reading study, Begeny et al. (2010) and later Begeny (2011) compared the Helping Early Literacy with Practice Strategies program (HELPS) to another type of fluency strategy. The HELPS program incorporated the use of repeated reading, while the control group did not receive repeated

reading instruction. Both research teams (Begeny, 2010; Begeny, 2011) found identical results

that the students involved in the HELPS program outperformed the students in the group it was

being compared to in the areas of reading fluency and comprehension as well. It was perceived

that students who received the HELPS Program had significantly outperformed the comparison

group because of the repeated reading component (Begeny, 2010).

Continuing with repeated reading strategies that have positively affected reading fluency

with small groups or individuals, Begeny (2009) and Wu and Gadke (2017) had also similarly

compared repeated reading to other types of strategies including Listening Passage Preview and

Video Self-Modeling. While the implementation of repeated reading was somewhat different,

both contained the same type of positive results. Begeny (2009) focused on using repeated

reading in a small group setting with one student who acted as the leader. The students read the

passage out loud together, while the leader read slightly louder than the other students. This

process continued with the same passage, but with a different group leader. On the other hand,

Wu and Gadke (2017) had students read the passage independently, twice. However, both

repeated reading interventions allowed the instructor to provide unknown words to the students.

Across these four studies, it was found that a form of repeated reading was the most beneficial

strategy for the participants.

Readers Theatre Strategies

Yet another approach to increasing fluency would be Readers Theatre (Mraz et al., 2013;

Young & Rasinski, 2009; Vasinda & McLeod, 2011). These authors found gains in fluency and

even comprehension. When implemented in the studies, authors used similar protocol throughout

such as having incorporated shared reading, echo reading, partner reading, choral reading, and

the performance day (Mraz et al., 2013; Young & Rasinski, 2009; Vasinda & McLeod, 2011).

Teachers were conveniently able to use the protocol daily and incorporate it into their lessons

(Mraz, 2013; Young & Rasinski, 2009).

Along with Mraz (2013), Young and Rasinski (2009), and Vasinda and McLeod (2011),

Clark, Morrison, and Wilcox (2009) implemented the protocol of Readers Theatre in a classroom

of 4th grade students. Using shared reading, echo reading, etc. Clark et al. (2009) and Mraz et al.

(2013) both used the Multidimensional Fluency Scale as a way to collect data. This is a 4-point

scale that rates four specific aspects of fluency: expression and volume, phrasing, smoothness,

and pace. Extending the normal protocol of Readers Theater, Vasinda and McLeod (2011) also

added an extended portion of recording the student performance and uploaded it to a website for

the parents and students to listen to. Mraz et al. (2013), Young and Rasinski (2009), Vasinda and

McLeod (2011), and Clark et al. (2009) all came to similar conclusions that consisted of Readers

Theatre showing improvement in reading fluency. Several authors (Clark et al., 2009; Mraz et

al., 2013; Young & Rasinski, 2009) recognized gains in word recognition accuracy, rate, and

prosody, which are the components of fluency. Percentage growth was made throughout all three

areas. The coinciding results from these studies can conclude that implementing Readers Theatre

in the classroom is effective in improving reading fluency.

Continuing with types of Readers Theatre strategies that have influenced reading fluency,

Young, Valadez, and Gandara (2016) and Calo, Woolard-Ferguson, and Koitz (2013) both used

a performance-based method to improve fluency skills. They had similarly incorporated pop

culture into Readers Theatre to engage and motivate reading (Young et al., 2016 & Calo et al.,

2013). Along with Clark et al. (2009) and Mraz et al. (2013), Young and colleagues (2016) and

Calo and colleagues (2013) used the Multidimensional Fluency Scale as a way to collect data to

measure specific fluency aspects. Young et al., (2016) and Calo et al., (2013) discovered an

increase in Multidimensional Fluency Scale scores, especially in the areas of expression and volume. Several authors (Mraz et al., 2013; Young & Rasinski, 2009; Vasinda & McLeod, 2011; Clark et al., 2009; Young et al., 2016; Calo et al., 2013) had discovered similar results relating to readers theatre having positive effects on reading fluency.

Peer-Assisted Tutoring Strategies

A number of authors (Jones, Ostojic, Menard, Picard, & Miller, 2017; Olson, 2011; Dufrene et al., 2010) also stated that peer tutoring was effective in increasing reading fluency. Special training for the tutors was used throughout all three studies, so that they knew the appropriate protocol. The training contained a program that taught the tutors how to use a digital timer, appropriately model passages, score a reading probe with an adult scorer, and accurately record the score on a recording form (Jones et al., 2017; Olson, 2011; Dufrene et al., 2010) Each author used a different type of peer-assisted tutoring protocol, but there were positive effects for all. Curriculum based assessments were used across studies to appropriately pair students. Many researchers (Jones et al., 2017, Dufrene et al., 2010, and Olsen, 2011) all used similar strategies within their peer-assisted tutoring sessions, such as partner reading, echo reading, repeated reading, and systematic error correction, along with recording each session. Across all of the studies, there was an increase in word count per minute (WCPM) that was noticed with the tutees (Jones et al., 2017; Olson, 2011; Dufrene et al., 2010).

Several more researchers, (Oddo, Barnett, Hawkins, & Musti-Rao, 2010; Hofstadter-Duke & Daly, 2011) also had similar findings when using a type of peer tutoring strategy. The sessions were led by the teacher, but with a peer-mediated repeated reading portion. Teachers trained same-grade tutors using explanations, modeling, and practice of the protocol (Oddo et al., 2010; Hofstadter-Duke & Daly, 2011). Dufrene (2010) had similarly used peer-mediated

repeated readings in the sessions as well. When this was implemented, the tutee read the same passage aloud until completion of two consecutive trials while the tutor corrected any errors that were made (Dufrene et al., 2010). Similar to Jones et al. (2017), Dufrene et al. (2010) and Olsen (2011), Oddo et al. (2010) and Hofstadter-Duke and Daly (2011) found that greater gains in fluency were apparent after the intervention was completed.

Technology-Based Strategies

Another alternative for increasing fluency has been the use of technology (Trainin, Hayden, Wilson, & Erickson, 2016; Kaman & Ertem, 2018; Kim, Samson, Fitzgerald, & Hartry, 2010). The authors found that technology has become more common and teachers were utilizing it more in their classrooms, however research has been limited about how reading digital texts affects the reading of students (Trainin et al., 2016; Kim et al., 2010). Kim et al. (2010) compared a program called READ 180 that involves computer-assisted instruction to a non-computerized district after-school program. This computerized program (READ 180) involved whole group instruction, followed by individualized computer-assisted instruction, while the district after-school program did not include any forms of technology (Kim et al., 2010). Meihami and Husseini (2014) also used a form of computer-assisted instruction similar to Kim and colleagues (2009) and the authors agreed that it provided a self-paced interactive learning environment. Kim and colleagues (2009) and Meihami and Husseini (2014) discovered that the technology-based strategy improved reading fluency in the participants by having noticed an increase in words per minute.

Many researchers (Trainin et al., 2016; Kaman & Ertem, 2018; Lin, Su, & Huang, 2018) used a mixed methods approach to compare digital texts and print texts and how it affects fluency skills in elementary school students. All the researchers had found that the digital

versions of the texts improved the reading fluency of the students involved. Other authors

(Trainin et al., 2016; Kim et al., 2010; Lin et al., 2018) noted that students using the paper-based

reading materials read more words inaccurately than students who used digital texts. Another

advantage that researchers (Trainin et al., 2016; Kim et al., 2010; Peo-Hsuan et al., 2018)

mentioned was that the students who used the digital version liked how they could control the

size of the text.

Similar to the earlier Kim et al. (2010) study, Keyes, Cartledge, Gibson, and Robinson-

Ervin (2016) also used computer assisted instruction to assess fluency. The processes used in

both forms of computer-assisted instruction were very similar involving a digital timer, video-

recorder, and tangible items as reinforcers. Kim et al. (2010), as well as, Keyes et al. (2016)

showed significant growth in the reading fluency in the elementary students. Collectively, the

participants gained an average of 13 words per minute (WPM) from baseline to intervention

(Keyes et al., 2016). Not only were gains made in reading fluency, but improvements were

noticed in comprehension, vocabulary, and motivation (Keyes et al., 2016; Kim et al., 2010;

Kaman & Ertem, 2018). Technology has been becoming a vital part of education (Kaman &

Ertem, 2018; Keyes et al., 2016), and these studies have concluded that it has a positive influence

in reading fluency.

Several authors (Arens, Gove, & Abate, 2018; Mitchell et al., 2011; Ness, 2016)

incorporated the use of iPads/iPods to improve reading fluency. Many authors (Arens et al.,

2018; Mitchell et al., 2011; Kim et al., 2010) stated that electronic tablets have become

increasingly popular in classroom reading instruction and the development of oral reading

fluency. Arens and colleagues (2018) and Mitchell and colleagues (2011) have been able to

incorporate use of the iPad fluency instruction into their "Daily Five" routine, which involved

reading to someone, reading to yourself, word work, listening to reading, and writing work. Several authors (Arens et al. 2018; Mitchell et al. 2011; Ness, 2016) used the iPads to have students record themselves, read some type of passage, discuss the recording with peers and the teacher, note specific fluency aspects that can be improved, and then record a final time with the appropriate changes.

Arens et al. (2018), Mitchell et al. (2011), as well as, Ness (2016) incorporated a reflection portion into their strategy with iPads. Students completed a self-evaluation worksheet where they could record if they read with appropriate pace, expression, accuracy, and punctuation. They could also set goals for their next reading, such as remembering to not skip over punctuation, etc. The authors (Arens et al., 2018; Mitchell et al., 2011; Ness, 2016) mentioned that the final reflection step encouraged students to be metacognitive about their oral reading. Similarly, several authors, (Keyes et al., 2016; Kim et al., 2010; Kaman & Ertem, 2018; Trainin et al., 2016), and other researchers (Arens et al., 2018; Mitchell et al., 2011; Ness, 2016) all had teachers report that reading fluency was improved with the students.

Many authors (Kaman & Ertem, 2018; Trainin et al., 2016; Arens et al. 2018; Mitchell et al. 2011; Ness, 2016) also noted how motivating it was for the students to use technology in their reading instruction. Arens et al., (2018), Mitchell et al., (2010) and Ness (2016) stated that students showing their best possible video to their peers served as an instant motivation and students independently returned to their iPads multiple times to record again. A number of authors (Trainin et al., 2016; Kaman & Ertem, 2018) noted that technology was perceived to provide an extra motivation for students to engage in fluency-development activities. Supporting the advantage of technology in the classroom, Sen (2016) stated that the use of technology in the classroom allowed students to be more active in the learning process. This motivation that

technology has been bringing to the classroom has also provided a positive effect on the reading

fluency of students.

Similar to Kim et al., (2010), many other authors (Field, 2009; Gibson, Cartledge, &

Keyes, 2011; Keyes, Jacobs, Bornhorst, Gibson, & Vostal, 2017; Bennett, Gardner, Cartledge,

Ramnath, & Council, 2017) also used computer-based reading programs to support reading

fluency skills in elementary students. Gibson et al., (2011) and Keyes et al., (2017) used the

Read Naturally program which consisted of keywords, various ways of practice reading,

comprehension tests, and reading checkout. Read Naturally also incorporated repeated reading,

which is a research-based strategy that has been proven to improve reading fluency skills.

Several authors (Gibson et al., 2011; Keyes et al., 2017), Bennett et al., (2017) utilized a

repeated reading computer-assisted instruction software. It involved steps very similar to Read

Naturally, like practice readings, listening to readings, and comprehension passages. Like the

program that many authors (Gibson et al., 2011; Keyes et al., 2017; Bennett et al., 2017) applied,

Kim and colleagues (2010) and Field (2009) also used computer based programs that select

stories according to the learner's individual pace and grade level. Several authors (Gibson et al.,

2011; Keyes et al., 2017; Bennett et al., 2017; Kim et al., 2010; Field, 2009) who implemented a

form of computer-assisted instruction all reported results that positively increased reading

fluency.

Similar to many authors (Arens et al., 2018; Mitchell et al., 2011) who have noticed

positive effects of using technology in fluency instruction, Sen (2016) and Robson, Blampied,

and Walker (2015) used Video-Self Modeling to improve fluent reading. A tablet was used by

the authors (Arens et al., 2018; Mitchell et al., 2011; Sen, 2016; Robson et al., 2015) to record

and re-watch student reading. Each technique was used for the purpose of re-watching and

critiquing student performance, so fluency skills can be improved the next time. Sen (2016) and Arens et al., (2018) agreed upon how video recordings can be revised and re-recorded until the specific target is reached. Like Arens and colleagues (2018) and Mitchell and colleagues (2011), authors (Sen, 2016; Robson et al., 2015) reported a positive effect of Video Self-Modeling on reading fluency.

Summary

Repeated reading strategies have proven to be effective in improving the reading fluency in elementary school students. Many authors (Begeny et al., 2010; Begeny et al., 2011; Wu & Gadke, 2017) have agreed that instruction with repeated readings as a core component can result in improvement in both students' fluency and comprehension. It was also noted by authors (Arens et al., 2018) that repeated reading strategies that include motivational components were significantly more effective than repeated readings that did not include these components.

Several authors (Mraz et al., 2013; Young & Rasinski, 2009; Vasinda & McLeod; 2011; Clark et al., 2009) have discovered that Readers Theatre strategies have also been effective in improving reading fluency. Mraz et al. (2013) and Young and Rasinski (2009) supported that Readers Theatre is an effective strategy that provides practice in oral reading in an environment where students can gain confidence and a self-efficacy for oral reading. Many authors (Clark et al., 2009; Mraz et al., 2013; Young & Rasinski, 2009) who implemented Readers Theatre in the elementary school classroom recognized gains in word recognition, accuracy, rate, and prosody, which are all components of fluency.

A number of authors (Jones et al., 2017; Olsen, 2011; Dufrene et al., 2010; Oddo et al., 2010) researched the effects that peer-assisted tutoring had on fluency skills, and found positive outcomes as well. Dufrene et al. (2010) and Oddo et al. (2010) found that peer mediated repeated

reading was effective for improving elementary and middle school students' reading fluency and comprehension. Many researchers (Jones et al., 2017; Dufrene et al., 2010; Olsen, 2011) used strategies such as partner reading, echo reading, and repeated reading within each peer-assisted tutoring session that resulted in an increase in WCPM.

Although repeated reading, Readers Theatre, and peer-assisted tutoring were proven to enhance reading fluency in elementary school students, Sen (2016) stated that the use of technology in the classroom allowed students to be more active in the learning process than other techniques, learn at their own pace and give them a chance to repeat the activities they want to do. Many varieties of technology like digital books, computer-assisted instruction, and iPads can all be incorporated into classroom instruction to improve reading fluency. Ness (2016) and Arens et al., (2018) mentioned how motivating and modern iPads were for the students, and how they continuously wanted to practice to improve their reading. Kaman and Ertem (2018) and Lin et al., (2018) agreed upon the statement that the motivation and reading fluency of learners are improved in educational environments where digital texts were used. As a result of these statements that demonstrate the positive effects that technology brings to the classroom, the use of technology in the general education elementary classroom will be focused on in the methodology to successfully support teachers in improving their students' reading fluency.

Chapter 3: Methodology

Introduction

Many authors (Begeny et al., 2010; Begeny et al., 2011; Wu & Gadke, 2017) have agreed that instruction with repeated readings as a core component have resulted in improvement in both students' fluency and comprehension. Many authors (Clark et al., 2009; Mraz et al., 2013; Young & Rasinski, 2009) who implemented Readers Theatre in the elementary school classroom recognized gains in word recognition, accuracy, rate, and prosody, which were all components of fluency. Dufrene et al. (2010) and Oddo et al. (2010) found that peer mediated repeated reading was effective for improving elementary and middle school students' reading fluency and comprehension. Kaman and Ertem (2018) and Lin et al., (2018)agreed upon the statement that the motivation and reading fluency of learners improved educational environments where digital texts were used.

To address the research question of what the most effective fluency strategies are that general education elementary school teachers can use in their classroom, an extensive review of the literature was conducted. The principal investigator discusses the data collection process, the data analysis, and the synthesis. The data collection section discusses how the studies were found for this report. The data analysis section examines the research studies collected and discusses the common themes and patterns that were found. The synthesis section provides a summary of what was found as a result of the data analysis.

Data Collection

The search involved exploring the three education databases: ERIC Database, Education Source, and Educators Reference Complete. Key words and phrases were fluency strategies, fluency in elementary school, fluency and technology, repeated reading, Readers Theatre, and

peer tutoring. The data for this research study synthesis consisted of the 31 research studies found through the data collection process of exhaustively searching the educational databases for peer-reviewed research studies. The search yielded the names of several researchers (Begeny, 2011; Keyes & Cartledge, 2016; Young, 2016), and about 25-50 articles were produced for each search. Once all articles possibly pertaining to the research question were located, the data were then organized into four themes, which are discussed in the next section.

Data Analysis

The research articles found were organized into four themes according to the type of fluency strategy being used: repeated reading, technology-based, Readers Theatre, and peer-mediated/tutoring. These studies were then further analyzed to produce new findings related to the research question. The terms *student motivation* and *student-centered* were used throughout the data analysis. *Student motivation* has been defined as the engagement of students and wanting to participate and learn. *Student-centered* has been defined as students working independently or in a small group without assistance from the classroom teacher.

Repeated Reading Strategy. One study (Paige, 2011) discussed the strategy of repeated reading to promote *student motivation*. A student survey was administered after the intervention and several students said that choral reading "was fun." The classroom teacher also commented that it was motivating for the students and that it improved their oral reading fluency. Paige (2011) noted that students were excited for the readings and began reading louder and louder each time.

Three studies (Begeny et al., 2010; Begeny et al., 2011; Paige, 2011) stated how it was *student-centered*. The teachers still trained and had to demonstrate to the students how to use the specific strategy or program, but when the students understood it, it was very student

independent and less assistance from the teacher was needed. Begeny et al. (2010) and Begeny et

al. (2011) used programs that required students to work with an instructor for about 10 minutes

per day, while the other features of the programs allowed students to work at a computer

independently with a headset with no teacher involvement. The programs recorded the students'

voices and calculated WPM automatically so the teacher did not have to. Paige (2011) only

required the classroom teacher to model how to read a passage fluently. After that, the students

worked independently in groups while the teacher monitored for behavior and questions.

Peer-Assisted Tutoring Strategies. One study (Olsen, 2011) discussed how peer-

assisted tutoring promoted *student motivation*. By having used a reciprocal teaching method, the

lower performing student tutors were motivated because they were allowed to teach the content

to another peer. Acting as a tutor also increased the student's intrinsic motivation to master the

material (Olsen, 2011).

Three of the studies (Oddo et al., 2010; Hofstadter-Duke & Daly, 2011; Jones et al.,

2017) discussed how the strategy was *student-centered*. Questionnaires were administered to the

classroom teachers after the procedures were implemented. Classroom teachers expressed that

the time in monitoring students was reduced, the students became increasingly self-managed, the

students naturally assigned themselves roles, and minimal time was required from the classroom

teacher. Teachers reported that it took time to train the students how to tutor, but then they could

simply watch and take notes.

Readers Theatre. Three studies (Young & Rasinski, 2009; Clark et al., 2009; Mraz et

al., 2013) discussed how implementing Readers Theatre in the classroom promoted *student*

motivation. It was reported that students were seen practicing their scripts at other times

throughout the day other than the designated practice times. Students gained confidence and

motivation for reading and were excited to present their script in front of the class. Student

surveys were given which showed that students felt like they had a responsibility to learn their

parts of the script, which motivated them even more. Comments were made such as "Mr. Young,

Readers Theatre rules!", and a parent mentioned that it motivated their child to read every night.

        Two of the studies (Young & Rasinski, 2009; Vasinda & McLeod, 2011) discussed the

student-centered approach. Students practiced reading their scripts in groups with limited help

from the classroom teacher, which allowed the students to become more independent.

Questionnaires were given to the classroom teacher which allowed feedback to be given on the

use of the specific Readers Theatre strategy that was implemented. Teachers expressed that

students mainly practiced in groups, which made it easy for the teacher to walk around and assist

when needed.

        Technology-Based Strategies. Seven studies (Arens et al., 2018; Kaman & Ertem, 2018;

Mitchell et al., 2011; Trainin et al, 2016; Sen, 2016; Gibson et al., 2011; Ness, 2017) discussed

how the technology used in the implementation provided *student motivation*. Students were

motivated to use digital books over printed texts because of interesting reading topics, multiple

opportunities to practice, a fun way to graph their progress, and being able to hear someone

fluently read to them. Students were also more excited to hold a device, rather than a book.

Students were constantly motivated when they had to record themselves reading. Students set

goals for themselves, and they wanted to make progress. This gave students motivation to record

and practice so that their goals could be met. Students that used a specific computer-based

program received a survey that asked them if they enjoyed the program, if they thought it helped

them with reading, if they were motivated by the rewards, if they still would have used it without

the rewards, and if they wanted to continue using the program (Gibson et al., 2011). All

participants responded "yes" to each of the questions. The use of an iPad for recording was very motivating for students because they constantly wanted to hear themselves improve. Peer critique systems were used that motivated the students to improve their fluency because they knew that their friends would be "grading" them on their reading. Ness (2017) overheard students comment things such as "Let me try that again!" and "That wasn't good enough." Students were continuously motivated to record their best possible version of their reading.

Nine studies (Arens et al., 2018; Keyes et al., 2016; Trainin et al., 2016; Sen, 2016; Gibson et al., 2011; Field, 2009; Ness, 2017; Lin et al., 2018; Bennett et al., 2017) discussed the *student-centered* approach. With the use of certain technology, students were able to work independently or in small groups without assistance from the classroom teacher. Using iPads allowed students to independently record themselves reading, self-assess, have peers critique them, and then record again. No assistance was needed from the classroom teacher, except to teach them how to use the iPads and critique prior to the intervention. Using digital texts required no assistance from the classroom teacher, except to train the students on how to maneuver them. After students became comfortable, they were very independent with the systems and did not need help from the teacher. Computer-based programs allowed the students to work independently without assistance from the classroom teacher. These programs provided instructions to the students without taking the teacher away from other classroom responsibilities. Teachers also reported in a questionnaire that their students were able to use the program independently with minimal adult assistance, and that their students' fluency and comprehension had improved. Because these specific technology-based strategies are *student-centered*, teachers reported that they were able to save time and complete other tasks while the students were using their technology.

Table 1

Summary of Data Analysis: Number of Studies in Each Pattern

Pattern	Repeated Reading	Technology-Based Strategies	Peer-Assisted Tutoring	Readers Theatre
Student Motivation	1	7	1	3
Student-Centered Approach	3	9	3	2

This table shows that the technology-based fluency strategies contained the highest number of articles that discussed *student motivation* or a *student-centered* approach.

Synthesis

The results that emerged from the analysis of each of the four categories have been synthesized into findings that address the research question for this study. Many of the studies that contained *student motivation* and a *student-centered* approach also contained an *easy teacher implementation* (see Table 2). In this context, *easy teacher implementation* meant that little preparation and assistance was needed by the classroom teacher, so they were able to focus on the students who may have needed extra help or the preparation of lessons/activities for the rest of the school day.

Table 2

Studies that Contained an Easy Teacher Implementation

Pattern	Repeated Reading	Technology-Based Strategies	Peer-Assisted Tutoring	Readers Theatre
Student Motivation	-Paige (2011)*	-Arens et al. (2018)* -Kaman & Ertem (2018) -Mitchell et al. (2011)* -Trainin et al. (2016) * -Sen (2016)* -Gibson et al. (2011)* -Ness (2017)*	-Olsen (2011)	-Mraz et al. (2013) -Young & Rasinski (2009)* -Clark et al. (2009)
Student-Centered Approach	-Begeny et al. (2011) -Begeny et al. (2010)	-Arens et al. (2018)* -Keyes et al. (2016) -Trainin et al. (2016)* -Sen (2016)* -Gibson et al. (2011)* -Field (2009) -Ness (2017)* -Lin et al. (2018)* -Bennett et al. (2017)	-Jones et al. (2017) -Oddo et al. (2010) -Hofstadter-Duke & Daly, (2011)	-Young & Rasinski (2009)* -Vasinda & McLeod (2011)*

* = **easy teacher implementation**

Repeated Reading Strategies. One study (Paige, 2011) discussed how the strategy used had an *easy teacher implementation* for the classroom teacher. All that the classroom teacher had to do was model how to read a passage fluently. After that, the students worked in small groups and practiced choral reading with different reading passages.

Peer-Assisted Tutoring Strategies. Four studies (Olsen, 2011; Oddo et al., 2010;

Hofstadter-Duke & Daly, 2011; Jones et al., 2017) required the classroom teacher to train the students how to tutor. Although the students became self-managed and it was easy for the teacher to supervise after the training, it was not a simple process for the classroom teacher to train the students how to tutor.

      Readers Theatre. Two studies (Young & Rasinski, 2009; Vasinda & McLeod, 2011) demonstrated how Readers Theatre contained an *easy teacher implementation* for the classroom teacher. The classroom teachers expressed in a survey that Readers Theatre was easy to implement in the classroom. Teachers said that recording the student performances was an easy process that was inexpensive and accessible to many teachers. It was also reported that finding scripts was incredibly easy.

      Technology-Based Strategies. Seven studies (Arens et al., 2018; Trainin et al., 2016; Sen, 2016; Gibson et al., 2011; Ness, 2017; Lin et al., 2018; Mitchell et al., 2011) demonstrated how the technology-based strategies used contained an *easy teacher implementation* for the classroom teacher. When iPads were used, teachers expressed that it was easy to show the students how to use them to record. Teachers also shared that they had to simply model a reading passage before students began independently. The iPads were always readily available and commonly used by the classroom teachers, and it was simple to teach the students how to assess their peers and themselves. The computer-assisted programs used were easy for the teachers to use because the program itself provided instructions for the students without taking the teacher away from other classroom responsibilities. Teachers felt like it was a simple process to introduce the students to the programs. They also made it easier for the classroom teacher to incorporate repeated reading interventions because the computers were able to complete it within a quicker time period than it would have if the teacher had to meet with every student. It was

found that using digital texts in the classroom was easy for teachers to implement based on a

survey that was administered. While the students used the digital book, the teacher used an

online system that assessed the students which they expressed to be easy to understand and

maneuver.

Chapter 4: Results and Application

Results of the Review

After having completed a review of the literature that determined what research had been conducted to determine the most effective fluency strategies, the primary investigator had determined three key findings. The first finding was that technology-based strategies promoted student motivation and had a student-centered approach over repeated reading, peer-assisted tutoring, and Readers Theatre. The second finding was that technology-based strategies contained an easy teacher implementation over repeated reading, peer-assisted tutoring, and Readers Theatre. The third finding was that technology-based fluency strategies improved the reading fluency of elementary school students.

Application of Results to a Professional Development Project

The findings from this study had significance to general education elementary school teachers (first through sixth grade). These findings assisted the teachers in choosing technology-based fluency strategies that have improved their students' fluency skills. These findings also assisted teachers in planning a curriculum that incorporates technology in an effective and engaging way. Sharing the findings from this research synthesis with general education elementary school teachers was the most beneficial through a hands-on, professional development workshop.

Design of the Professional Development Project

The goal of this professional development project was to inform teachers about the benefits of using technology in the classroom to improve their students' reading fluency skills. The information was presented through an in-person professional development workshop.

Literacy Coaching Goals and Objectives. The first objective of this in-person training

was that all participants were able to define the technology-based fluency strategies that have a positive impact on reading fluency at the elementary school level. The second objective was that all participants have a hands-on experience with the technology strategies that were discussed and collaborate with one another when using the pieces of technology. The third objective was that teachers will be able to use the technology-based strategies in their classroom after attending the session and gaining experience using each strategy.

Proposed Audience and Location. This proposed professional development project was intended for an audience of general education elementary school teachers in grades one through six. Arrangements were made at the local college campus, so that this event could be held in one of its seminar rooms.

Proposed Project Format and Activities. This proposed professional development project took the form of an in-person workshop (see Appendix A). Teachers were shown the charts that were created in this project and how the results came to be through a PowerPoint presentation. Then the participants were shown how to incorporate an iPad to record yourself and how to use the computer-assisted program, READ-180. The coordinator of the session modeled how to use these, and then the teachers had a hands-on experience. Teachers were paired based on grade level, so they were able to discuss the positives and negatives of incorporating these fluency strategies into their classrooms. Teachers had time to explore and practice using these different forms of technology, allowing them to ask questions at any time. The teachers were asked to implement one of these strategies in their classroom within the next month and asked to send the Strategy Evaluation form (see Appendix C) to the coordinator of the workshop to determine the effectiveness or ineffectiveness of the strategies. Student peer evaluation and student self-evaluation worksheets that went along with each strategy were distributed, and the

teachers were asked to scan and return three student samples as well. This process was thoroughly explained with the teachers, and they were told to re-explain it to their partner to confirm understanding. At the end of the session, participants completed an evaluation form (see Appendix B).

Proposed Resources for Project. Proposed resources for this professional development workshop included online internet access, iPads, and laptops for the participants. By districts having provided iPads and laptops for the participants attending, the teachers were able to actually practice using the strategy before they had their students use it. Teachers did not need anything pre-downloaded on their iPads/laptops. Everything was explained throughout the session. Example worksheets of student self-evaluations that went along with each strategy were provided for the teachers and were discussed so they could use them in their classroom. Example worksheets of student peer-evaluations were provided and explained as well, so that students could evaluate each other when they used the strategy. They were also shared with teachers electronically for future use with students. A Google document was also shared with each of the teachers to record the pros and cons of the strategies as they used them. The school districts attending were asked to provide technology that their teachers could use.

Proposed Evaluation of Project. To evaluate the effectiveness and usefulness of the workshop and whether the project objectives had been met, the participants received a survey electronically through Google Surveys at the end of the session (see Appendix B). Participants were asked to measure the effectiveness of the session and to provide their feedback in regards to the session's usefulness for their own professional development. The survey also asked if the information was clearly presented, if the technology strategies used were explained appropriately and effectively, if they liked the strategies being taught and if they had any difficulties with the

technology, and if the educators would personally use those strategies in their classroom to develop their students' reading fluency.

Project Ties to Professional Standards (Common Core and IRA)

This professional development project tied to the Professional Standards of the International Reading Association (IRA) because Standard 6, Professional Learning and Leadership, "is based on a commitment by all reading professionals to lifelong learning (IRA, 2010). The elements in this standard also include an emphasis on positive dispositions, individual and collaborative learning, the ability to design and evaluate professional learning experiences, etc. By teachers attending this proposed workshop, they were individually and collaboratively learning and evaluating the effectiveness of their professional learning experience.

In addition to these standards, this form of professional development tied to the New York State Common Core Learning Standards (CCLS). The CCLS within the "Reading: Foundational Skills" area include a fluency component at every grade level from first to sixth grade. For example, CCSS.ELA-LITERACY.RF.5.4 is "read with sufficient accuracy and fluency to support comprehension." Applying the findings enabled teachers to support student's fluency skills and guide students to meet the objective of the specific Common Core Learning Standards.

Chapter 5: Discussion and Conclusion

Overview of Study and Findings

Too many adolescents still have continued to struggle with overall reading fluency and have therefore been disadvantaged in the process of applying the increasingly sophisticated comprehension skills that complex text requires (Paige, 2011). This could have been reflected off ineffective fluency strategies used in previous years of schooling. Kupzuk et al. (2012) stated that 40% of fourth-grade students have oral reading fluency difficulties. To address this problem, the principal investigator asked the question, "What are the most effective fluency strategies that elementary teachers can use in the classroom?" To answer the question, a literature review and research synthesis were conducted and three findings were produced. The first finding was that technology-based strategies promoted student motivation and had a student-centered approach over repeated reading, peer-assisted tutoring, and Readers Theatre. The second finding was that technology-based strategies contained an easy teacher implementation over repeated reading, peer-assisted tutoring, and Readers Theatre, meaning the technology-based strategies required less teacher preparation over the others. The third finding was that technology-based fluency strategies improved the reading fluency of elementary school students. The findings showed that technology-based strategies had a positive influence on the reading fluency skills of elementary school students. The professional development workshop addresses the research question because elementary school teachers will be informed of the types of technology and the strategies associated with them that will improve their students' reading fluency skills.

Significance of the Findings

These findings are significant to general education elementary school teachers (grades one through six) because they contributed to new knowledge about the influence that technology

has on reading fluency. This study finds that technology-based fluency strategies contributed to student motivation, were student-centered, contained an easy teacher implementation, and improved fluency skills in elementary school students. Students who used computer-assisted instruction gained an average of 12 WPM from baseline to intervention (Keyes et al. 2016). Using iPads to record readings and peer evaluations of the readings have also been shown to improve reading fluency (Arens et al., 2018). Many researchers, (Trainin et al., 2016; Kaman & Ertem, 2018; Lin et al., 2018) who compared the use of digital texts to print texts, noticed an improvement in reading fluency in the students who used them. Sen (2016) stated that the use of technology in the classroom allowed students to be more active in the learning process along with a positive effect on the reading fluency of students. The findings encouraged classroom teachers to use these effective technology-based strategies in their fluency instruction in order to increase student's WPM and their fluency skills. A professional development workshop was held that informed elementary school teachers of these effective technology-based fluency strategies, so they could be implemented in the classroom.

Limitations of the Findings

A limitation to the findings of this research study was that the research mainly focused on the use of iPads, specific reading programs, and digital texts. There may have been other types of technology that could have been used in the classroom for fluency instruction that may or may not have been effective. In addition, this study focused on the elementary school grade levels (1 through 6). These technology-based strategies may not have been as effective for middle or high school students.

Conclusion: Answer to the Research Question

Because many students have struggled with reading fluently, the problem associated with

this professional development project was that teachers have not used the most effective fluency strategies in general education elementary school classrooms. The research question for this study was, "What are the most effective fluency strategies that elementary teachers can use in the classroom?" After a review of the research was conducted, the principal investigator organized the findings into two overarching categories; student motivation and student-centered approach. These studies were further analyzed by determining which strategies contained the easiest implementation for the classroom teacher. This methodology was successful in determining the most effective fluency strategies to use in the elementary school classroom. Technology-based fluency strategies were the most effective strategies to use in an elementary school classroom that improved the reading fluency skills of students. This information was presented through a professional development workshop for elementary school teachers, and it provided these teachers with information and hands-on experiences with the technology-based fluency strategies that were proven to improve reading fluency in elementary school students. Teachers were then able to implement these effective technology-based fluency strategies in their classroom.

Recommendations for Future Research

Future researchers may consider the following recommendations. The first recommendation is for research to be conducted on how technology can be incorporated into fluency instruction for middle and high school. Specific studies that would make contributions to this are those that examine the upper grade ranges (seventh through twelfth grade). A second recommendation is to research additional studies that discuss the influence that technology-based fluency strategies have on comprehension skills, rather than just fluency alone. A third recommendation would be to research additional types of technology that can be used in the classroom and whether they improve reading fluency in ways similar to the results of this study.

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Appendix A: Agenda for Professional Development Workshop

9:00-9:15- Check-in

- Teachers sign in and get technology set up

9:15-9:45- Introduction

- Presenter and teacher introductions
    - Name of school and grade they teach
    - Types of technology the use in the classroom, especially during fluency instruction
- Presenter discusses thesis on the most effective fluency strategies and the results found (PowerPoint)
- Purpose of the workshop

9:45-10:30- Technology

- Introduce iPads and laptops and what you will be doing with them
- Model how to use the iPad to record and how to use the strategy that correlates with it
- Introduce READ-180 and show its features

10:30-10:45-Break

10:45-11:30-Practice and Questions

- Teachers partner up with another teacher in their grade level
- Practice using the two strategies with the iPad and laptop
- Time for questions

11:30-12:00- Evaluation

- Discuss pros and cons as a whole group
- Distribute workshop evaluation handout

Appendix B: Professional Development Workshop Evaluation Form

Incorporating Technology into Fluency Instruction   Date:_____

Place a ✓ in the appropriate box below.

Poor	Average	Good	Excellent
1	2	3	4

	1	2	3	4
Relevant to classroom instruction				
Information was clearly presented				
Strategies were engaging				

Would you incorporate these strategies into your fluency instruction in your classroom? Why or why not?

Did you find the technology difficult to use?

How could this workshop be improved to support students in your classroom?

Any other comments/suggestions:

Appendix C: Strategy Evaluation Form
(to be completed one month after selected strategy implementation in the classroom)

1. Which technology-based fluency strategy did you implement in your classroom?

2. Have you noticed motivation in your students towards this strategy? (i.e. Are they excited to use the technology? Are they engaged and excited when involved in the strategy?)

3. Did you feel that this strategy was easy to implement in your classroom? Why or why not?

4. Although it may still be early to tell, what improvements (if any) have you noticed in your students reading fluency after implementing this strategy? (i.e. Are they becoming more confident? Have their words per minute increased?)

5. How do you pre/post-assess your students to determine progress?

*Please attach 3 student samples of peer-evaluation or self-evaluation forms that were distributed at the workshop.