

EXPLORING THE DIFFERENCES BETWEEN PRE-SERVICE AND IN-SERVICE TEACHERS' ANALYSES OF VARIOUS INFORMAL READING INVENTORY RESULTS IN THE ELEMENTARY GRADES

by

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ABSTRACT

Reading is a fundamental skill in our modern society; being able to read with comprehension and fluency is an important skill in all core academic subjects. Reading teachers are charged with the task to analyze student data in order to drive their instructional decisions. Informal Reading Inventories (IRIs) are one type of an informal reading assessment that teachers can use in the classroom to learn about student reading behaviors and drive instruction. Informal Reading Inventories assess fluency and comprehension. Research suggests that fluency and comprehension have a reciprocal relationship; meaning, if you improve one skill, you improve the other skill simultaneously (DeVries, 2011). This study explored how pre-service teachers, college students in an education program, and in-service teachers, veteran teachers, analyzed data from various IRIs. This study also explored how three separate IRIs, the *Qualitative Reading Inventory (QRI)*, the *Basic Reading Inventory (BRI)*, and the *Analytical Reading Inventory (ARI)*, compared to one another. There were four participants in this study: two undergraduate students in an elementary education program reading class and two veteran classroom teachers. This study found that the grade level readability of the passages are inconsistent with the reading level they claim to be. An inconsistency like this is something to note as many teachers only use these resources on which they were trained during their college education. This study also found that the length of the IRI passages had an effect on the student's words correct per minute (WCPM); the longer the passage, the lower the WCPM. This is probably due to the fact that students need more time to process a passage for the sake of comprehension.

DEDICATION

This thesis is dedicated to all students who have struggled with a concept in school. Reading comprehension was my biggest area to improve on in school; with constant effort and motivation, you can truly overcome anything.

This thesis is also dedicated to my mom. Without her constant support and confidence in me, I would not have been able to go back to school to complete a bachelor's degree.

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INTRODUCTION

Behind every student is a teacher, and each teacher has his or her own strategies to instruct reading in the classroom. As Beverly A. DeVries (2011) states, “reading is a necessary skill for productive citizens in today’s global society” (p. 2). Reading in today’s society is a task that happens daily and in all core subject areas of school, and teachers are the driving force behind research-based reading instruction. Teachers collect student data and student samples to drive their instruction, which is widely known in the field of education as data-driven decision-making (Rallis and MacMullen, 2000).

Reading comprehension is important to me because it has always been an area in which I struggled in school. Whenever I received my standardized test scores, reading comprehension was always my lowest score. When I came to the University of Central Florida and began to learn about reading instruction in the Elementary Education Program, I began to learn how vital a teacher’s role is when it comes to reading instruction in the elementary grades. Currently, I am a pre-service teacher in an internship, so I have the opportunity to work with in-service teachers. I am learning how my mentor teachers instruct students during their reading blocks, but I want a deeper understanding of how they analyze student data. I want to explore how pre-service teachers and in-service teachers analyze data from various reading assessments and I want to explore what they do to guide instruction based on collected student data.

Relevance of Study

Data-Driven Decision-Making

Rallis and MacMullen (2000) argued that data-driven decision-making (DDDM) is a teaching tool that allows instruction to be learner-centered through differentiated instruction to fit the needs of the class and the individual student. Meaning, a teacher will collect data on his or her students, analyze each student's strengths and areas of opportunities in order to determine which students need additional support, which students need on-level support, and which students need enrichment (Dunn, Airola, & Lo, 2013).

Informal Reading Inventories (IRIs) are informal assessments that teachers use to collect data about their student's fluency and comprehension through various protocols. Conducting an IRI is one way that a teacher uses informal assessments on students to obtain data regarding reading levels in order to guide his or her instruction. There are many commercial IRIs, which vary in terms of assessed elements and are readily available for teachers, to implement in the classroom. In my opinion, choosing an appropriate IRI can be a potentially daunting or ambiguous task for teachers. Some teachers may not know what an IRI is, many teachers may only use IRIs that the school or district provide, and some teachers may only use IRIs that they are familiar with from their college pre-service teaching experience. Considering the amount of varied commercially-published IRIs readily available to purchase, it can be extremely difficult to be aware of and understand the differences between them in order to decide which IRI would best suit the needs of the students and teacher. How are teachers, pre-service and in-service, analyzing the data obtained from IRIs to guide reading instruction? Considering the amount of

IRIs available, how do the analyses look across various IRIs on the same student? A study that asks these questions has never been completed and I hope to explore these potential issues.

The Reciprocal Role of Comprehension and Fluency

Informal Reading Inventories allow teachers to identify student's reading levels regarding comprehension and fluency as the two have a reciprocal relationship. This relationship suggests that comprehension and fluency have a give-and-take relationship, meaning, when you increase one you increase the other (DeVries, 2011). LaBerge and Samuels (1974) explored automaticity theory and Perfetti (1985) explored verbal efficiency theory. These theories specifically looked at fluency and will be explained in greater depth in Chapter 2 of this thesis; however, both theories support that when there is a growth in reading fluency rate, reading comprehension increases as well (Klauda & Guthrie, 2008).

IRIs analyzes student results to give the teachers a student's fluency level and comprehension level. Through comprehension and fluency assessments, a teacher can determine students' reading processes. IRIs provides a lot of data for teachers to analyze, but not all IRIs assess data the same way. For instance, IRIs could test comprehension through the use of questions about a passage, by having the student retell a passage to the teacher, or some may use both questions and retelling. IRIs also assesses fluency, but there are many factors that contribute to fluency results. While a student is reading orally, the teacher will take a running record, a coding system used in real time to capture students' reading behaviors, determine percentage of words read correctly, self-correction ratio, and the types of errors made (Ross, 2004). A running record also gives teachers data on reading miscues and reading rate. After the running record is taken, a teacher can complete a miscue analysis. A miscue analysis offers the

teacher an in depth scope of how the student makes meaning within the text rather than word-by-word accuracy. Miscue analyses allows the teacher to see how the student understands the words he or she is reading. The student could read using syntactic, graphophonic, or semantic clues. It also aids the teacher in understanding how the student uses the reading cueing systems, pragmatic cues, syntactic cues, semantic cues, and graphophonic cues, to make sense of the text (Wohlwend, 2012). Finally, teachers can listen for prosody, intonation of reading, and expression in oral reading fluency; reading with oral expression suggests a higher understanding with reading comprehension (Berninger & Abbott, 2010).

Research Questions

This study investigated how pre-service teachers and in-service teachers analyze data across three IRIs, the *Qualitative Reading Inventory (QRI)*, the *Basic Reading Inventory (BRI)*, and the *Analytical Reading Inventory (ARI)*, similarly or differently. Through this study, I determined:

1. Did student data vary when three separate Informal Reading Inventories, the *QRI*, the *BRI*, and the *ARI*, were administered to a single student, specifically considering fluency and comprehension results? In what ways were data analyses similar? In what ways were data analyses different?

Sub-questions:

1. Fluency results:
 - a. How did the words correct per minute (WCPM) vary across IRIs?
 - b. What evidence of cueing systems were present in the miscue analyses for each IRI?

- c. How did the Flesch-Kincaid readability scores vary across the IRIs administered at the same grade level?
- 2. Comprehension:
 - a. Did the comprehension level (instructional, independent, or frustrational) vary across IRIs for the same level of text read by the student?

REVIEW OF LITERATURE

In this section I will inform the reader about IRIs. I will provide a brief history, determine its purpose, and describe the selected IRIs chosen for this thesis. In regards to pre-service and in-service teachers, I will provide some information about how these groups of educators may differ with respect to reading instruction. Additionally, I will continue to discuss the theories on the reciprocal relationship between fluency and comprehension.

History and Purpose of Informal Reading Inventories

“Informal Reading Inventories (IRIs) are assessment tools that typically assess an individual student’s word recognition, oral reading, strengths, weaknesses, fluency, and comprehension through graded word lists and passages” (Flippo, Holland, McCarthy, & Swinning, 2009, p.79). Many teachers, reading coaches, and learning disability specialists use IRIs in their classrooms today; IRIs are tools that allow teachers to monitor how a student functions in an actual reading situation, determine a student’s error patterns, and to identify a student’s reading level (Klesius & Homan, 1985).

Word recognition inventories were developing early in the twentieth century along with IRIs. Monroe (1932) was one of the first to use an isolated word recognition test as a reading assessment. Word recognition inventories are lists of words that examine a student’s ability to analyze or decode individual words. This led to Durrell (1937) to use word lists to determine if a student could recognize words immediately (Morris et al. 2011). Today, teachers use leveled sight word lists to promote fluency so readers will develop the ability to read words by sight automatically (DeVries, 2011). Many companies that create IRIs employ word recognition lists

so teachers can determine which level passage to administer to a student first; these lists provide teachers with a starting point for the assessment.

During the beginning of the twentieth century reading teachers were interested in using Informal Reading Assessments that correlated with reading instruction. For instance, Wheat (1923) suggested using a passage-reading inventory to determine a student’s reading level (Morris et al. 2011). This is the basic idea of Informal Reading Inventories that are used today, but over the past century it has expanded to include fluency criteria, miscue analyses, reading rate, and retelling criteria. According to Morris et al (2011), “In 1946, Betts proposed oral reading accuracy and comprehension criteria for functional reading levels—independent, instructional, and frustration” (p. 207). Betts set the stage with functional reading levels and by the mid-century they were adopted by reading educators and are still used today to describe student-reading levels. The terms independent, instructional, and frustration levels continue to be used to describe student fluency and comprehension levels.

Table 1: Functional Reading Levels

Independent Level	Relatively easy for the student to read (95% word accuracy).
Instructional Level	Challenging but manageable for the reader (90% word accuracy).
Frustration Level	Difficult text for the student to read (less than 90% word accuracy).

(Partnership for reading, 2001)

Overview of Selected Informal Reading Inventories

In this section I will review the qualities of the three Informal Reading Inventories I have chosen to use in this thesis: the *Qualitative Reading Inventory (QRI)*, the *Basic Reading Inventory (BRI)*, and the *Analytical Reading Inventory (ARI)*. Nilsson (2008) critically analyzed eight IRIs, and because of her detailed analysis I decided to use three from her list. Her rationale

for the IRIs she selected to analyze was limited to IRIs published since 2002, since they would most likely reflect federal policy changes and mandates to education.

Qualitative Reading Inventory

The *Qualitative Reading Inventory-5 (QRI-5)* was created by Laruen Leslie and JoAnne Schudt Caldwell and is currently in its fifth edition. Leslie and Caldwell (2011) state that the *QRI-5* is “designed to provide information about (1) conditions under which students can identify words and comprehend text successfully and (2) conditions that appear to result in unsuccessful word identification or comprehension” (p. 1). The authors also indicate that this informal assessment can be used to identify students’ reading levels and assess oral and silent reading ability. Data from the assessment can be used to “group students for guided reading sessions or to choose appropriate books for literacy circles, reading workshops, and independent reading” (Leslie & Caldwell, 2011, p. 1). Leslie and Caldwell (2011) conducted research to establish the reliability and validity of this assessment tool; they have proven that there is a high degree of consistency with student results when the test is administered the way the authors intended.

The Basic Reading Inventory

The *Basic Reading Inventory (BRI)* was created by Jerry L. Johns and is currently in its 11th edition. Johns (2012) designed the instrument to assess readers’ fluency, word recognition, and comprehension. Burns (2003) has mentioned that the *BRI* is one of the oldest and most frequently used IRI (Bieber, Hulac, & Schweinle, 2014). The *BRI* uses various comprehension protocols such as questions on topic, fact, evaluation, inference, and vocabulary questions and retelling rubrics which includes a focus on story elements for narrative passages and major points

and supporting details for expository passages. The *BRI* employs high and low higher order thinking questions with its comprehension protocols (Nilsson, 2008). Johns (2012) has stated that the word list and leveled passages contained in the IRI are reliable and valid as several studies have been completed to prove the reliability and validity.

Analytical Reading Inventory

The *Analytical Reading Inventory* was created by Mary L. Woods and Alden J. Moe and is currently in its tenth edition. This IRI offers standards-based informal assessment and passages for the gifted and remedial students. The *ARI* uses various comprehension questioning protocols that are defined by the reader to text relationship such as “retells in fact”, “puts information together”, “connects author and reader”, and “evaluates and substantiates” (Nilsson, 2008). Nilsson (2008) also points out that the author also employs retelling rubrics that have a focus on story elements for narratives and expository elements for factual text. Woods & Moe (2014) claim that this IRI is reliable and valid as, “field testing for past editions, readability and vocabulary diversity scores for all *ARI* passages” has been completed (p 105).

The Reciprocal Role of Comprehension and Fluency

Research supports that when students can decode words automatically and read fluidly, they have a higher level of comprehension (Perfetti, 2007). Researchers such as LaBerge and Samuels (1974) have studied the relationship between comprehension and fluency. These researchers have found that when a reader reads a word that is unknown to them, they are forced to use his or her short-term memory in order to decode the word thus giving less time and short-term memory processes for comprehension (Wagner & Allan, 1983). Perfetti (2007) refers to his

research from 1985 when he explored “verbal efficiency theory [which] claimed that word identification, the rapid retrieval of a word’s phonology and meaning, was a limiting factor in comprehension” (p. 357-358). Overall, poor fluency can limit a reader’s ability to comprehend text and having automatic word recognition and fluency can increase a reader’s comprehension.

Differences in Pre-Service and In-Service Teachers

Surprisingly, very little research currently compares pre-service teachers, who are college students in a teaching program, and in-service teachers, who are veteran teachers who are currently teaching in schools in the field of reading. The only research article that falls into reading instructional choices was from a study done by Charles K. Kinzer (1988). Kinzer delved into the instructional choices that pre-service teachers make compared to that of in-service teachers based on their beliefs on reading ability. Kinzer found that similar belief-systems between pre-service and in-service teachers exist when it comes to reading ability. He was able to determine that pre-service teachers are more concerned with theoretical approaches, probably because they are still tied to a university setting and have very little hands-on experience. On the contrary, he determined that in-service teachers are more concerned with a practical approach to reading instruction (Kinzer, 1988).

METHODOLOGY

The goal of my research was to compare how pre-service and in-service teachers analyze IRI data using three various IRIs on elementary students. In this section, I will discuss the methods and steps that I used to conduct my research.

Research Design

The method I used for my research was case study research design. This method allowed me to use a holistic approach to analyze each participants' interpretations of the data obtained from the *QRI*, *BRI*, and *ARI* and to understand the similarities and differences between pre-service and in-service teachers' analyses of each.

Institutional Review Board

This research involved human subjects. First, I became IRB certified. Then, I submitted an application to the Institutional Review Board (IRB) to review, as required by federal mandates. After IRB approval was obtained, I began recruiting participants for the student and engaging in data collection procedures.

Research Participants and Training

I identified four participants for my research: two pre-service teachers and two in-service teachers. I used a convenience sample for this research due to the time constraints, methodology, and research design. With the help of a university faculty member, I identified two undergraduate teacher candidates and two graduate students who are currently elementary teachers to participate in this study. Through the teacher participants' coursework at the University of Central Florida, they were required complete a reading education course where a

reading case study was a required assignment. For his or her reading course's assignment, each participant was paired with one elementary student in order to obtain data from him or her. This is the elementary student that the teacher participants collected data from for this research. Each participant assessed a separate elementary student.

The teacher participants were trained on how to administer each IRI, a miscue analysis, how to find words correct per minute (WCPM), and how to administer the San Diego Quick Assessment. After all the teacher participants were selected, a training session was held virtually. In the session, I provided the training and resources for each participant to complete the assessments successfully.

Data Sources, Instruments, and Collection

First, the participant administered the San Diego Quick Assessment, a word recognition inventory, to the student in order to determine which grade level IRI passages to administer to the student. Then, the participant administered that level passage from the *QRI*, *BRI*, and *ARI* to the student. The participant then analyzed the data from the IRIs administered according to the itemized list below. The participant completed a questionnaire/data analysis and for each IRI administered and completed a survey once all three IRIs have been administered. The following two sections lay out the questionnaire and survey that the teacher participants completed.

Participant Data Analysis

1. For fluency results, complete a miscue analysis. Was the passage frustration, instructional, or independent level? How do you know?
 - a. Analyze the miscue analysis. Name the student's strengths, areas of need, and your observations.

2. What cueing system did the student use? How do you know?
3. What were the student's words correct per minute (WCPM)? What does this tell you?
4. Compare the student's WCPM to the Hasbrouck-Tindal table. What are the student's results?
5. For fluency:
 - a. Identify the student's strengths.
 - b. Identify the student's areas of need.
 - c. What are your observations of the student?
 - d. What would you recommend instructionally for this student to improve his or her fluency results?
1. For comprehension results, was the passage frustration, instructional, or independent level? How do you know?
 - a. Identify the student's strengths.
 - b. Identify the student's areas of need.
 - c. What are your observations of the student?
 - d. What would you recommend instructionally for this student to improve his or her comprehension results?

Teacher Participant Survey

I also administered a survey to ask the teachers how they felt during the administration of the IRIs and during the analysis write up:

QRI Survey:

1. On a scale of 1-10, 1 being low and 10 being high, what was your confidence level while you were administering the *QRI*? Why?
2. How was your student's motivation level during the *QRI* assessment? Do you believe that affected their data? Why or why not?

BRI Survey:

1. On a scale of 1-10, 1 being low and 10 being high, what was your confidence level while you were administering the *BRI*? Why?
2. How was your student's motivation level during the *BRI* assessment? Do you believe that affected their data? Why or why not?

ARI Survey:

1. On a scale of 1-10, 1 being low and 10 being high, what was your confidence level while you were administering the *ARI*? Why?
2. How was your student's motivation level during the *ARI* assessment? Do you believe that affected their data? Why or why not?

Exit Survey:

1. Which IRI was your favorite? Why?
2. Which IRI was your least favorite? Why?

3. In-service teachers: do you use IRIs in your classroom? If so, which one? Why do you use that one?
4. Pre-service teachers: will you use IRIs in your classroom? If so, which one will you use? Why will you use that one?

Data Analysis

After I obtained each elementary student's data, the pre- and in-service teacher analyses, the questionnaire and the survey, I analyzed the similarities and differences between each teacher's analyses. I then looked at the three IRIs assessed to see how the results varied. I looked at the Flesch-Kincaid readability score of each IRI passage to find any discrepancies. The Flesch-Kincaid readability score is a readability test that determines the grade level readability of a text or passage. Finally, I looked at the teachers' surveys to see if the responses provided offered relevance to the research and data of this thesis.

RESULTS

In this section, I aim to provide the data results that were obtained in the study in order to answer the following research questions:

1. Did student data vary when three separate Informal Reading Inventories, the *QRI*, the *BRI*, and the *ARI*, were administered to a single student, specifically considering fluency and comprehension results? In what ways were data analyses similar? In what ways were data analyses different?

Sub-questions:

1. Fluency results:
 - a. How did the words correct per minute (WCPM) vary across IRIs?
 - b. What evidence of cueing systems were present in the miscue analyses for each IRI?
 - c. How did the Flesch-Kincaid readability scores vary across the IRIs administer at the same grade level?
2. Comprehension:
 - a. Did the comprehension level (instructional, independent, or frustrational) vary across IRIs for the same level of text read by the student?

Informal Reading Inventory Data Results

The results include data from the two graduate participants and one undergraduate participant. The second undergraduate did not fully complete the study and only provided partial data. The Hasbrouck-Tindal table is a table of oral reading fluency norms that allow educators to see where the student's oral reading performance fall based on the grade level and season of the year. The Hasbrouck-Tindal results for this study came from the fall table for the grade level passage that was administered to the student, not the students' grade level.

Graduate Participant A Demographic Information

Graduate Participant A has a Bachelor of Art in Communication Sciences and Disorders, she is currently attaining a Master of Art in Exceptional Ed K-12 and her reading endorsement, and has been a classroom teacher for 3 years.

Graduate Participant A – Level 2 IRI Results

Table 2: Graduate Participant A - Level 2 IRI Results

IRI	Comprehension Level	Fluency Level	Cueing System	WCPM	Hasbrouck-Tindal table
QRI	Frustrational	Independent	Graphophonic	38	25 th – 50 th Percentile
BRI	Frustrational	Independent	Graphophonic	70	50 th – 75 th Percentile
ARI	Frustrational	Independent	Graphophonic	40	25 th – 50 th Percentile

Graduate Participant A – Level 2 Listed Factors

Student A is in the 11th grade and is diagnosed with Autism Spectrum Disorder. When given the San Diego Quick Assessment, Student A's highest instructional level was a level 2. Listed

below are several strengths, areas of opportunity, and/or observations of Student A, which were written by Graduate Participant A.

- For fluency, Student A reads slowly and carefully. However, the student is very choppy and tends to ignore punctuation.
- Student A needs extrinsic motivation in order to complete reading the passage orally.
- For the BRI passage, the student was happy and interested in the passage causing the student’s WCPM to increase.
- Graduate Participant A mentions that the students could use some reading comprehension strategies, such as questioning while reading. Graduate Participant A also mentions that the student would benefit from fluency strategies, but did not list any strategies.

Graduate Participant B Demographic Information

Graduate Participant B has a Bachelor of Science in Elementary Education where she was also reading endorsed, she is attaining a Master of Education in Reading Education, and she has been a classroom teacher for 3 years.

Graduate Participant B – Level 5 IRI Results

Table 3: Graduate Participant B - Level 5 IRI Results

IRI	Comprehension Level	Fluency Level	Cueing System	WCPM	Hasbrouck-Tindal table
QRI	Frustrational	Independent	Phonological	93	25 th -50 th Percentile
BRI	Instructional	Independent	Zero errors	133	50 th – 75 th Percentile
ARI	Instructional	Instructional	Phonological	165	90 th Percentile

Graduate Participant B – Level 5 Listed Factors

Student B is in the fourth grade at a public elementary school. When given the San Diego Quick Assessment, Student B performed at level 5 as independent, but at level 6 as frustrational. It was decided to use level 5 passages for the IRIs for this student. Listed below are several strengths, areas of opportunity, and/or observations of the student, which were written by the Graduate Participant B.

- Student B is a fluent reader and can easily decode text. Her strengths include automaticity, speed, and prosody.
- On occasion, Student B ignores punctuation and medial sounds.
- Student B lacks attention to detail, but can understand the major concepts of a story.
- For the QRI, Student B recognized that she did not comprehend the passage, therefore affecting her WCPM.
- For comprehension, the Graduate Participant B recommends strategies such as thinking during reading, discussion of a text during a literature circle, and additional support with informational texts. Graduate Participant B did not list any fluency strategies because the student's fluency rates are stellar. Graduate Participant B mentions that the student will benefit from obtaining a deeper understanding with comprehension through the use of strategies.

Undergraduate Participant C Demographic Information

Undergraduate Participant C is currently attaining a Bachelor in Elementary Education where she is being reading endorsed and is in her first internship.

Undergraduate Participant C – Level 2 IRI Results

Table 4: Undergraduate Participant C - IRI Results

IRI	Comprehension Level	Fluency Level	Cueing System	WCPM	Hasbrouck-Tindal table
QRI	Frustrational	Instructional	Syntactic	85	75 th – 90 th Percentile
BRI	Instructional/ Frustrational	Independent	Syntactic	97	75 th – 90 th Percentile
ARI	Frustrational	Instructional	Syntactic	111	Over 90 th Percentile

Undergraduate Participant C – Level 2 Listed Factors

Student C is in the 4th grade at a public elementary school. When given the San Diego Quick Assessment, Student C’s highest instructional level was a level 2. Listed below are several strengths, areas of opportunity, and/or observations of the student, which were written by Undergraduate Participant C.

- Student C will whisper or mumble while reading orally when she is disinterested or does not comprehend the passage.
- Undergraduate Participant C mentions that Student C could improve on expression, volume, and confidence in order to improve in fluency.
- Undergraduate Participant C wrote that if Student C does not connect with the passage, Student C becomes disinterested in reading. On the other hand, if Student C does connect with the passage she can become distracted because she wants to discuss her connection to the story. Undergraduate Participant C did not provide a strategy to improve on this.

- For the BRI, Student C read faster because she had a higher rate of automaticity with the words.
- Undergraduate Participant C recommends fluency strategies such as record/check/chart and comparing and contrasting a recording of herself reading to that of a fluent reader.
- Undergraduate Participant C recommends comprehension strategies such as sequencing strategies, graphic organizer activities, find the evidence activities, beginning/middle/end games, and games to help the student differentiate key facts vs. “fluff”.
- Student C responds to extrinsic motivation to complete tasks.

Undergraduate Participant D – Level 6 Passages / Listed Factors

This participant did not fully complete this study and only provided partial data.

Teacher Participant Survey Results

This survey was used to check on the participants’ and students’ confidence after each assessment was administered. This survey also included an exit survey to gain an understanding on which IRI was the participants’ favorite and to see if the participants use, or plan to use, IRIs in the classroom.

Graduate Participant A – Level 2 Survey Results

Table 5: Graduate Participant A - Level 2 Survey Results

IRI	Participant A’s Confidence	Student A’s Confidence
QRI	10	High
BRI	10	High
ARI	4	Low

Graduate Participant A – Level 2 Survey Factors

- Graduate Participant A uses the QRI several times a year in her own classroom, so she is very familiar with it. Additionally, the participant has used the BRI in the past. She has never used the ARI before this study.
- Student A was motivated during the QRI because she was extrinsically motivated. Additionally, she was motivated during the BRI because she liked the passage. However, the participant lost motivation during the ARI.
- Graduate Participant A favors the QRI because it is easy to use and uses a variety of implicit and explicit questions for comprehension.

Graduate Participant B – Level 5 Survey Results

Table 6: Graduate Participant B - Level 5 Survey Results

IRI	Participant B's Confidence	Student B's Confidence
QRI	10	Low
BRI	8	Very High
ARI	7	High

Graduate Participant B – Level 5 Survey Factors

- Graduate Participant B has been trained in the QRI previously, so this participant was very confident administering this assessment.
- Student B confidence was generally high or very high. During the QRI, her confidence became shaken when she realized she was not comprehending the passage well.

- Graduate Participant B favors the QRI because the format is orderly, it does not require scores to be rewritten on a separate sheet, and she is very comfortable with the assessment.
- Currently, Graduate Participant B does not use IRIs in the classroom due to time constraints on the curriculum.

Undergraduate Participant C – Level 2 Survey Results

Table 7: Undergraduate Participant C - Level 2 Survey Results

IRI	Participant C’s Confidence	Student C’s Confidence
QRI	10	High
BRI	7-8	High
ARI	3	Average

Undergraduate Participant C – Level 2 Survey Factors

- Undergraduate Participant C was previously trained on the QRI, so her confidence was high with that particular assessment.
- Undergraduate Participant C found the ARI’s format to be confusing; she did connect that all three IRIs asked many of the same questions.
- Student C was extrinsically motivated for the QRI and BRI, but became uninterested during the ARI because of the passage’s content. Additionally, the thought of a reward lost its value.
- Undergraduate Participant C wrote that her favorite IRI was the BRI because it had the most simplistic format. Undergraduate Participant C plans to use IRIs in her future

classroom with students who are struggling in reading so she can identify areas of opportunity for the student.

Undergraduate Participant D – Level 6 Survey Results

Table 8: Undergraduate Participant D - Level 6 Survey Results

IRI	Participant D's Confidence	Student D's Confidence
QRI	5	High
BRI	8	Low
ARI	7	High

Undergraduate Participant D – Level 2 Survey Factors

- Undergraduate Participant D has never administered any of these IRIs before. She favored the BRI because she found that the assessment had the most simplistic format.
- Student D is diagnosed with ADHD, so it can be hard to keep the student focused. However, he enjoyed the passages of the QRI and ARI, so his motivation was high. He did not like the BRI passage, so his motivation was very low.
- Undergraduate Participant D plans to use IRIs in her future classroom; she will probably use the QRI because she feels it provides more reading data compared to the BRI.

Flesch-Kincaid Readability Scores

Each IRI passage was put into Microsoft Word to determine the passage's Flesch-Kincaid readability score. This score determines what grade level the passage was written at.

Table 9: Flesch-Kincaid Readability Scores

IRI	Level 2	Word Count	Level 5	Word Count	Level 6	Word Count
QRI	1.4	346	3.5	359	4.5	358
BRI	1.7	100	7.2	100	6.2	100
ARI	.2	118	5.0	171	8.2	189

Summary of Results

I will delve deeper into the summary of results in the conclusion section of this thesis; however, looking at the two surveys that were provided by each participant, all three participants mentioned that motivation was factor on student performance under the “observations of the student” section in each IRI data analysis write-up. Through this study, it has been determined that if a student is not motivated he or she will not perform as well. On the contrary, if a student is motivated in some way, he or she will perform better.

While analyzing the data from each IRI, differences between each of them can be seen. For instance, when looking at the QRI results, it is understood that the QRI has the lowest WCPM. This is probably due to the fact that QRI employs the longest passages. When students read longer passages, typically, they need more time to process and comprehend. The BRI uses a 100 word passage consistently, regardless of the passage’s level. This consistency allows the administrator or teacher know that the student will always read the same amount of words with this particular IRI. The same amount of words per passage makes fluency data consistent across the board. Some teachers could argue that the higher the level passage, the more words the passage should have for the sake of comprehension data.

CONCLUSION

In this section, I will discuss the implications of this study for classroom teachers, future teachers, reading coaches, and for college teachers. I will also discuss the limitations of this research and how I can expand on this research in the future. Overall, I have learned so much from this study.

Implications of this Study

Some of the findings from this study can be valuable to classroom teachers, future teachers, reading coaches, and college teachers. As previously stated, a teacher will collect data on his or her students, analyze each student's strengths and areas of opportunities in order to determine which students need additional support, which students need on-level support, and which students need enrichment (Dunn, Airola, & Lo, 2013). Employing Informal Reading Inventories in the classroom is just one way that teachers collect data to differentiate instruction for their students. Through this study, I have found that teachers are creatures of habit and will generally use the IRI that they were formally taught in their college program. Teachers use the resources that they are familiar with, but they may not stop to think if the resources they are using are assessing their students with on-level passages. All three participants were familiar and comfortable administering the *QRI* because they had been formally trained on the *QRI* in their reading courses, but they were not as familiar with the other two IRIs used.

One of the most significant findings found in this study is the discrepancy with the Flesch-Kincaid readability scores of each passage. Out of the nine passages that were administered to students throughout this study, only two of the passages were on the grade level that the IRI claimed to be testing at according to Flesch-Kincaid readability statistics. The

biggest discrepancy that was found was with the *ARI*'s level 2 passage that has a readability score of .2. A passage with a .2 readability score means that an American kindergartner should be able to read the passage with success. This shows that IRIs may be testing students at a level that is too low for their fluency and comprehension. Another concern could be that IRI passages can be testing students at a readability score that is too high. This was found with a *BRI* and an *ARI* passage that had a readability score two grade levels higher than the passage claimed to be testing at. The question really is, how do the authors of IRIs test the passages they use or create to ensure they are on the level they claim to be reading at? All of the authors of the IRIs claim that the passages they are using are reliable and valid, but who is completing that research? This is a concern for any classroom teacher, future teacher, reading coach, or college teacher.

Another consideration of this study is comparing IRIs to find the assessment tool that works best for each individual teacher. The *QRI* employs the longest passages; the longer the passages, the more time students need to comprehend the text. If students are taking a longer time to comprehend the text, one might argue that there is potential for the student's WCPM to decrease due to fatigue and loss of reading stamina. This was supported by the data collected in this study because all of the students' WCPM scores on the *QRI* were lower than the WCPMs obtained from the *BRI* and *ARI*. The *BRI* always uses a 100-word passage, which provides consistency in the aspect of text length. The same amount of words per passage could make fluency data consistent regardless of the level of text administered. Some teachers could argue that the higher the level passage, the more words the passage should have for the sake of comprehension data. The *ARI* seems to use more words the higher the passage; I would have to compare more passages to prove this claim true.

This study compared and contrasted an undergraduate student to graduate students through their written data analyses. The only substantial difference between the two was that the undergraduate student discussed one-on-one activities that she could complete with the case study student in order to improve comprehension and fluency results. The graduate students simply said they would use reading or fluency strategies, and one even named a few whole group strategies in the analysis write-up.

Limitations of this Study

This research included several influences and limitations that could not be controlled. I chose to use a small convenience sample of voluntary participants who attend an education program. I went into an undergraduate reading education practicum course to recruit participants by giving a speech to explain the aims of my study and asking for volunteers. Of 32 students in the course, I only had two undergraduates volunteer to participate, so those were the two undergraduate participants that participated in this study. These two participants were probably the most motivated teacher candidates in the class, which could skew data because they could be more advanced in their studies. I also relied on finding graduate candidates virtually through a reading education graduate course offered through an online delivery modality. Through this recruitment, I was able to gain Graduate Participant A, but no other participants were interested. Luckily, I was able to find Graduate Participant B through a school I work with. Again, my data could be skewed because these participants may not represent the normal population of graduate teachers. Another limitation included was that Graduate Participant A is an ESE teacher who utilized with a student for the study with autism spectrum disorder (ASD). I was able to compare her analysis write up and the WCPM, but the comprehension levels and fluency levels of each

IRI could not be compared to a regular education student. For this study, I had no control over the students who were chosen; the participants used the students from their case study required to complete their university requirement. Lastly, all of the participants were familiar with administering the *QRI* from their reading education courses, but they were not familiar with the other two IRIs. This could have skewed the data because they may not have completed the other IRIs correctly or their confidence allowed them to really observe the student versus focusing on how to complete the paperwork.

Future Research

If the opportunity presents itself, I would love to continue this research. I would also do a couple of things differently. I would include a bigger sample size from multiple universities, public and private. This would allow me to use more participants so I could try and emulate a study from a normal population of undergraduate and graduate participants. I would also want to have more control over the students chosen to participate in this study as well; I would ensure that all elementary grade levels are presented. Another modification I would make is that I would ask the undergraduate participants and the graduate participants to find the student's highest instructional level of each IRI and then complete an analysis on the highest instructional level when considering fluency and comprehension combined.

Closing Remarks

I have learned so much from completing this thesis. It has made me a better writer and critical thinker. As a teacher candidate, it has taught me to really look at what material I am using with my students. I think the most important thing I have learned is that teachers should

always question the resources they are using to teach their students; teachers have a responsibility to ensure they are using quality resources in their classrooms.

Educational Recommendations

As a pre-service teacher, I believe that teachers should be very critical of the resources they use in the classroom. We should always question what resources we are using and ask ourselves why we are using them. Teachers should ensure that every piece of literature and every resource is reliable and valid. However, we should also be critical of the validity and reliability. We need to research how the reliability and validity was attained and who attained it. This research has taught me that in my future classroom, I will definitely analyze, preview, and review each resource I provide my students to ensure that my students are receiving quality resources.

APPENDIX A

Participants were electronically trained for each IRI administration and interpretations using the following protocol:

Analytical Reading Inventory Protocol

1. Participants were e-mailed the following documents:
 - a. ARI Instructions
 - b. Leveled Student Passage
 - c. Leveled Teacher Copies (Record Sheet, Miscue Analysis, and Comprehension sheet)
 - d. Reference Sheets (Recording Sheet, Miscue Analysis, and Comprehension Sheet)
2. Participants were encouraged to e-mail back with any clarification questions.

Basic Reading Inventory

1. Participants were e-mailed the following documents:
 - a. BRI Instructions
 - b. Leveled Student Passage
 - c. Leveled Teacher Copy
 - d. Miscue Analysis Reference Sheet
2. Participants were encouraged to e-mail back with any clarification questions.

Qualitative Reading Inventory

1. Participants were e-mailed the following documents:
 - a. QRI Instructions
 - b. Leveled Student Passage
 - c. Leveled Teacher Copy
 - d. Miscue Analysis
 - e. Leveled Teacher Copy Reference
 - f. Miscue Analysis Reference
2. Participants were encouraged to e-mail back with any clarification questions.

REFERENCES

- Berninger, V. W., & Abbott, R. D. (2010). Listening comprehension, oral expression, reading comprehension, and written expression: Related yet unique language systems in grades 1, 3, 5, and 7. *Journal of Educational Psychology, 102*(3). 635-651.
- Bieber, G., Hulac, D. M., & Schweinle, W. (2014). An independent evaluation of the technical features of the *Basic Reading Inventory*. *Journal of Psychoeducational Assessment, 1*-11. doi: 10.1177/0734282914550808
- DeVries, B. A. (2011). *Literacy assessment & intervention for classroom teachers* (3rd ed.). Scottsdale, AR. Holcomb Hathaway.
- Dunn, K. E., Airola, D. T., & Lo W. (2013). Becoming data driven: The influence of teachers' sense of efficacy on concerns related to data-driven decision making. *Learning, Instruction, and Cognition, 81*(2), 222-241.
- Flippo, R. F., Holland, D. D., McCarthy, M. T., & Swinning, E. A. (2009). Asking the right questions: How to select an informal reading inventory. *Reading Teacher, 63*(1), 79-83.
- Johns, J. (1981) *Basic reading inventory pre-primer through grade twelve and early literacy assessments* (2nd ed). Dubuque, IA: Kendall Hunt.
- Johns, J. (2012) *Basic reading inventory pre-primer through grade twelve and early literacy assessments* (11nd ed). Dubuque, IA: Kendall Hunt.
- Kinzer, C. K. (1988). Instructional frameworks and instructional choices: Comparisons between preservice and inservice teachers. *Journal of Reading Behavior, 20*(4), 357-377.
- 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.
- Klesius, J. P., & Homan, S. P. (1985). A validity and reliability update on the informal reading inventory with suggestions for improvement. *Journal of Learning Disabilities*, 18, 71-76.
- LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, 6, 293-323.
- Leslie, L., & Caldwell, J. S. (2011). *Qualitative reading inventory-5*. Boston, MA: Pearson.
- Morris, D., Bloodgood, J. W., Perney, J., Frye, E. M., Kucan, L., Trathen, W., & Schlagal, R. (2011). Validating craft knowledge: An empirical examination of elementary-grade students' performance on an informal reading assessment. *The Elementary School Journal*, 112(2), 205-233.
- Nilsson, N. L. (2008). A critical analysis of eight informal reading inventories. *The Reading Teacher*, 61(7), 526-536.
- Partnership for Reading. (2001). Fluency: An introduction. Retrieved from:
<http://www.readingrockets.org/article/fluency-introduction>
- Perfetti, C. A. (1985). *Reading ability*. New York, NY: Oxford University Press.
- Perfetti, C. A. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading*, 11(4), 357-383.
- Rallis, S. F., & MacMullen, M. M. (2000). Inquiry-minded schools: Opening doors for accountability. *Phi Delta Kappan*, 81, 766-773.
- Ross, J. A. (2004). Effects of running records assessment on early literacy achievement. *The Journal of Educational Research*, 97(4), 186-194.

- Wasner, J., & Allan, G. (1983). The distribution of working memory capacity in reading. Paper presented at the *Annual Meeting of the American Educational Research Association*.
- Wohlwend, K. E. (2012). A new spin on miscue analysis: Using spider charts to web reading processes. *Language Arts, 90*(2), 110-116.
- Woods, M., & Moe, A. (2014). *Analytical reading inventory: Comprehensive standards-based assessment for all students including gifted and remedial*. Boston, MA: Pearson.