RELATIONSHIP BETWEEN 3RD, 4TH, AND 5TH GRADE STUDENTS
CATEGORIZED BY MISSOURI ASSESSMENT PROGRAM
COMMUNICATION ARTS ACHIEVEMENT LEVEL AND FOUNTAS
AND PINNELL BENCHMARK ASSESSMENT SYSTEM SCORES

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ABSTRACT

This study was conducted to analyze the relationship between 3rd, 4th, and 5th Grade student reading ability and Achievement Levels on the Missouri Assessment Program Communication Arts Grade-Level Test (MAP). Data points of Instructional Text Level, Reading Comprehension, and Reading Fluency were collected utilizing the Fountas and Pinnell Benchmark Assessment System. Results were interpreted using a Linear Correlation and Regression model. Findings show that there is a strong correlation between Instructional Text Level and MAP Achievement Level.
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CHAPTER ONE

Introduction

This study examines the correlation between student scores on Fountas & Pinnell Benchmark Assessment System Tests and standardized test proficiency. ABC district currently assesses student reading ability utilizing the Fountas & Pinnell (F&P) Benchmark Assessment System. Students participate in this assessment system several times throughout the school year. The goal of the study is to determine if the student scores obtained during the F&P Benchmark Assessment System can be used to predict student performance on the Missouri Assessment Program Grade Level Assessments. ABC District administration would like to use the F&P Benchmark Assessment data to predict the Adequate Yearly Progress report.

Background, Issues and Concerns

ABC District utilizes several reading assessments to determine the reading progress of elementary level students. In 2011, the district began to utilize the Fountas & Pinnell (F&P) Benchmark Assessment System. Several data points are collected from this assessment system and entered into the student records. This study will examine the following data points: Instructional Text Level, Accuracy Rate, and Comprehension Scores. It is important to determine if the Fountas & Pinnell (F&P) Benchmark Assessment System can be used as a predictor for test scores for several reasons. One reason is to determine if this assessment is an effective use of staff resources. The time required to administer the Fountas & Pinnell (F&P) Benchmark Assessment System is lengthy. The system requires an individual meeting between the student and the teacher and may take 20 – 30 minutes per student to complete. Students are given the test 4 times during each academic year. It is wise to determine if this time-consuming assessment system is gathering the data that can best aid teachers in determining reading interventions for students in order to better prepare them for the MAP test.
Conceptual Underpinnings

Teachers are expected to gather data on individual students to monitor their progress. Data is gathered to determine the academic strengths and weaknesses of individual students. Once this data is gathered, teachers are able to determine supplemental assignments to challenge high performing students as well as interventions to aid low performing students.

In ABC District, each elementary student takes a predetermined set of assessments, one of which is the F&P Benchmark Assessment System. Because all elementary students are given the same assessments, data throughout the district can be analyzed to determine trends in learning in order to make changes to the curriculum. Additionally, the data can be utilized to determine staff and administrators whose students have performed well on the assessments. This can lead to the discovery of the highly effective teaching practices that could be implemented throughout the district.

Implementing effective reading practices is especially important at the elementary school level. It is essential that students be reading on grade level by the middle of their elementary school career as a critical change in the purpose of reading occurs in the middle of elementary school. The first years of elementary school focus on learning to read, while the later years of elementary school focus on using reading to learn material. Students reading below grade level may struggle more with comprehension and may fall behind which may affect their future educational growth. A recent study determined that there is a strong correlation between third grade and eighth grade reading scores. If students are reading at or above grade level in third grade, they are more likely to read at or above grade level in eighth grade. This same study found that students reading above grade level in grade 3 graduate from college at higher rates than their classmates who are reading at grade level or below grade level (Lesnick, 2010). Clearly, the development of skilled readers is one of the most important aspects of today’s education system.
Practice Under Investigation

The ABC district currently administers the F&P Benchmark Assessment System to elementary level students four times each year (Fall, Winter, early Spring, and late Spring). While the data obtained from these assessments is helpful to monitor student progress as well as to assist teachers in selecting literature for students, it is unclear whether these results offer any predictor for student performance on the MAP Communication Arts assessment.

Statement of the Problem

Teachers need a tool that monitors student reading performance data. This helps teachers identify reading strengths and weaknesses. Additionally, ABC District desires to have students earn high Achievement Levels on the MAP Test in order to meet the requirements of Adequate Yearly Progress and earn high accreditation ratings in their Annual Performance Report. It is unknown whether the data gathered from the district-wide administered Fountas & Pinnell Benchmark Assessment Systems can serve as a tool for predicting the Achievement Level students will earn on the Missouri MAP Communication Arts Assessment.

Purpose of the Study

The purpose of this study was to determine if F&P Instructional Text Level, F&P Accuracy Rate, or F&P Comprehension Scores predicts MAP Achievement Level.

Research Questions

The following research questions were constructed to investigate the problem.
RQ1: Is there a difference between student Communication Arts MAP Achievement Levels when categorized by F&P Instructional Text Level?

RQ2: What percent of students reading Above Target on the F&P Instructional Text Level scored Proficient or Advanced on the MAP test?

RQ3: Is there a difference between student Communication Arts MAP Achievement Levels when categorized by F&P Accuracy Rate?

RQ4: Is there a difference between student Communication Arts MAP Achievement Level when categorized by F&P Comprehension Scores?

Null Hypotheses

H10: There is no difference between MAP Achievement Levels on the Communication Arts MAP test when categorized by F&P Instructional Text Level.

H30: There is no difference between MAP Achievement Levels on the Communication Arts MAP test when categorized by F&P Accuracy Rate.

H40: There is no difference between MAP Achievement Levels on the Communication Arts MAP test when categorized by F&P Comprehension Scores.

Anticipated Benefits

School administrators and teachers may be able to predict the percent of students who will score in each of the MAP Achievement Levels on the Communication Arts MAP test based upon the students’ F&P Assessment scores. Additionally, teachers may be able to utilize student F&P Assessment scores obtained during the first semester to alter and adjust lesson plans such that students may be better prepared for their MAP test performance.
Definition of Terms

**Accuracy Rate** – The percentage of words the student reads aloud correctly (Fountus, 2008); measured on the Fountas & Pinnell Recording Form Part One Oral Reading.

**Adequate Yearly Progress (AYP)** – As a requirement of the No Child Left Behind Act (NCLB), schools must demonstrate that students are making educational progress. The AYP targets for Missouri were established by the Missouri Department of Elementary and Secondary Education (DESE) based upon a NCLB Act formula which include testing participation rates, attendance rates, graduation rates, and content area proficiency (Missouri Department of Elementary & Secondary Education, 2011).

**Annual Performance Report (APR)** – As part of the Missouri School Improvement Program Cycle (MSIP), districts are given Annual Performance Reports. These reports determine the accreditation level of the district (Missouri Department of Elementary & Secondary Education, 2012).

**Comprehension Scores** – the process of constructing meaning while reading a text is measured on the Fountas & Pinnell Recording Form Part Two Comprehension Conversation. This comprehension conversation assessment is given immediately after oral reading and before the scoring of the F&P BAS is complete. Students can earn a score from 0-3 within categories that are dependent upon their text level. These categories can include: Within The Text, Beyond The Text, and About the Text. Total scores are determined and the following rankings are given: Excellent, Satisfactory, Limited, Unsatisfactory (Fountus, 2008).

**DESE** - Missouri Department of Elementary & Secondary Education.
Elementary and Secondary Education Act of 1965 (ESEA) – The federal legislation that funds primary and secondary education. The Act also prohibits the establishment of a national curriculum. The No Child Left Behind Act of 2001 (NCLB) is the most recent reauthorization of the ESEA (Wikipedia).

Elementary and Secondary Education Act Flexibility Waiver (ESEA Waiver) - The state of Missouri applied for ESEA Flexibility and was approved on June 29, 2012. With this waiver, Missouri is no longer required to meet the 100 percent proficiency standards as outlined in the No Child Left Behind Act, however Missouri will still strive for continuous improvement (Missouri Department of Elementary & Secondary Education, 2012).

Fountas & Pinnell (F&P) Benchmark Assessment System (BAS) – “A series of texts that can be used to identify a student’s current reading level and progress along a gradient of text levels over time” (FAQS: Benchmark Assessment System (BAS), 2012). The assessment takes between 20 – 30 minutes to be administered and is given in a one-to-one teacher and student conference. The test is comprised of an oral reading component, a conversation component, and may include a student writing component. During the assessment, the student reads one of the system’s leveled books aloud and discusses that book during the conference (Fountus, 2008).

Fountas & Pinnell Recording Form – A form used with the Fountas & Pinnell Benchmark Assessment System. The form is comprised of three sections: Oral Reading, Comprehension Conversation, and Writing About Reading. There is a separate Recording Form for each of the F&P Series textbooks.
Instructional Text Level – This is comprised of 26 levels measured A-Z with A being the most easy to read and Z being the most difficult. At levels A-K, the Instructional Text Level is determined by finding the level at which the student reads the text with 90-94% accuracy and also has excellent or satisfactory comprehension; or 95% or higher accuracy and limited comprehension. At levels L-Z, the Instructional Text Level is determined by finding the level at which the student reads the text with 95-97% accuracy and excellent or satisfactory comprehension; or 98% or higher accuracy and limited comprehension (Fountus, 2008). This is measured on the Fountas & Pinnell Recording Form Part One Oral Reading.

MAP / Missouri Assessment Program – An assessment where students demonstrate their mastery of Missouri’s educational standards (Missouri Department of Elementary & Secondary Education).

MAP / Missouri Assessment Program Grade-Level Assessments – A standards-based test that measures grade-level specific skills in state of Missouri. A portion of the test is also nationally norm-referenced. Students in Grades 3-8 complete the Grade-Level Assessment (Missouri Department of Elementary & Secondary Education).

MAP Achievement Level – Missouri groups students into four levels based upon their performance on the MAP Grade-Level Assessment. These levels are Below Basic, Basic, Proficient, and Advanced (Missouri Department of Elementary & Secondary Education).
MAP Scale Score – Scores on the MAP Test are given in numeric from ranging in value from 455 to 875 for Communication Arts, 450 to 885 for Mathematics, and 470 to 895 for Science. Scores from adjacent grades may be compared within content areas (Missouri Department of Elementary & Secondary Education, 2011).

No Child Left Behind Act of 2001 (NCLB) – An federal act proposed by President George W. Bush, that was created to ensure that all United States children receive a high quality education. The law is a “reauthorization of the Elementary and Secondary Education Act or ESEA” (Education Week, 2004).

Reading Fluency – The ability to read smoothly with speed, accuracy, and proper expression (Reading Rockets).

Safe Harbor – If students fail to meet the Annual Proficiency Target, the Safe Harbor provision may allow the school to attain Adequate Yearly Progress if there is a decrease in the percentage of students who are not proficient (Missouri Department of Elementary & Secondary Education, 2011).

Self Correction Ratio – when the readers makes an error and then, without help from the teacher, correct it. The following formula is used to determine the Self Correction Ratio: (Total Errors + Total Self-Corrections) / Number of Self Corrections.
Summary

Reading is an essential skill that students must possess in order to be successful in their personal and professional lives. Public school systems have a vital role in teaching students how to be skilled readers. Teachers can maximize learning time by collecting student reading data. Data collection is important for tracking student academic progress and determining interventions and enrichment activities that will best enhance the achievement of that student.

The Missouri Department of Elementary and Secondary Education (DESE) tracks the Communication Arts level of elementary students through the annual administration of the Missouri Assessment Program (MAP) Grade Level Assessment. Student scores from this test become part of the formula for determining a school’s Adequate Yearly Progress (AYP) and Annual Performance Report (APR) which determines the accreditation of a school. As the annual testing process changes with the adoption of the rigorous standards set forth by the Common Core State Standards, tracking student reading data becomes increasingly important. Students will need to master more difficult standards and read at a higher level than may have been expected in the past.

Though Missouri applied for a waiver granting them flexibility in meeting the requirements set forth in No Child Left Behind (NCLB), teachers may be held more individually accountable for the performance of their students through Missouri’s new Educator Evaluation System. As part of the NCLB Flexibility Waiver, the state of Missouri must develop a school assessment model that will address three principles including college and career ready student expectations; state developed recognition, accountability, and support; and supporting effective instruction and leadership (Missouri Department of Elementary and Secondary Education). The new Educator Evaluation System was developed to address effective instruction and leadership. This new system will evaluate teachers through three Professional Frames: Professional
Commitment, Professional Practices, and on Professional Impact. The performance of students on standardized tests such as the MAP Test will be a factor in determining a teacher’s Professional Impact (Missouri Department of Elementary and Secondary Education).

The results of this study can enable teachers to predict which students may perform at each level of the MAP Grade Level Assessments. The data in this study compared Winter F&P Benchmark Assessment System data to a student’s MAP Achievement Scores. There is a period of 4 months between the administration of the Winter F&P BAS and the MAP Test. This would allow teachers ample time to provide more intensive instruction and interventions for students who may be in danger of receiving a Basic or Below Basic on the MAP Grade Level Assessment.
CHAPTER TWO
REVIEW OF LITERATURE

Monitoring Student Results to Improve Reading

Becoming a proficient and effective reader is one of the most important skills that a student can master during their educational career. Reading is an important part of our personal and professional lives. Whether understanding the message on one’s prescription, comprehending the instructional manual for constructing a toy, or understanding guidelines for a job, reading plays an important role in the quality of life that a person may have. The National Endowment for the Arts found that Proficient Adult Readers are “…2.5 times as likely as Basic readers to be earning $850 or more each week” (National Endowment for the Arts; National Endowment for the Arts). On the other hand, the effects of not becoming a successful reader can be detrimental. According to the US Department of Education, 56 percent of America’s prison inmates read at only the most basic levels (National Center for Education Statistics, 2007).

Public school systems are the only place where many of our nation’s youth receive the instruction that is needed to become a successful reader. Schools assume a large responsibility to students and to society in this task of developing skilled readers. It is imperative that schools carefully monitor the progress of each reader and provide that reader with appropriate inventions that will strengthen that individual’s reading ability. Recent research revealed in The National Assessment of Educational Progress (NAEP) indicated that the state of Missouri was one of only two states in which there was a decline in the average reading scores of public school fourth grade students from 2009 to 2011 (National Center for Education Statistics, 2011).
In order to determine the instructional reading needs of each student, teachers must determine the student’s current reading competencies and limitations. The Fountas and Pinnell Benchmark System (BAS) is currently being utilized by ABC District to collect student reading data. The assessment takes between 20 – 30 minutes to be administered during a one-to-one teacher and student conference. The test is comprised of an oral reading component, a conversation component, and may include a written component. During the assessment, the student reads a leveled book aloud and discusses that book during the conference (Fountus, 2008). The teacher records the data on the appropriate F&P Recording Form. A separate F&P Recording Form is available for each of the leveled text in the F&P series. Categories that are recorded may include: Oral Reading, Accuracy Rate, Self-Correction Ratio, Comprehension Conversation, and Writing About Reading. Following an analysis of the data, the teacher assigns each student an Instructional Text Level. The progress of students is then monitored several times throughout the year in order for teachers to determine new student reading goals as well as to determine individual and small group interventions to support each reader.

**Instructional Text Level**

The Instructional Text Level is used to determine the difficulty of text that is the best fit for a student’s current reading abilities. The teacher assigns an Instructional Text Level to each student during the Fountas and Pinnell Benchmark System (BAS). Students may be assigned an one of 26 Instructional Text Levels ranging from A-Z. Students with the lowest levels of reading proficiencies are assigned an Instructional Text Level of “A”, while students with the highest levels of reading proficiencies are assigned an Instructional Text Level of “Z.” For levels A-K the Instructional Text Level is the level at which the student reads the text with 90-94% accuracy.
and excellent or satisfactory comprehension; or 95% or higher accuracy and limited comprehension. At levels L-Z, the Instructional Text Level is the level at which the student reads the text with 95-97% accuracy and excellent or satisfactory comprehension; or 98% or higher accuracy and limited comprehension (Fountus, 2008). Students are considered to have made one year of reading growth if they are progressed through a district-prescribed number of levels as shown in the Figure 1.

ABC District F&P Instructional Text Level Expectations Chart

<table>
<thead>
<tr>
<th>Grade</th>
<th>Fall Expectations</th>
<th>Winter Expectations</th>
<th>Early Spring Expectations</th>
<th>Late Spring Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>K</td>
<td>B</td>
<td>C</td>
<td>D</td>
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<td>Q</td>
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<tr>
<td>5</td>
<td>T</td>
<td>V</td>
<td>V</td>
<td>W</td>
</tr>
</tbody>
</table>

Figure 1. Instructional Text Level expectations for ABC District

Determining the correct Instructional Text Level is an important part of determining individual student goals and planning of interventions to support the student. The Instructional Text Level also aids teachers in selecting texts that match the child’s reading ability. This allows the student to read successfully with little teacher assistance. Students are then able to be engaged in independent reading practice.

Comprehension

Reading comprehension is the ability to construct meaning while reading a text. Comprehension drives the purpose for reading. If readers can read the text, but cannot realize the meaning, then they are not really reading (Reading Rockets). When students fail to have the ability to comprehend text, they will encounter difficulties in their classroom work as well as in
their personal life. Students may not be able to read then follow directions, a skill that is necessary to being successful on many educational tasks including standardized tests where teachers are able to offer little or no assistance to students.

A student’s reading comprehension ability is measured on the Fountas & Pinnell Recording Form Part Two Comprehension Conversation. This comprehension conversation assessment is given immediately after oral reading and before the scoring of the F&P BAS is complete. Students can earn a score from 0-3 within categories that are dependent upon their text level. These categories can include: Within The Text, Beyond The Text, and About the Text. Total scores are determined and the following rankings are given: Excellent, Satisfactory, Limited, Unsatisfactory (Fountus, 2008).

The student’s comprehension score is a factor in determining their Instructional Text Level. As stated previously, at Instructional Text Levels A-K, students should read the text with 90-94% accuracy and excellent or satisfactory comprehension; or 95% or higher accuracy and limited comprehension. At Instructional Text Levels L-Z, the student should read the text with 95-97% accuracy and excellent or satisfactory comprehension; or 98% or higher accuracy and limited comprehension (Fountus, 2008).

Accuracy Rate

The Accuracy Rate is the percentage of words that a student can correctly read aloud. Accuracy is a key component of Reading Fluency. Students who cannot accurately identify words spend much time decoding words and may get frustrated. For these students, reading becomes laborious, which may greatly decrease their motivation and desire to read (Reading Rockets). Many researchers have determined that strong relationships exist between comprehension and accuracy. Rasinski states that accuracy is the first dimension of reading fluency and that fluency “…builds a bridge to comprehension” (Rasinski, 2004). Fountas and Pinnell studied the oral
reading fluency of over one thousand fourth grade students and determined that rate, fluency, and accuracy were highly related to comprehension (Heston, 2011).

In the Fountas and Pinnell Benchmark System (BAS), accuracy is one of the collected data points that is utilized to determine a student’s Instructional Text Level. While the student reads the text aloud from one of the F&P Benchmark Assessment System’s leveled books, the teacher follows an identical text on the F&P Recording Form. If the student makes an error, the teacher notates this information on the F&P Recording Form. Following the student’s reading performance, the teacher consults the form’s accuracy rate chart to determine the student’s Accuracy Rate. Accuracy is then used to determine the Instructional Text Level using the following guidelines:

- At levels A-K, the level at which the student reads the text with 90-94% accuracy and excellent or satisfactory comprehension; or 95% or higher accuracy and limited comprehension.
- At levels L-Z, the level at which the student reads the text with 95-97% accuracy and excellent or satisfactory comprehension; or 98% or higher accuracy and limited comprehension (Fountus, 2008).

In a classroom of beginning readers, instructors may spend much time with basic letter and word recognition as well as word analysis skills. Sight words are often utilized in lower elementary classrooms in order to give student practice in accurately identifying pre-determined sets of words. As students progress through the sight word sets, they are able to accurately identify more and more words. Teachers continue to monitor oral reading accuracy to determine a student’s ability to “…use strategies to decode unfamiliar words” (Rockets, 2004) and to identify appropriate interventions for that student. Accurate readers are better able to comprehend the text and may find reading to be less laborious. Heston states that “…when a
student’s reading is not fluent and accurate, it is more difficult for the student to comprehend what he/she has read due to the amount of time taken to decode words and complete the reading selection” (Heston, 2011).

Reading and Test Scores

In Missouri, students in the third, fourth, and fifth grades complete the Missouri Assessment Program Grade-Level Test (MAP). This test is given annually and is the state’s measurement of a student’s educational achievement. In the past, the individual MAP Test results of each student are utilized to determine if the school district has successfully attained Adequate Yearly Progress (AYP) as part of the requirements for the No Child Left Behind Act. All school districts that received Title I money were required to make AYP. Schools that failed to meet AYP for more than two years were identified by the state as “needing improvement” (GreatSchools.org). For schools that continually failed to meet AYP, the state department of education would implement several interventions, the most dire of which included a takeover of the school district by the state. Additionally, MAP scores were also utilized as part of a complex formula to determine a school district’s Annual Performance Report (APR). The APR was used to determine the Accreditation Level of the school district.

In June 2012, Missouri was granted an ESEA Flexibility Waiver in meeting the requirements set forth in No Child Left Behind (NCLB). The ESEA Flexibility Waiver provides that Missouri is no longer to meet the 100 percent proficiency requirements of NCLB, however Missouri was required to develop a new accountability system that best met the needs of the state. Missouri has identified Annual Measurable Objectives that include increasing “…proficiency rates by approximately 25% by 2020”, cutting proficiency gaps and achieving a top 10 ranking among states on national assessments (Missouri Department of Elementary & Secondary Education, 2012). The ESEA Flexibility Waiver additionally provides that most schools will have more flexibility and discretion in the utilization of their Title I funding. However, this will
not hold true for the Title 1 schools that are identified by DESE as being “Priority Schools” or “Focus Schools.” Priority Schools are those in which the past three years of data indicates poor Academic Achievement as evidenced by student performances on the MAP tests. Focus Schools are those in which the past three years of data indicates low performance for the Student Gap Group (black students, Hispanic students, low-income students, students with disabilities and English language learners). Priority Schools and Focus Schools will be required to utilize their Title I funding following a regulated formula to improve the school so that student performance meets the academic standards set forth by the state. These schools will also be required to follow intervention strategies as set forth by the state (Missouri Department of Elementary & Secondary Education, 2012).

Districts will continue to be given an Annual Performance Report (APR). Student performance on the MAP tests will continue to be a critical component of a school district’s APR. The APR evaluates schools on the following five performance standards: Academic Achievement, Subgroup Achievement, High School Readiness (K-8 Districts) or College and Career Readiness (K-12 Districts), and Graduation Rate (K-12 Districts) (Missouri Department of Elementary and Secondary Education, March). The APR will still be used to determine the Accreditation Level of the school district and the public may use this report to determine their satisfaction with the district.

As school districts strive to keep funding discretion as well as accreditation for their district, it becomes increasingly important that educators prepare students to be successful on the MAP test. Reading plays a pivotal role in the ability of the student to complete the MAP Test. Test administrators give a test booklet to each student and are then allowed to provide very little assistance to the students (i.e. administrators may speak one word of a sentence, but may not tell the definition). In order to be successful, students must rely upon their own reading ability to be able to comprehend test questions, directions, and score sheets as they complete the MAP Grade-
Level Test. In a study of Fourth Grade students’s Iowa Test of Basic Skills scores, Alley found that students who had higher reading scores also had higher composite test scores. Alley determined that “…in order for students to be able to achieve proficiently on standardized tests, they need to be able to fluently read and comprehend test material” (Alley, 2011).

In ABC District, the goal is to determine which students are prepared to perform at a high level on the MAP Grade-Level Test. The ABC District seeks to determine a predictability model that will enable educators to determine interventions that are necessary to better prepare students to be successful. The ABC District seeks to determine if the data points collected in the F&P Benchmark Assessment System are reflective of the student’s ability to perform on the MAP Test. Additionally, it will be determined if one data point is more significant than the others.

Research initiated by Heinemann indicated that in a small evaluation city, “…data showed that if students [were] proficient at Levels M or N, there was a strong predictability of proficiency on the Ohio Achievement Test in Grade 3” (Heinemann, 2012).
CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

Statement of Purpose
The ABC District seeks to determine a predictability model for student performance on the Missouri MAP Communication Arts assessment. It is unknown whether the data gathered from the district-wide administered Fountas & Pinnell Benchmark Assessment Systems can serve as a tool for predicting whether students will score Proficient or Advanced on the Missouri MAP Communication Arts assessment.

Research Method
The following methods were used to investigate the research questions stated above. The methods of 1) research design, 2) research questions, 3) study group, 4) data collection and instrumentation, and 5) data analysis methods are described below.

Research Questions
The following research questions were constructed to investigate the problem.

RQ1: Is there a difference between student Communication Arts MAP test proficiency levels when categorized by F&P Instructional Level?

RQ2: What percent of students reading at or above the suggested F&P Instructional Text Level scored Proficient or Advanced on the MAP test?

RQ3: Is there a difference between student Communication Arts MAP test proficiency levels when categorized by F&P Accuracy Rate?

RQ4: Is there a difference between student Communication Arts MAP test proficiency levels when categorized by F&P Comprehension Scores?
Study Group

This study group includes 258 third, fourth, and fifth grade student cases from ABC Elementary. ABC Elementary educates approximately 600 students annually. Over 80 percent of the students are eligible for Free or Reduced Lunch. The population is very diverse with 15% of the students categorized as English Language Learners, 16% of the population being Latino, 17% Black, 10% Asian, and 12% Pacific Islander.

Data Collection Methods and Instruments Used

The Missouri Department of Elementary and Secondary Education assesses 3rd, 4th, and 5th grade students each spring to determine their Achievement Level in Communication Arts. This written test measures language arts mastery and reading comprehension. The test is scored and students earn one of the following proficiency levels: Below Basic, Basic, Proficient or Advanced.

In addition to the MAP Grade-Level Test, the ABC District administers several other communication arts assessments, one of which is the Fountas & Pinnell Benchmark Assessment System (BAS). The BAS is administered four times annually in a one-to-one teacher and student meeting. This assessment is mostly oral in nature. The teacher collects many data points including Instructional Text Level, Accuracy, Fluency, Self-Correction Ratio, and Comprehension. These data points are then entered into a district wide system called DataDirector. Permission and data for this study were obtained by applying for permission from ABC District.
Statistical Analysis Methods Used

For RQ1, I will display a percentage chart showing the frequency of Advanced, Proficient, Basic, and Below Basic scores on the MAP Test for each Instructional Text Level Grouping. I will also complete a Linear Regression and Correlation test using VassarStats. This test will compare Instructional Text Level (in numeric form) to the MAP Achievement Level Code (the numeral assigned to each of the MAP Achievement Levels; 4 = Advanced, 3=Proficient, 2=Basic, 1=Below Basic).

For RQ2, I will submit a table and pie chart demonstrating the number and percentage of Above Target Instructional Text Level students earning the following MAP Achievement Level categories: Advanced/Proficient or Basic/Below Basic.

For RQ3, I will display a percentage chart of student MAP Achievement Levels within each of the following Accuracy Groupings: High Accuracy, Middle Accuracy, and Low Accuracy.

For RQ4, I will display a percentage chart of student MAP Achievement Levels within each of the following Comprehension Groupings: High Comprehension, Middle Comprehension, and Low Comprehension. Additionally, a table of these results will be displayed.
CHAPTER FOUR:
PRESENTATION AND ANALYSIS OF DATA

Review of the Research Design

In this study, data from the Winter administration of the F&P Benchmark Assessment System was utilized. The following data points were utilized in this study: MAP Achievement Level, MAP Achievement Level Code, F&P Instructional Level, F&P Accuracy, and F&P Comprehension.

The percent of the study group earning each MAP Communication Arts Achievement Level is shown in Figure 2.

![Pie chart showing the distribution of ABC Elementary 3rd, 4th, and 5th grade students scoring in each MAP Communication Arts Achievement Level.](chart.png)

Figure 2. Percentage of ABC Elementary 3rd, 4th, and 5th grade students scoring in each of the MAP Communication Arts Achievement Levels.
Findings by Survey Item

RQ1: Is there a difference between student Communication Arts MAP test proficiency levels when categorized by F&P Instructional Level?

H10: There is no difference between proficiency levels on the Communication Arts MAP test when categorized by F&P Instructional Text Level.

The F&P Instructional Level is scored on a scale of A-Z. District ABC had determined the Instructional Level at which students should be reading in order to be reading “On Target.” Student Instructional Levels were categorized in the following manner:

Above Target – Student is reading higher than the predetermined Instructional Level for the appropriate Grade and time of year.

On Target – Student is reading at the predetermined Instructional Level for the appropriate Grade and time of year.

Below Target – Student is reading below the predetermined Instructional Level for the appropriate Grade and time of year.
As shown in Figure 3, there is a difference in the percentage of students scoring in each of the MAP Achievement Levels when categorized by Instructional Text Level Groupings. 100 percent of the students scoring Advanced on the MAP test were reading Above Target according to the F&P Benchmark Assessment System. Contrastingly, only 4.17% of students scoring Below Basic on the MAP Test were reading Above Target. 95% of the students receiving a Below Basic MAP Achievement Level were also reading Below Target whereas only 12.7% of Proficient students were part of the same reading level grouping. The null hypothesis was rejected.

In order to investigate the research question further, a Linear Correlation and Regression test was completed using VassarStats.net (Lowry). The data generated in this test is shown in Figure 4.
Correlation Table for Winter Instructional Text Level and MAP Achievement Level

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>r</th>
<th>r²</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter Text Level</td>
<td>258</td>
<td>19.4341</td>
<td>4.6735</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Map Achievement Level Code</td>
<td>258</td>
<td>2.5078</td>
<td>0.755</td>
<td>0.5758</td>
<td>0.3315</td>
<td>256</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Figure 4. Summary Correlation Table for Winter Instructional Text Level v. Map Achievement Level Code

As shown in Figure 4, a positive moderately strong and practical correlation ($r=0.55; r^2=0.3315$, $p<0.001$) was found. The null hypothesis was rejected. A significant association was found between Winter Instructional Text Level and MAP Achievement Level. The Critical Value for $r$ was calculated from a Critical Values of $r$ Table (Bissonnette). The Critical Value of $r$ is 0.095. $r$ is 0.5758. Because the value of $r$ (0.5758) is larger than the Critical Value (0.095), one can determine that this is statistically significant.

This data was utilized to create a Predictability Formula. Using a basic Raw Score Linear Regression Formula (Higgins, 2005), the following Predictability Formula was created where $X$ is the Winter Instructional Text Level and $Y$ is the MAP Achievement Code.

1. Predicted Score = $r$ (Standard Deviation for MAP Achievement Code) ($X$-(Mean of X)) + (Mean of Y) / Standard Deviation for Instructional Text Level

2. Predicted Score = \(0.5758 \times \left( \frac{0.755}{4.6735} \right) \times (X-(19.4341)) + 2.5078\)

3. Predicted Score = \(0.5758 \times (0.16) \times (X-(19.4341)) + 2.5078\)

4. Predicted Score = \(0.092 \times (X - (19.4341)) + 2.5078\)
The researcher also examined the data to determine if a correlation existed between Fall Instructional Text Level scores and MAP Achievement Level Codes. In this instance, \( r = 0.5342 \). The \( r \) value for the Winter Instructional Text Level scores was higher with \( r = 0.5758 \). There is a stronger association between the Winter Instructional Text Level and MAP Achievement Level Codes.

RQ2: What percent of students reading Above Target on the F&P Instructional Text Level scored Proficient or Advanced on the MAP test?

<table>
<thead>
<tr>
<th>MAP Achievement Level</th>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced or Proficient</td>
<td>79</td>
<td>59%</td>
</tr>
<tr>
<td>Basic or Below Basic</td>
<td>54</td>
<td>41%</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100%</td>
</tr>
</tbody>
</table>

Figure 5: Raw Data of MAP Achievement Scores of Students Reading Above Target

Figure 6. Percentage of MAP Communication Arts Achievement Levels earned by students performing Above Target Instructional Text Level on the F&P Benchmark Assessment System.
133 Students were reading Above Target for their Grade Level. Of these students, 79 students (59%) scored Advanced or Proficient on the MAP Communication Arts Grade Level Test.

RQ3: Is there a difference between student Communication Arts MAP Test proficiency levels when categorized by F&P Accuracy Rate?

H30: There is no difference between proficiency levels on the Communication Arts MAP Test when categorized by F&P Accuracy Rate.

During the F&P Benchmark Assessment System, the teacher scores the student’s accuracy while listening to the student read a text aloud. The Accuracy Rate is determined by counting the number of missed words then consulting a chart found in the F&P Benchmark Assessment System. Students can score from 0 – 100 %. The data from the study group was used to divide students into the following Accuracy Rate Groups.

High Accuracy Rate Group – Students earning scores of 98 – 100 percent.
Middle Accuracy Rate Group – Students earning scores of 94 – 97 percent.
Low Accuracy Rate Group – Students earning scores of 90 – 93 percent.
No students received scores of less than 90 percent.
Figure 7. Percentage of students earning each MAP Achievement Level within each Accuracy Group.

All students in the Lowest Accuracy Group scored Below Basic on the Map Test. In the Middle Accuracy Group, 29% of students scored Advanced or Proficient. In the High Accuracy Group, 40.7% of students scored Advanced or Proficient. The null hypothesis was rejected due to differences in the percentage levels of students scoring in each Achievement Level of the MAP Test.

RQ4: Is there a difference between student Communication Arts MAP Test proficiency levels when categorized by F&P Comprehension Scores?

H40: There is no difference between proficiency levels on the Communication Arts MAP Test when categorized by F&P Comprehension Scores.

During the F&P Benchmark Assessment System, the teacher scores the student’s comprehension through an oral conversation. Students may earn a score from 0 – 10. The determination of the score the student receives is subjective and can vary from teacher to teacher.
The data from the study group was used to divide students into the following Comprehension Level Groups.

High Comprehension Group – Students earning scores of 8-10.

Middle Comprehension Group – Students earning scores of 4-7.

Low Comprehension Group – Students earning scores of 0-3.

![Map Achievement Level of Students within Comprehension Level Groups](image)

Figure 7. Percentage of students earning each MAP Achievement Level within each Comprehension Group.

<table>
<thead>
<tr>
<th>F&amp;P Comprehension Score Grouping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Comprehension Group</td>
</tr>
<tr>
<td>Basic or Below Basic</td>
</tr>
<tr>
<td>Advanced or Proficient</td>
</tr>
</tbody>
</table>

Figure 8. Percentage of F&P Comprehension Group students earning Basic or Below Basic / Advanced or Proficient on the MAP Test.

All students in the Lowest Comprehension Group scored Basic or Below Basic on the Map Test. Few differences exist between the Middle Comprehension Group and the High
Comprehension Group. In the Middle Comprehension Group, 64.39% of students scored Basic or Below Basic while 62.50% of the High Comprehension Group scored Basic or Below Basic. 37.50% of the students in the High Accuracy Group and 35.61% of the students in the Middle Comprehension Group scored Advanced or Proficient on the MAP Test. Though little differences exist between the percentages found in the Middle and High Comprehension Groupings, there is a distinct difference in the MAP Achievement Level percentages between the Lowest Comprehension Group and other Comprehension Groupings. The null hypothesis was rejected.
CHAPTER FIVE:
OVERVIEW, FINDINGS AND RECOMMENDATIONS

Discussion of Findings

There were 133 students who were reading Above Target according to their scores on the Winter administration of the F&P Benchmark Assessment System. 59% of these students scored Advanced or Proficient on the MAP Communication Arts Test.

Additionally, 100 percent of the students earning Advanced Achievement Level scores were reading Above Target. 84.13 percent of the students earning Proficient were reading Above Target. 95.83% of the students receiving Below Basic scores were reading Below Target. A correlation test revealed that there was a strong correlation between Instructional Text Level and MAP Achievement Level.

Student F&P Accuracy Scores were divided into three groupings: Low Accuracy, Middle Accuracy, and High Accuracy. All students in the Lowest Accuracy Group scored Below Basic on the MAP Test. 71 percent of the Middle Accuracy and 59.3 percent of the High Accuracy Students scored Basic or Below Basic.

When studying the F&P Comprehension Scores, students were divided into three groupings: Low Comprehension, Middle Comprehension, and High Comprehension. 100 percent of the students in the Low Comprehension Grouping scored Basic or Below Basic on the MAP Test. There were negligible differences in the performance of students in the Middle and High Comprehension Groupings.

Conclusions

District ABC should continue to focus on developing skilled readers. As indicated in the results of this study, there is a strong positive correlation between Instructional Text Level and
MAP Achievement Code Levels on the Communication Arts portion of the MAP Test. All students earning Advanced ratings were also reading Above Target. Nearly 96 percent of the students receiving Below Basic ratings were also reading Below Target.

Accuracy Scores and Comprehension scores were also studied. It appears that students in the Low Accuracy or Low Comprehension groups also received the lowest Achievement Levels. All students in the Low Accuracy Group received Below Basic on the MAP Test. All students in the Low Comprehension Group received Basic or Below Basic on the MAP Test. Negligible differences existed in the data between the Middle and High Groups for Comprehension and Accuracy.

Recommendations

The results of the study indicate that Instructional Text Level of a student is strongly correlated to their performance on the MAP Communication Arts test. 100 percent of students earning Advanced MAP Achievement Levels were also reading Above Target on their Instructional Text Level. A focus on advancing students to higher Instructional Text Levels should remain a focus for the staff of this school. As a student’s Accuracy and Comprehension increase, the F&P Benchmark Assessment formula assigns the student a higher Instructional Text Level. This study indicated that there was a strong positive correlation between Instructional Text Level and Map Achievement Level. As the Instructional Text Levels increase, so should the MAP Achievement Levels of the student.

Teachers should continue to identify students who are reading Below Target or who are in the Low Accuracy and Low Comprehension groups. These students should be offered reading interventions such as LLI, Leveled Literacy Interventions that are currently being utilized in the district. An assessment of these interventions could be completed in the future to determine their success at moving students ahead in their reading ability.
Another way to develop stronger readers is to offer them more opportunities and incentives to read. Research has shown that “…the volume of reading was reliably correlated with reading comprehension performance…” and that “…differences in reading comprehension growth were reliably linked to differences in print exposure…” (Allington, 2005). In order to improve comprehension, students need more practice at reading. This could be done by individual teachers or through a school wide program. ABC Elementary recently piloted a voluntary program called the ABC Elementary Resource Library. This library is stocked with free books that students may read and then exchange for another book. At the end of each week, books from the library are packaged neatly in a book bag and are distributed to students receiving Harvestor’s BackSnacks and FamilyPacks, a program offered to provide weekend food to low-income families. Students are encouraged to fill out a reading log and a book recommendation form which may be displayed on a school bulletin board. Program Coordinator, Alison Black, notes that “…in only 3 months, students participating in this voluntary program read over 700 hours…” Further research could prove the effectiveness of this program on increasing the reading comprehension of voluntarily participating students or upon Student Gap Group populations.
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