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## The Relationship Between Reading Level and Standardized Achievement Results

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6-2019

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Monifa Johnson

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Concordia University–Portland

College of Education

Doctor of Education Program

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The Relationship Between Reading Level and Standardized Achievement Results

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Concordia University–Portland

College of Education

Dissertation submitted to the Faculty of the College of Education

in partial fulfillment of the requirements for the degree of

Doctor of Education in

Higher Education

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Concordia University–Portland

2019

## Abstract

This quantitative study examined the relationship between eighth grade ELA MAAP achievement and DRP score in lowest performing students. For this research study, lowest performing students are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year. This study included a total population sample of 87 students who were in ninth grade during the 2017–2018 school year at a public high school in Mississippi and who were identified as lowest performing on the 2016–2017 eighth grade ELA MAAP. A Pearson product-moment correlation and multiple linear regression were used to analyze the secondary data. The first research question asked to what extent is eighth grade ELA MAAP achievement significantly correlated to DRP score in lowest performing students in a selected Mississippi public school. For RQ1, there was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students. The researcher rejected the null hypothesis for the first research question. The second research question asked to what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school. For RQ2, the multiple regression model predicted DRP. Reading Literature added statistically significantly to the prediction. The researcher rejected the null hypothesis for the second research question.

*Keywords:* achievement, adolescents, Common Core State Standards, comprehension, intervention, literacy, MTSS, reading, reading strategies, screening, standardized assessments, and struggling readers

## **Dedication**

I dedicate this dissertation to my support team: Christ Jesus, my husband, my children, my parents, my in-laws, and all others who nurtured me along the way.

## **Acknowledgements**

I acknowledge Dr. Jillian Skelton, my Faculty Chair, for her guidance through the dissertation process. I also acknowledge my committee members, Dr. Neil Mathur and Dr. Derrick Tennial, for their constructive feedback. Finally, I acknowledge that I can do all things through Christ who strengthens me. Thank you, Lord, for your strength to complete this task. I am grateful.

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## **Chapter 1: Introduction**

### **Introduction to the Problem**

Literacy is vital to student success, as it is incorporated into every subject area (Mastropieri, Scruggs, & Graetz, 2003), yet NAEP results show that there are a lot of struggling readers (Wixson, Raphael, & Au, 2018). With the endorsement of Common Core State Standards, struggling readers, readers who are typically three or more years behind grade level, are expected to read and understand complex, challenging grade-level texts (CCSS, 2010). Without the support necessary, struggling readers fall further behind. With much of the literature focused on beginning readers, it seems most difficult to close the gap between skilled and struggling adolescent readers (Wolters, Denton, York, & Francis, 2014). If literacy is vital to student success, then knowing and effectively addressing the reading deficits of our adolescent population will lead to increased student achievement.

Some schools use universal screeners to predict achievement and intervention needs (Ball & O'Connor, 2016; Kent, Wanzek, & Yun, 2018; Ralston, Waggoner, Tarasawa, & Jackson, 2016; Rowe, Witmer, Cook, & Dacruz, 2014; Stevenson, 2015). A universal screener is a measure used for early identification of at-risk students or students in need of more instructional support (Cummings & Smolkowski, 2015). While the research on the relationship between universal screeners and standardized achievement outcomes focuses on whether screener results predict achievement, it is equally important to know whether achievement results are predictive. Can one look at standardized achievement results and predict a student's reading ability? In some schools, achievement results from previous years are the only data teachers have, to begin the school year. If standardized achievement results predict reading ability, then teachers can use that information to plan instruction that targets the skill deficits of struggling readers.

## **Background, Context, History, and Conceptual Framework for the Problem**

The achievement gap between skilled and struggling readers shows up in standardized achievement tests. As a result, most state school accountability models emphasize student growth, along with student proficiency (Woods, 2017). Additionally, several states promote identifying struggling students and providing interventions for them. For example, Multi-Tiered System of Supports (MTSS) may be structured to identify and support struggling readers (MTSS Quick Reference Guide, 2016). The literature shares numerous strategies for working with struggling readers.

Some of the literature asserts that engagement and motivation increase achievement for struggling readers (Kim et al., 2017; Roberts, Rane, Fall, Fletcher, & Vaughn, 2015). Therefore, some researchers looked at the outcome of building motivation and engagement into lesson plans (Cantrell et al., 2014; Kim et al., 2017; Klauda & Guthrie, 2014; McGeown, Duncan, Griffiths, & Stothard, 2015; Neugebauer, 2014; Roberts et al., 2015; Wolters et al., 2014). Other literature found that struggling readers who received a multicomponent intervention benefitted (Barth & Elleman, 2017; O'Connor et al., 2017; Oslund, Clemens, Simmons, & Simmons, 2018; Swanson et al., 2017). Even teacher-student relationships were examined for their role in student literacy (Frankel, 2017; Glenn & Ginsberg, 2016; Glenn, Ginsberg, & King-Watkins, 2016; Hall, 2016; Hikida, 2018; Kim et al., 2017; Learned, 2016).

Within the MTSS framework, schools may use a universal screener to determine which students need to be targeted for intervention. Since schools are evaluated by student proficiency, much of the literature on screeners reveals that researchers want to know the relationship between screeners and standardized state achievement assessments (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016; Rowe et al., 2014; Stevenson, 2015). This kind of inquiry

aligns with the social constructivism learning theory, which was influenced by the work of Lev Vygotsky.

Vygotsky's theory of learning emphasized the importance of social interaction.

According to Vygotsky, functions like learning require relationship. Vygotsky (1978) explained as follows:

Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals. (p. 57)

A concept of Vygotsky's theory that best relates to the research study is the ZPD or zone of proximal development. The ZPD is the difference between what a student is able to do independently versus what a student is able to do with assistance.

Educators are accountable for ensuring that students receive the assistance needed to achieve at higher levels. In order to accomplish this, educators must first identify students' level of actual development or where students can work independently. Then, educators must identify students' level of potential development. With effective effort, teachers can move struggling students from their independent level to content proficiency. Both the eighth grade ELA MAAP and the DRP provide opportunities for teachers to identify students' zone of proximal development.

Current research on the relationship between universal screeners and standardized achievement outcomes focuses on whether screener results predict achievement. It is just as



important to know whether achievement results are predictive. Can one look at standardized achievement results and predict a student's reading ability?

### **Statement of the Problem**

Struggling adolescent readers must be identified and supported. Some schools rely on universal screeners to identify students for intervention. The literature on screeners indicates that researchers want to know the relationship between screeners and standardized state achievement assessments (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016; Rowe et al., 2014; Stevenson, 2015). The missing link in the literature is whether student achievement results predict students' reading ability. It is this gap in the literature that resulted in the problem statement: It was not known if and to what degree eighth Grade ELA Mississippi Academic Assessment Program (MAAP) achievement correlated to Degrees of Reading Power (DRP) level in lowest performing students. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year. As lowest performing students count twice in the ELA growth calculations for Mississippi's Accountability Model, they are a population that teachers must focus on strategically.

### **Purpose of the Study**

The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. Through the framework of the social constructivism learning theory, this research study was designed to understand better whether student achievement results predict students' reading ability.

A correlation analysis determined if a relationship existed between eighth grade ELA MAAP and DRP level for lowest performing students. Results analysis explored the relationship that existed between the eighth grade ELA MAAP and DRP for lowest performing students. Predictor and criterion variables were utilized for data analyses. Predictor variables are used to determine the outcomes of another variable. In this research study, eighth grade ELA MAAP achievement is the predictor that summarizes student performance on Mississippi ELA standards. Criterion variables get predicted. In this research study, the DRP Core Comprehension Test is the criterion that summarizes student reading comprehension level. The target population consisted of 486 students who were ninth-graders at a public high school in Mississippi during the 2017–2018 school year. Of the 486 students who were in ninth grade during the 2017–2018 school year, 99 were identified as lowest performing students. Students took the eighth grade ELA MAAP in 2017 as eighth graders and the DRP Core Comprehension Test in 2018 as ninth graders. The sample included 87 ninth grade students from a public high school in Mississippi.

### **Research Questions**

The following research questions and hypotheses directed this quantitative, correlational study:

RQ1: To what extent is eighth grade ELA MAAP achievement (PV) significantly correlated to DRP score (CV) in lowest performing students in a selected Mississippi public school?

H<sub>01</sub>: There is no statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>0</sub>:  $r = 0$

- H<sub>a1</sub>: There is a statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>a</sub>:  $r \neq 0$
- RQ2: To what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school?
- H<sub>02</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) do not significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.
- H<sub>a2</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

### **Rationale, Relevance, and Significance of the Study**

Study results may provide educators and administrators interested in identifying struggling adolescent readers within their lowest performing student population with guidance on using standardized achievement results to do so. This study was designed to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP level in lowest performing students in a selected Mississippi public school. The research on the relationship between universal screeners and standardized achievement outcomes focuses on whether screener results predict achievement (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016; Rowe et al., 2014; Stevenson, 2015). What is omitted in the literature is whether standardized achievement results predict reading level. This omission created a need to

determine whether an educator or administrator could use standardized achievement results to predict a student's reading level to provide appropriate intervention.

### **Definition of Terms**

This section defines terms for this study.

**Common Core State Standards.** This is defined as standards developed to ensure that students are college and career ready (Kohler, Christensen, & Kilgo, 2014).

**Degrees of Reading Power (DRP) Core Comprehension Test.** This is defined as an assessment that measures one's ability to read and understand text that is increasingly complex (Questar Assessment Inc., 2016).

**Eighth Grade ELA Mississippi Academic Assessment Program (MAAP).** This is defined as a measure of student achievement in English Language Arts (MAAP, n.d.). There are four reading related test strands. The Reading Literature strand assesses students' ability to comprehend literature. The Reading Informational strand assesses students' ability to comprehend informational text. The Writing strand assesses students' ability to read a text and respond to a writing prompt in a way that demonstrates comprehension of the text and the task. The Language strand assesses students' ability to determine the meaning of vocabulary words associated with text passages.

**Lowest performing students.** This is defined as the percentage of students who scored in the bottom 25% of their class during the previous testing year (Legislative Committee on Performance Evaluation and Expenditure Review, 2015).

**Multi-Tiered System of Supports.** This is defined as a three-tiered support system for students that addresses academics and behavior (MTSS Quick Reference Guide, 2016).

**Reading comprehension.** This is defined as the ability to understand what is read.

Vocabulary knowledge and text comprehension are two elements of the reading comprehension process (What is Reading Comprehension?, 2014). MAAP and DRP relate to reading comprehension.

**Reading level.** This is defined as the DRP test score (Questar Assessment Inc., 2016).

DRP relates to reading level.

**Standardized achievement.** This is defined as performance on a standardized test that measures subject and grade level knowledge (Morin, 2019).

**Universal screener.** This is defined as a measure used for early identification of at-risk students or students in need of more instructional support (Cummings & Smolkowski, 2015).

### **Assumptions, Delimitations, and Limitations**

Assumptions, delimitations, and limitations of the research study are interconnected. Assumptions are facts that the researcher supposed to be true, even though the facts were not verified. Delimitations are restrictions that the researcher placed on the study. Limitations are potential shortcomings of the research study. This section outlines the assumptions, delimitations, and limitations for the research study.

**Assumptions.** Assumptions are aspects of the research study that the researcher does not control, but believes true (Simon, 2011). It was assumed that the eighth grade ELA MAAP and the DRP Core Comprehension Test were valid, reliable instruments. It was also assumed that students performed to capacity on both instruments. As it related to quantitative correlational research, it was assumed that the relationship between the predictor and criterion variables was linear.

**Delimitations.** Delimitations are decisions that a researcher makes to provide parameters for the research study (Haslam & McGarty, 2014). Research study parameters include several aspects of the research: research purpose, research questions, research variables, and research target population. For this study, the researcher chose to use a quantitative methodology with a correlational design. This study used correlation analysis to determine whether a relationship existed between eighth grade ELA MAAP achievement and DRP results for lowest performing students. In terms of sampling, the researcher's use of a total population sample was a delimitation of the research study. Generalizability to other ninth-grade students may be limited since the study did not explore the general association between scores of all students who completed both the eighth grade ELA MAAP and the DRP test.

**Limitations.** Research limitations are aspects of the research study that were not controlled by the researcher. For this research study, the researcher did not have a part in determining the instruments that produced the archival data. Neither did the researcher have a role in determining whether errors existed in the archival data. And, the researcher did not control how engaged and motivated students were while completing the eighth grade ELA MAAP and the DRP test.

A quantitative methodology with a correlational design was used to determine the relationship between eighth grade ELA MAAP achievement and DRP results for lowest performing students. The research design was a limitation as the research study did not explore causation or offer a narrative perspective of the data (Babbie, 2013). An additional limitation was the researcher's use of a total population sample, which affected the representativeness and generalizability of the data (Total Population Sampling, n.d.). Since the research study was limited to students who were identified as lowest performing on the eighth grade ELA MAAP,

the results may not have an application to students in school districts that do not use the DRP Core Comprehension Test as a universal screener in addition to the eighth grade ELA MAAP. Finally, the fact that the eighth grade ELA MAAP is only administered in Mississippi is a limitation of the research study.

## **Summary**

This chapter introduces the problem of whether eighth grade ELA MAAP achievement correlated to DRP level in lowest performing students. An omission in the literature regarding whether standardized achievement results predict reading level created an opportunity to research whether standardized achievement results could be used to predict reading level and provide necessary intervention. Overall, the purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. The social constructivism learning theory provides a framework for this research study.

Chapter 2 details the conceptual framework that grounds the study. Then, Chapter 2 continues with a literature review that examines Common Core state standards and text complexity, empirical research on struggling readers and reading interventions, as well as empirical research on screeners. Chapter 3 presents the methodology for this research study. The study results are presented in Chapter 4. Finally, Chapter 5 presents the conclusions and discussion of this research study.

## **Chapter 2: Literature Review**

### **Introduction to the Literature Review**

Literacy is a part of every subject area, making it essential to students' academic success (Mastropieri, Scruggs, & Graetz, 2003). Even so, NAEP results showed that a lot of students struggle with reading (Wixson, Raphael, & Au, 2018). The Common Core State Standards were designed to ensure that students have regular opportunities to read and demonstrate comprehension of complex, grade-level texts (CCSS, 2010). Struggling readers who do not receive the necessary support in literacy continue to fall behind. Standardized achievement tests reveal the performance gap between skilled and struggling readers. Therefore, state accountability systems typically address student proficiency and student growth (Woods, 2017). Several states also use frameworks like the Multi-Tiered System of Supports (MTSS) to identify and support struggling readers (MTSS Quick Reference Guide, 2016).

While current literature on the topic of reading is typically focused on beginning readers, there is still a need to close the gap between adolescent readers who excel and adolescent readers who struggle (Wolters, Denton, York, & Francis, 2014). Educators must be knowledgeable about how to address the reading deficits of our adolescent population if they are to increase student achievement. As it relates to reading ability and adolescent achievement, it was not known if and to what degree eighth Grade ELA Mississippi Academic Assessment Program (MAAP) achievement correlated to Degrees of Reading Power (DRP) level in lowest performing students. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year. Therefore, the purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest



performing students in a selected Mississippi public school. This study addressed an omission in the literature that called for research to focus on the relationship between standardized assessments and universal screeners (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016). Specifically, the gap in the literature was whether student achievement results predict students' reading ability.

This study has significance to the researcher because student growth is crucial. While teachers cannot backfill every gap that students who are behind have, they can use data from screeners and assessments to determine which students require intervention. Chapter 2 justifies the research study and its basis on a gap in the literature. The core of chapter 2 is centered on a review of the relevant literature and emerging themes. Analysis and synthesis of these themes helped focus the research study.

The first section of chapter 2 presents the conceptual framework for the research study. This study was grounded in Vygotsky's social constructivism theory of learning. One key concept of Vygotsky's theory is the concept of the zone of proximal development (Vygotsky, 1962). The rest of the chapter presents a review of the research and methodological literature, a review of methodological issues, a synthesis of the research findings, a critique of the previous literature, and a summary of the chapter.

Several databases and search terms helped identify relevant, peer-reviewed, and scholarly literature to mine for the literature review. The following databases were used to find literature for the literature review: Concordia University Libraries, ERIC, ProQuest, and Google Scholar. The following search terms were employed to focus the search on texts that were relevant for inclusion in the literature review: achievement, adolescents, Common Core State Standards, comprehension, intervention, literacy, reading, reading growth, reading strategies, Response to

Intervention, screening, standardized assessments, and struggling readers. Books and articles were also utilized as references for the literature review.

### **Conceptual Framework**

A former leadership workshop facilitator stressed the importance of paying attention to the principles beneath education practices (J. Crawford, personal communication, June 13, 2011). In other words, she stressed that participants needed to understand the why behind their what. This conceptual framework explains the why behind the what, or what Ravitch and Riggan (2017) called the *reason* (why) and *rigor* (what) of the study. This research study aligns with Lev Vygotsky's (1962) social constructivism theory of learning. Vygotsky focused on learning as a collaborative experience, whereby child development is maximized as students interact with more knowledgeable others (MKO).

**Vygotsky's social constructivism theory of learning.** Social constructivism is a learning theory that is influenced by the work of Lev Vygotsky, as Vygotsky believed that child development occurs from "the social to the individual" (Vygotsky, 1987, p. 76). Vygotsky's theory of the ZPD or zone of proximal development was most relevant and applicable to this research study. ZPD is defined as "the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). Essentially, learners have two developmental levels: actual and potential. The actual development level is the level where students can work independently (Vygotsky, 1978). The potential development level is the level where students can work with support from others (Vygotsky, 1978). With effective support from others, the zone of proximal development evolves into a level of actual development.

Tharp and Gallimore (1988) outlined four stages of ZPD. In stage one, learners receive help from an MKO, a teacher or peer. In the second stage, learners help themselves. In stage three, learners develop automaticity as a result of practice. In the fourth stage, learners can apply the skill to new situations. Vygotsky's social constructivism theory of learning, specifically the concept of the ZPD, has implications for educators.

Implications for educators include applying the understanding of ZPD to lesson design. For example, the stages of ZPD convey the importance of ensuring students have enough practice with an objective that students develop fluency or mastery of the objective. In short, the ZPD outlines what a productive learning experience should include.

Educators are key to helping students achieve at higher levels. As Vygotsky (1956) said, good teaching "awakens and rouses to life those functions which are in a stage of maturing, which lie in the zone of proximal development" (as cited in Tharp & Gallimore, 1988, p. 200). Since each student's zone of proximal development shifts as students grow in their skillset, educators are responsible for knowing their students' actual development so that they can grow students into their potential development. Pedagogy and social interaction merge in the zone of proximal development (Bruner, 1997).

**Conceptual framework and research study.** Lev Vygotsky's (1962) social constructivism theory of learning serves as a lens through which the research study can be viewed. The theory has relevance to the study of whether eighth grade ELA MAAP achievement correlated to DRP level in lowest performing students in a selected Mississippi public school. Essentially, the eighth grade ELA MAAP and the DRP provide opportunities for teachers to identify students' ZPD as it relates to reading achievement and reading level.

Assessments are designed to determine students’ actual level of development. Additionally, assessment of student learning is part of the scaffolding process that occurs when teachers plan instruction to advance students from where they are to a state of mastery. Within the lens of Vygotsky’s theory, both the eighth grade ELA MAAP and the DRP Core Comprehension assessments allow teachers to identify students’ actual development level, which allows teachers to identify students’ zones of proximal development. Knowledge of students’ actual development and potential development allows teachers to plan social, instructional experiences that will drive student learning. Table 1 outlines the overall conceptual framework:

Table 1

*Vygotsky’s ZPD Theory*

Instructional level	Student ability
Too Hard	Student Cannot Yet Do with Help
Just Right	Student Can Do with Help (ZPD)
Too Easy	Student Can Do Independently

**Review of Research Literature and Methodological Literature**

The purpose of the review is to synthesize the literature most relevant to this research study. Arnauld and Nicole (1850) defined synthesis as explaining to others what we have found. This review explores the following themes: what complex text is, numerous strategies for working with struggling readers, and the relationship between screeners and standardized assessments.

**Common core state standards and complex text.** Anchor Standard 10 in the Common Core State Standards (CCSS) stated that students will be able to “read and comprehend complex literary and informational texts independently and proficiently” (Common Core Standards Initiative, 2010, p. 10). CCSS matter because they are standards that were designed to promote

rigorous and consistent learning objectives across states. As it relates to Anchor Standard 10, the CCSS emphasized increases in text complexity as students progress from grade to grade, to ensure that students graduate college and career ready (Fitzgerald et al., 2016). Text complexity, as defined by the CCSS, included the quantitative characteristics, qualitative characteristics, and reader and task dimensions of a text (Bunch, Walqui, & Pearson, 2014). As defined by CCSS, text complexity is “the inherent difficulty of reading and comprehending a text combined with consideration of reader and task variables; in the standards, a three-part assessment of text difficulty that pairs qualitative and quantitative measures with reader-task considerations” (Common Core Standards Initiative, 2010, p. 43). Table 2 outlines the increasing levels of text complexity that students should experience as they move from grade to grade (Common Core Standards Initiative, 2010).

Table 2

*Lexile Ranges for Anchor Standard 10*

Grade	Previous Lexile range	CCSS Lexile range
K–1	N/A	N/A
2–3	450–725	450–790
4–5	645–845	770–980
6–8	860–1010	955–1155
9–10	960–1115	1080–1305
11–CCR	1070–1220	1215–1355

*Note.* Adapted from “Key Considerations in Implementing Text Complexity,” by the NGO & CCSO, 2010, p. 8.

Quantitative characteristics of text complexity are best measured by software and include the length of words, frequency of words, the length of sentences, and the cohesion of the text (Common Core Standards Initiative, 2010). Qualitative characteristics of text complexity are best measured by a human reader who attends to the “levels of meaning or purpose; structure;

language conventionality and clarity; and knowledge demands” of a text (Common Core Standards Initiative, 2010, p. 4). Reader and task considerations are best measured by teachers’ assessment of students’ motivation and prior knowledge, in addition to the type of task students should be assigned (Common Core Standards Initiative, 2010). Overall, more complex texts require students to make inferences, as they include more literary devices, like symbolism, allusion, and figurative language. Additionally, more complex texts tend to have multiple levels of meaning (Common Core Standards Initiative, 2010). Therefore, adolescent readers are good readers if they can read texts with complex language structures and high levels of vocabulary that require students to infer meaning (Goldman & Snow, 2015).

Reed and Kershaw-Herrera (2016) conducted a study to determine how text complexity affects reading comprehension. In the study, 103 high school seniors were randomly assigned to four groups where each group read versions of the same informational text. For each group, the readability and cohesion of the texts varied. The texts were paired with comprehension items. The group that had texts with easier readability and high cohesion performed better on the comprehension items than the group that had a challenging readability level and low cohesion. The study’s results showed that text readability and cohesion impacts reading comprehension.

In another study on complex text, Fisher and Frey (2014) implemented an after-school intervention program centered on the close reading of complex texts. The researchers wanted to see if achievement for struggling middle school students would improve with the implementation of close reading. The close reading intervention was characterized by short, complex passages; repeated reading; annotation; text-dependent questions; and text discussion (Fisher & Frey, 2014). Participants took the Gates-MacGinitie reading Test at the beginning of school and near the end of the study. Additionally, participants took their state assessment. The achievement

outcomes of 75 seventh and eighth-grade students were compared to 247 students who received a traditional intervention. The results suggested that close reading may be an effective intervention.

Overall, presenting students with complex, grade level text is an expectation of CCSS to ensure students are college and career ready. While there are multiple considerations to determine whether a text is complex, text complexity does affect reading comprehension, and struggling readers may have success with learning to close read complex texts. Close reading requires analytical reading of text that may improve reading comprehension.

**Empirical research on struggling readers and reading interventions.** Struggling readers require effective support to grow in reading comprehension. Unfortunately, too many teachers lack the understanding and skillset to grow struggling readers (Fisher & Frey, 2013; Moreau, 2014). While professional development that focuses on supporting struggling readers is necessary for teachers working with struggling readers, the literature presented a plethora of strategies to support struggling readers (Jaeger & Pearson, 2017).

**Motivation and engagement.** Researchers investigated the role of motivation and engagement in improving struggling readers' reading comprehension (Cantrell et al., 2014; Kim et al., 2017; Klauda & Guthrie, 2014; McGeown, Duncan, Griffiths, & Stothard, 2015; Neugebauer, 2014; Roberts et al., 2015; Wolters et al., 2014). Some of the literature minimized the role of motivation and engagement in growing readers (Cantrell et al., 2014; Klauda & Guthrie, 2014; Neugebauer, 2014). Some of the literature asserted that achievement for struggling readers was a product of engagement and motivation (Kim et al., 2017; Roberts et al., 2015). Some of the literature revealed that engagement and motivation predict performance on standardized assessments (Mcgeown et al., 2015; Wolters et al., 2014).

Cantrell et al. (2014) examined the effect of a strategy-based intervention on students' motivation and cognitive strategy use. Their 3-year study focused on multiple cohorts in 12 schools. Treatment group and control group participants completed a self-report measure about strategy use, a survey about reading motivation, and a standardized reading assessment as part of the pretest–posttest design. Findings revealed that even though students reported increased engagement and strategy use, the increase did not translate into reading achievement gains (Cantrell et al., 2014).

The role of motivation and engagement for struggling readers was similarly de-emphasized in other research studies. Kluda and Guthrie (2014) explored the reading engagement model with informational text. Their study addressed seven dimensions of reading motivation. To conduct the study, researchers paired 183 struggling readers with 183 advanced readers. Pairs of students had similar demographics as it relates to free and reduced meal status, ethnicity, gender, and school. At the onset and end of a school year, study participants completed a self-report measure on motivation and reading information text and three reading assessments. One assessment addressed reading speed and comprehension of sentences, one assessment addressed passage comprehension, and one assessment addressed comprehension of informational text. The researchers found that motivation may lead to increased comprehension for advanced readers, but not struggling readers.

Producing related results, Neugebauer (2014) tested whether students' completion of a daily school log affected reading motivation and explained performance variation on assessments better than a non-context specific reading motivation measure. In other words, he wanted to test whether context-specific reading motivation measurement, the daily reading log, predicted reading performance better than a general reading motivation measurement. One hundred and



nineteen participants from fifth-grade classes in Northeast elementary schools completed a daily school log about motivation for ten days. Before and after the ten days of daily school logs, students engaged in a non-context specific reading motivation measure. Additionally, participants completed a standardized assessment. Neugebauer (2014) found that poor readers who reported high levels of motivation to read in school performed worse on the standardized assessment than poor readers who reported less motivation. Cantrell et al. (2014), Klauda and Guthrie (2014), and Neugebauer (2014) all agreed that student motivation and/or engagement did not affect achievement for struggling readers.

Other researchers, like Kim et al. (2017) and Roberts et al. (2015), had a different perspective. Kim et al. (2017) examined the effect of a yearlong intervention focused on reading skills, students' behavioral engagement, and how teacher perceptions of students' emotional and cognitive engagement related to reading gains. Student participants from four Northeast districts were monitored for behavioral engagement and given a standardized reading assessment as part of the pretest-posttest design with randomized and control groups. Teacher participants were observed to determine the fidelity of intervention implementation and assessed to determine their perceptions of student engagement. The researchers found that for treatment groups, behavioral engagement contributed to reading gains, as did teacher perceptions.

Roberts et al. (2015) studied the impact of reading intervention on student attention over time. Seven hundred sixty-eight struggling readers from seven middle schools in the southwest received randomized treatment for three years. Student participants were assessed on their reading ability at the beginning and end of each year of intervention. Teacher participants assessed students' attention. The researchers found that attention increased achievement and

achievement increased attention for struggling readers. For Kim et al. (2017) and Roberts et al. (2015), engagement and/or motivation impact achievement for struggling readers.

In addition to studies on whether motivation and engagement increase reading achievement, there were studies on the predictive nature of engagement and motivation. McGeown et al. (2015) and Wolters et al. (2014) studied whether students' motivation predicted students' reading performance. Three hundred twelve students from the United Kingdom were assessed via reading motivation and habits questionnaire and standardized reading assessment (McGeown et al., 2015). McGeown et al. (2015) found that reading habits and motivation predicted variation in reading comprehension, summarization skills, and text reading speed. Wolters et al. (2014) compared differences between struggling and adequate readers to determine how their reading motivation related to standardized achievement. Study participants completed a self-report on motivation, a standardized reading measure; think alouds, and computerized cognitive tasks. The researchers determined that the groups' motivational beliefs and individuals' perception of control determined their performance on the standardized reading measure.

***Multicomponent reading interventions.*** Multicomponent reading interventions are designed to grow struggling readers in reading comprehension. The reason for using a multicomponent intervention is that students benefit from receiving support in more than one area of the reading comprehension process. Barth and Elleman (2017), O'Connor et al. (2017), Oslund et al. (2018), and Swanson et al. (2017) all found that struggling readers who received a multicomponent intervention benefitted.

Barth and Elleman (2017) conducted a study to examine the effectiveness of a multicomponent intervention focused on four types of inference strategies. In the study, 66 struggling middle school students received randomized treatment for ten days. The standardized

reading assessment results revealed a moderate effect of the multicomponent intervention on study participants in the treatment group. Targeting different strategies, O'Connor et al. (2017) conducted a study focused on students with learning disabilities who received both a multicomponent intervention and history content instruction to determine whether students with learning disabilities would make gains in specific reading skills. The multicomponent intervention addressed decoding, vocabulary, and reading comprehension skills that included the main idea, comparison, and cause and effect. The pretest–posttest outcome revealed that the treatment group outperformed the control group, specifically on word level comprehension, text level comprehension, and history content.

Like O'Connor et al. (2017), Swanson et al. (2017) made history content a part of their multicomponent reading intervention study. The study examined the effectiveness of a content knowledge and reading comprehension treatment for a year. Based on the social studies knowledge assessment, reading comprehension assessment and accountability assessment, treatment students scored higher than the control group in the acquisition of knowledge, reading comprehension, and vocabulary recall. Oslund et al. (2018) tested the influence of reading comprehension components on students who lived in low socioeconomic status households. The study measured students' general vocabulary knowledge, specific background knowledge, sentence comprehension skills, and students' performance on a standardized assessment. The one hundred forty student participants attended a South-Central junior high school and came from twelve English classes at the school. Oslund et al. (2018) found that of all the components included in the study, vocabulary and inference had the highest effect on struggling readers from low socioeconomic status households. Based on the literature, multicomponent reading interventions increased growth in reading comprehension for struggling readers.

*Teacher-student relationships as intervention.* Students' identities as struggling or successful readers are connected to teachers' perceptions of students and how teachers interact with students (Frankel, 2017; Glenn & Ginsberg, 2016; Glenn et al., 2016; Hall, 2016; Hikida, 2018; Kim et al., 2017; Learned, 2016). Research on teacher-student relationships typically utilized a case study approach or blended a phenomenological approach with a quantitative approach. Frankel (2017) focused research on two students in two different English classes. Both students had teachers with at least five years of teaching experience. Frankel (2017) used interviews, observations, and artifacts to determine how the students' identities were connected to the teachers each student had. For one student, the teacher's actions made the student feel like he was a struggling student. For the other student, the teacher's actions confirmed the student's identity as a good reader. Glen and Ginsberg (2016) conducted a phenomenological case study to research how students' identities shift based on context. They found that teacher-student relationships were significant. Glen and Ginsberg (2016) used students' oral reflections as data for their research.

Similarly, Glen et al. (2016) used a phenomenological approach and interviews to determine how students refused to accept their identities as struggling readers or maintained their identities as struggling readers. The researchers found that while it was possible for students to change their reading identity, it was harder to do so in a school setting. This finding reinforced the idea that how teachers perceive and interact with students shapes their reading identity, therefore determining whether students operate as struggling or adequate readers. Hikida (2018) conducted a case study of three struggling readers in a fifth-grade classroom to determine how those students' reader identities were shaped. Hikida's (2018) findings from field notes,

recordings, and interviews were that teachers could create an environment that supported readers and positively impacted how they see themselves as it relates to reading.

Moving beyond interviews, observations, and artifacts, Hall (2016) connected her yearlong formative experiment on student reading identity to students' performance on a standardized test. Additional research measurements included field notes, interview, questionnaire, and written reflection. Hall (2016) found that students grew two academic years in one year when one teacher worked with student's reading identities while helping students learn the skills necessary to become a good reader. As previously noted, Kim et al. (2017) examined the effect of a yearlong intervention focused on reading skills, students' behavioral engagement, and how teacher perceptions of students' emotional and cognitive engagement related to reading gains. Student participants from four Northeast districts were monitored for behavioral engagement and given a standardized reading assessment as part of the pretest-posttest design with randomized and control groups. Teacher participants were observed to determine the fidelity of intervention implementation and assessed to determine their perceptions of student engagement. The researcher found that for treatment groups, behavioral engagement contributed to reading gains, as do teacher perceptions.

Learned (2016) researched how students' literacy skills changed in different classroom environments. Learned's (2016) four hundred hours of data included observations, interviews, assessment data, classroom artifacts, and school records. Learned (2016) found that teachers either created conditions that supported students with learning the skills necessary to be a good reader or teachers' practices created struggling readers. Essentially, the research is clear that teachers affected students' reading identity and performance with their perceptions and their practices.

**Empirical research on screeners and standardized assessments.** Based on the literature on screeners, researchers were interested in the relationship between screeners and standardized state achievement assessments (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016; Rowe et al., 2014; Stevenson, 2015). Since schools are evaluated by student proficiency and often student growth, it is important that a screener can provide the right information about students' reading comprehension. If a screener is accurate, the students who require intervention to grow in reading are properly identified. Educators may use the results of the screening process in confidence to pinpoint students for intervention. If a screener is predictive, educators know which students are in danger of being classified as not being proficient on a standardized assessment, and they can plan interventions for those students.

Ball and O'Connor (2016) explored the relationship between Measures of Academic Progress scores and Oral Reading Fluency scores to student achievement on the Wisconsin Knowledge and Concepts Exam. Ball and O'Connor (2016) specifically researched the variability of third grade fall standardized reading test scores as predicted by second-grade performance on two universal screeners. They found that both screeners predicted performance on a standardized measure.

With a focus on classification accuracy, Kent et al. (2018) determined the relationship between multiple screeners and state assessments in both Florida and Texas. The research question that guided their study was whether there was classification accuracy in screener results for predicting student performance on the end of the year state reading assessment. Their research determined that the Gates-MacGinite Reading Test (GMRT) had the highest classification accuracy out of four different screeners in predicting student achievement outcomes.

Exploring concurrent validity, Ralston et al. (2016) considered the relationship between the Independent Reading Level Assessment (IRLA) and the Oregon Assessment of Knowledge and Skills (OAKS). Regarding a research question, the researchers explored the concurrent validity of the IRLA with the OAKS state reading assessment. The researchers found that the IRLA strongly predicted student achievement on the OAKS.

Looking at three different screeners, Stevenson (2015) studied the relationship between screeners and the Michigan Education Assessment Program (MEAP). Stevenson's (2015) research question centered on the predictive accuracy of multiple screeners to the MEAP. Stevenson's (2015) research determined that the Multiple-Choice Reading Comprehension (MCRC) predicted MEAP outcomes better than the Maze screener and the Reading Curriculum Based Measure (R-CBM). Other researchers who looked at the relationship between a curriculum-based measure and a standardized reading assessment found that curriculum-based measures strongly predicted student achievement (Kirkham & Lampley, 2015; Miller et al., 2015).

### **Review of Methodological Issues**

In literature exploring the relationship between screeners and standardized assessments, researchers used a quantitative methodology with a correlational design. Correlational designs determine the relationship between two or more data variables that are not manipulated by the researcher (Price, Jhangiani, & Chiang, 2015). Additionally, correlational designs include research that focuses on making predictions (Price et al., 2015). For example, researchers can explore the relationship between two variables or whether one variable predicts another variable.

Ball and O'Conner (2016) used a quantitative methodology with a correlational design in which they used the existing data of 399 students who transitioned from second to third grade in

one school district, to investigate of the predictive utility and classification accuracy of two screeners on a state assessment. The researchers utilized multiple regression and predictive outcomes to calculate classification accuracy. Researchers also explored whether race, gender, socioeconomic status, and special education classification were predictors of student performance on the state assessment. Ball and O'Conner (2016) found that Measures of Academic Progress scores and Oral Reading Fluency scores predicted student performance on the Wisconsin Knowledge and Concepts Exam. Special education classification was another a predictor of performance on the state test, but not race, gender, or socioeconomic status.

Kent et al. (2018) utilized a quantitative methodology with a correlational design to identify fourth-grade students who were in danger of failing a state reading assessment. The research, in which 321 fourth grade students were screened individually and as a group, took place in Florida and Texas and focused on the predictive validity and classification accuracy of multiple screeners to each state's assessment. Screeners included the GMRT, the Test of Silent Reading Efficiency and Comprehension, the Test of Word Reading Efficiency, and the Dynamic Indicators of Basic Early Literacy Skills. Researchers utilized a multivariate approach and calculated logical regression. Kent et al. (2018) found that the GMRT had the highest classification accuracy with predicting student outcomes on the state assessment.

Researchers Miller et al. (2015) used a quantitative methodology with a correlational design to explore the predictive validity of the Monitoring Instructional Responsiveness (MIR: R) screener to students' performance on the reading composite of the Tennessee Comprehensive Assessment Program (TCAP) test. The data from 448 third grade participants in one school district were analyzed using a stepwise multiple-regression equation. Miller et al. (2015) found



that the MIR: R was moderately strong in predicting student performance on the TCAP reading composite.

In their examination of the concurrent validity of the IRLA and a state assessment, Ralston et al. (2016) used a quantitative methodology with a correlational design in which 2,303 students from 11 elementary schools in one school district were given both the IRLA and the OAKS at the same time. The researchers calculated the Pearson-product moment coefficients to determine the relationship between the IRLA and OAKS. They also calculated the accuracy of students classified as proficient or not proficient using percent exact agreement. Ralston et al. (2016) found that the IRLA was a strong predictor of OAKS since 80% of all students were similarly classified as proficient or not proficient on both data variables. The data, however, is from one school district.

Stevenson (2015) used a quantitative methodology with a correlational design to study how three curriculum-based measures in middle school predict proficiency on a statewide assessment. Seventh and eighth-grade students were assessed using the Reading Curriculum Based Measure (R-CBM), Maze Reading Comprehension, and Multiple-Choice Reading Comprehension (MCRC) for two weeks. Stevenson (2015) used logical regression to determine how well each measure predicted student outcomes on the Michigan Education Assessment Program (MEAP). Stevenson (2015) found that the MCRC predicted MEAP outcomes better than the Maze Reading Comprehension and the R-CBM.

The research methodology in the literature presents pros and cons. Methodological limitations in the research include the fact that most research populations are from one school or one district; the literature focuses on elementary level students; and the screeners used are rarely optimal concerning specificity, sensitivity, positive predictive value, and negative predictive

value. Methodological strengths in the research include the fact that researchers can use existing data for a quantitative methodology with a correlational design.

### **Synthesis of Research Findings**

Literacy is important to student success. The importance of literacy is emphasized by the expectations in CCSS that require all students to read complex, grade level text to ensure students are college and career ready. Therefore, struggling readers need support, like the support embedded in MTSS to identify students for intervention. Such frameworks use universal screeners to identify students for intervention. The literature addresses what complex text is, reveals numerous strategies for working with struggling readers, and explores the relationship between screeners and standardized assessments.

Key points from the literature review follow:

1. CCSS: Text complexity, as defined by the CCSS, includes the quantitative characteristics, qualitative characteristics, and reader and task dimensions of a text (Bunch, Walqui, & Pearson, 2014).
2. Motivation and Engagement: Researchers investigated the role of motivation and engagement in improving struggling readers' reading comprehension (Cantrell et al., 2014; Kim et al., 2017; Klauda & Guthrie, 2014; McGeown et al., 2015; Neugebauer, 2014; Roberts et al., 2015; Wolters et al., 2014). Some of the literature minimized the role of motivation and engagement in growing readers (Cantrell et al., 2014; Klauda & Guthrie, 2014; Neugebauer, 2014). Some of the literature asserted that engagement and motivation increase achievement for struggling readers (Kim et al., 2017; Roberts et al., 2015). Some of the literature revealed that engagement and motivation predict performance on standardized assessments (McGeown et al., 2015; Wolters et al., 2014).

3. Multi-Component Interventions: As it relates to multi-component interventions, Barth and Elleman (2017), O'Connor et al. (2017), Oslund et al. (2018), and Swanson et al. (2017) all found that struggling readers who received a multicomponent intervention benefitted.
4. Teacher-Student Relationships: Teacher-student relationships play a role in students' level of literacy (Frankel, 2017; Glenn and Ginsberg, 2016; Glenn et al., 2016; Hall, 2016; Hikida, 2018; Kim et al., 2017; Learned, 2016).
5. Screeners: Since schools are evaluated by student proficiency, current literature on screeners shows that researchers want to know the relationship between screeners and standardized state achievement assessments (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016; Rowe et al., 2014; Stevenson, 2015). Overall, in literature exploring the relationship between universal screeners and standardized assessments, researchers used a quantitative methodology with a correlational design. A correlational design determines the statistical connection between variables. Whether the relationship between variables is positive, negative, or non-existent, correlational studies do not determine causation (Adams & Lawrence, 2015).

### **Critique of Previous Research**

Of the studies examined, methodological limitations included the fact that research was limited to one school or district, research focused on elementary school students, or research used screeners that were rarely optimal. However, a methodological strength of studies that use a quantitative methodology with a correlational design is that researchers may use existing data such as screener data and standardized assessment data to study a research problem. Future

researchers can use a more varied sample regarding size, location, and school level to address the most significant methodological gaps in the literature.

The current study added to existing research on the relationship between universal screeners and standardized assessments by focusing on high school level readers, mainly because so much of the research is focused on elementary school readers. Additionally, since the research on the relationship between universal screeners and standardized achievement outcomes focuses on whether screener results predict achievement, this study focused on whether achievement results are predictive. Can one look at standardized achievement results and predict a student's reading ability? If standardized achievement results predict reading ability, then teachers can use that information to plan instruction that targets the skill deficits of struggling readers. The current study was based on in Lev Vygotsky's social constructivism theory of learning.

## **Chapter 2 Summary**

Student success is tied to their literacy since every subject area incorporates literacy (Mastropieri et al., 2003). Unfortunately, NAEP results reveal that too many students struggle with becoming adequate readers (Wixson, Raphael, & Au, 2018). The gap between adequate and struggling readers must be addressed, especially because of the endorsement of Common Core State Standards. Common Core Standards reveal college readiness expectations for all readers, including struggling readers who are typically three or more years behind grade level. As a result, the Common Core Standards outline objectives for students to read and understand text that is complex, challenging, and at grade level (CCSS, 2010). Struggling readers are at risk of falling further behind if they lack the support necessary to become skilled readers. To minimize the risk of struggling readers falling further behind and to help close the gaps between skilled

and struggling readers, many schools adopt frameworks like the MTSS to intervene for struggling readers (MTSS Quick Reference Guide, 2016). Frameworks like the MTSS utilize universal screeners, like the DRP, to identify students who require intervention. This study was designed to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP level in lowest performing students in a selected Mississippi public school.

For the researcher, this study's significance is grounded in the importance of student growth. Screener and assessment data help teachers identify students for intervention in order to grow students from where they are to where they need to be. When teachers effectively use data from screeners and assessments to plan student intervention, student growth is likely. This study is also important because it addressed an omission in the literature that called for research to focus on the relationship between standardized assessments and universal screeners (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016).

The literature review began with a conceptual framework to ground the study. The conceptual framework selected for this research study was Lev Vygotsky's (1962) social constructivism theory of learning. Vygotsky focused on learning as a collaborative experience, which has implications for the research study. Using Vygotsky's theory, assessments allow teachers to develop clarity on individual students' level of understanding and how they can grow with the aid of a more knowledgeable person. Next, the literature review examined CCSS and complex text, empirical research on struggling readers and reading interventions, and empirical research on the relationship between screeners and standardized assessments.

The literature review closed with a critique of earlier research. In the studies examined, the main methodological limitations were that research was limited to one school or district, there was a focus on elementary school students, and screeners were rarely optimal. Regarding

methodological strength, quantitative methodologies with a correlational design, as revealed in the studies examined, allow researchers to use existing data such as screener data and standardized assessment data to study a research problem. Methodological gaps in the literature can be addressed by future research that uses a more varied sample regarding size, location, and school level. Chapter 3 delineates the methodology for this research study.

## **Chapter 3: Methodology**

### **Introduction to Chapter 3**

Chapter 3 presents the methodology for this study. This chapter outlines the researcher's processes, the data the researcher collected, and the data analysis procedures the researcher used. This study employed a quantitative methodology with a correlational design. The research methodology was chosen based on its potential to address the research questions and purpose.

The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. Related empirical research revealed that researchers chose to employ a quantitative methodology when investigating the relationship between standardized assessments and universal screeners. Therefore, the researcher used data analysis procedures consistent with the literature and relevant to the research questions.

Although prior studies investigated whether screener results predict achievement, there was still a gap in the research about whether achievement results are predictive (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016). Therefore, the research questions and corresponding hypotheses were devised to address the research gap. All data needed for this study were collected from pre-existing data. Statistical analysis was performed to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school.

This chapter specifies the researcher's approach to conducting this research study. The chapter's sections include the purpose of the study, research questions, research design, target population and sample method, instrumentation, instruments, data collection, operationalization of variables, preliminary data analysis procedures, limitations, validity, reliability, expected

findings, and ethical issues. The rationale for choosing the research method and design are explained in this chapter. A summary concludes chapter 3.

### **Purpose of the Study**

It was not known if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year. Therefore, the purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. The Pearson product-moment coefficient correlation was used to determine if a relationship existed between eighth grade ELA MAAP and DRP for lowest performing students. Analysis of results explored the relationship that existed between the eighth grade ELA MAAP and DRP for lowest performing students. It was expected that lowest performing students identified via eighth grade ELA MAAP had below grade level DRP reading comprehension results.

Predictor and criterion variables were utilized for data analyses. Predictor variables are used to forecast outcomes on another variable. Eighth grade ELA MAAP achievement, the predictor for the correlational analysis, summarizes student performance on Mississippi ELA standards. Four strands of the eighth grade ELA MAAP assessment were predictors for the multiple linear regression analysis: Reading Informational, Reading Literature, Language, and Writing. Criterion variables are the variables that get predicted. DRP score, the criterion for the correlational and multiple linear regression analysis, summarizes student reading comprehension level. The target population included 486 students who were in ninth grade during the 2017–2018 school year at a public high school in Mississippi. Of the 486 students who were in ninth



grade during the 2017–2018 school year, 99 were identified as lowest performing students. Students were given the eighth grade ELA MAAP as eighth graders in 2017 and the DRP Core Comprehension Test as ninth graders in 2018. The sample consisted of 87 lowest performing ninth-grade students from a public high school in Mississippi.

### **Research Questions and Hypotheses**

The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. One uses a correlational design to investigate the relationship between variables (Gravetter & Wallnau, 2013). The researcher chose this design to address a gap in the literature specified by several researchers. The target population included 486 students who were in ninth grade during the 2017–2018 school year at a public high school in Mississippi. Of the 486 students who were in ninth grade during the 2017–2018 school year, 99 were identified as lowest performing students. Students were administered the eighth grade ELA MAAP as eighth graders in 2017 and the DRP Core Comprehension Test as ninth graders in 2018.

This correlational research study examined the extent of the relationship between variables. The predictor variables and criterion variable were utilized for data analysis. Statistical data were gathered from pre-existing data of validated quantitative instruments: eighth grade ELA MAAP and DRP Core Comprehension Test. Student performance level on the eighth grade ELA MAAP and reading comprehension level on the DRP was analyzed using Pearson's correlation analysis and multiple linear regression analysis to test the hypotheses of the research questions. The following research questions and hypotheses directed this quantitative, correlational study:

RQ1: To what extent is eighth grade ELA MAAP achievement (PV) significantly correlated to DRP score (CV) in lowest performing students in a selected Mississippi public school?

H<sub>01</sub>: There is no statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>0</sub>:  $r = 0$

H<sub>a1</sub>: There is a statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>a</sub>:  $r \neq 0$

RQ2: To what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school?

H<sub>02</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) do not significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

H<sub>a2</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

## **Research Design**

The researcher used a non-experimental, quantitative correlational design to examine the relationship between identified variables. The research design was non-experimental, as the researcher did not manipulate pre-existing participant data to answer the research questions.

Data for each variable came from validated instruments: eighth grade ELA MAAP and DRP Core Comprehension Test.

Correlational research determines whether the relationship between variables is positive, negative, or does not correlate. This quantitative, correlational study allowed the researcher to use statistics to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school (Creswell, 2014). Correlational research is not intended to determine causality; it determines the relationship between variables (Adams & Lawrence, 2015). In other words, where there is a relationship between two variables, one variable does not necessarily cause the other variable to occur.

Other research designs were explored before the researcher chose a correlational design. After exploration, the researcher determined that neither an experimental design nor a causal-comparative design nor a descriptive design would be appropriate for this study. Researchers use an experimental design when they want to manipulate a variable (Pirlott & Mackinnon, 2016). For this research study, no variable manipulation was necessary to answer the research questions. Additionally, manipulating data for this research study could have caused ethical issues (Howitt & Cramer, 2014).

Researchers use a causal-comparative design when studies involve two or more groups and one independent variable (Gay & Airasian, 2000). In other words, causal-comparative research designs focus on the difference between two or more groups. This research study was centered on one group with multiple variables. Furthermore, causal-comparative research typically occurs after examining the correlation between variables (Campbell & Stanley, 2015).

Researchers use a descriptive design when they are seeking to describe the data. While descriptive research involves no data manipulation and does not prove causality, descriptive research designs do not test data. This research study tested the relationship between predictor variables and a criterion variable.

Qualitative research designs were not appropriate for this study either. Research design types used in qualitative methodologies include phenomenology, ethnography, grounded theory, narrative, and case study (Creswell, 2014). A qualitative design would have incorporated observations, focus groups, case studies, or interviews that did not align with the current research, which utilizes a quantitative, correlational design to explore the relationship between standardized assessments and screeners (Creswell, 2014).

Essentially, the quantitative study with a correlational design was best for addressing the research purpose and questions. The research was designed to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. The first research question asked to what extent is eighth grade ELA MAAP achievement significantly correlated to DRP score in lowest performing students in a selected Mississippi public school. The second research question asked to what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school. Prior studies that investigated the relationship between standardized assessments and universal screeners used a quantitative, correlational design (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016). The quantitative research method with a correlational design was appropriate because the data were analyzed to determine statistical significance between the variables (Mertens, 2014).

## Target Population, Sampling Method (power) and Related Procedures

Banerjee and Chaudhury (2010) defined target population as the defined population from which a sample has been correctly selected. The target population for the study was ninth grade students in a school district in Mississippi. The school district from which the target population was derived has seven 9th–12th grade high schools. This study was limited to one of those high schools. Ultimately, the target population was composed of 486 students who were in ninth grade during the 2017–2018 school year at a public high school in Mississippi. Of the 486 students who were in ninth grade during the 2017–2018 school year, 99 were identified as lowest performing students. The researcher conducted power analyses to determine adequate sample size.

G\*Power 3.1.9.3 software calculated the sample size needed for this correlational study. After starting up G\*Power, the researcher selected *Exact* from the *Test family* drop-down menu. From the *Statistical test* drop down menu, the researcher selected *A priori: Compute required sample size-given alpha, power, and effect size*. Two tails was selected from the *Tail(s)* drop-down menu, as the researcher was not sure if the correlation between the predictor and criterion variable would be positive or negative. The researcher set the effect size to medium (.30) for correlations. As recommended by Cohen (1988), the researcher set the statistical significance as  $\alpha = .05$  and set power to .80 ( $1-\beta = .80$ ) for this study. The power analysis calculated the need for a sample size of 84 to achieve significant statistical results based on a correlation analysis (see Appendix A). The researcher used the larger sample size of 87 for the research study. For multiple regression analysis of RQ2, the sample size was calculated using G\*Power 3.1.9.3 software as well. Settings for a multiple linear regression a priori power analysis with a type I error of  $\alpha = .05$ , type II error of  $(1-\beta)$  of .80, four predictors, and a moderate effect size of .15,

calculated the need for a sample size of 85 (see Appendix B). The researcher used the larger sample size of 87 for the research study.

A sample is a part of the defined target population (Banerjee & Chaudhury, 2010). Since a sample is to be representative of the target population, a variety of sampling methods can be used to select a sample size. Zirkel, Garcia, and Murphy (2015) identified two categories and two bases of sampling techniques. Sampling techniques can be unrestricted or restricted (Zirkel et al., 2015). Moreover, sampling techniques can be classified as probability or non-probability (Zirkel et al., 2015). The sample for this study was a total population sample, which is a type of non-probability sampling. Total population sampling was chosen since it was appropriate for the research study. Total population sampling is used to study an entire population that has specific attributes (Total Population Sampling, n.d.). The total population sample consisted of the 87 students who were in ninth grade during the 2017–2018 school year at a public high school in Mississippi and who were identified as lowest performing on the eighth grade ELA MAAP. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year.

After receiving the required approvals and permissions from the Institutional Review Board at Concordia University and the selected school site (Appendix C), data from the 2016–2017 and 2017–2018 school years was accessed to examine the relationship between eighth grade ELA MAAP achievement and ninth grade DRP score. Since existing data were utilized for the research, no interaction with students occurred. The researcher did not obtain consent from students because the data were archival, and it was not necessary to have consent from students.

## **Pre-Existing Archival Data**

According to Biddix (2018), research instrumentation is the process for developing, testing, and using an instrument. This study used pre-existing data from instruments that the researcher did not have a role in developing, testing, or using. Others define instrumentation as the researcher's plan for gathering data for the research study. Researchers have a variety of means for collecting data. Quantitative data collection instruments include questionnaires and tests. Since the data for the proposed study had already been collected during the 2016–2017 and 2017–2018 school years, the researcher did not have to collect primary data.

Eighth grade ELA MAAP data were collected to measure student achievement in English Language Arts in Mississippi. The school's Test Coordinator provides test security training, assigns test administrators, assigns hall monitors, assigns proctors, schedules tests, and ensures that the testing environment meets standards. During the test administration, the Test Administrator reads test directions and monitors students. The Test Proctor, a second adult in the room during a test administration, monitors students and answers allowable questions. Based on the MAAP's Test Administrator's Manual, accurate and reliable results depend on fidelity to the testing procedures. The target population was administered the eighth grade ELA MAAP as eighth graders during the 2016–2017 school year.

DRP data were collected to measure student comprehension of passages of text. The DRP is administered online. During the test administration, the Test Administrator reads the designated script to help students get started. Score reports can be generated immediately after students complete the DRP Core Comprehension Test. Ninth grade students took the DRP during the 2017–2018 school year.

## **Instruments**

Instruments are the tools used to collect data. There are two general types of instruments: researcher-completed and subject-completed (Biddix, 2018). Researcher-completed instruments include interviews, observation forms, and rating scales (Biddix, 2018). Subject-completed instruments include questionnaires, personality inventories, and achievement tests (Biddix, 2018). The researcher used data from two subject-completed instruments for this study: eighth grade ELA MAAP and ninth grade DRP Core Comprehension Test. Students who took the MAAP were the same students who took the DRP.

**Eighth grade ELA Mississippi academic assessment program.** According to the Mississippi Department of Education, the eighth grade ELA MAAP measures students' knowledge, skills, and academic growth. The assessment divides the Mississippi College and Career Readiness Standards for ELA into four strands: Reading Literature, Reading Informational Text, Writing, and Language. For each strand, there is a range of items that may appear for each standard in addition to different item types. Item types include closed-ended items, open-ended items, and performance tasks. Closed-ended items are multiple-choice items. These include dynamic items that require students to select an answer from a dropdown box. Open-ended items include drag and drop items, matching items, and select-text items. Performance tasks require students to read a text and develop an extended response to a writing prompt.

A committee of teachers from Mississippi determines the item number range for standards that appear on each assessment. Test items are worth either one or two points. Items that require students to interact with an item two or more times get two points. For example, a multiple-choice item with a Part A and a Part B is worth two points. The eighth grade ELA



MAAP includes six passages: two Literature, three Informational, and one Field Test. Test Passages are between 650 and 1000 words in length, with a text complexity level of 57–67 on a DRP range, 6.51–10.34 on a Flesch-Kincaid range, or 925–1185 on a Lexile Framework range. The eighth ELA MAAP categorizes scores into five achievement levels as follows:

- Level 1: Minimal, or inconsistent demonstration of minimal grade level knowledge and skills
- Level 2: Basic, or partial mastery of grade-level knowledge and skills
- Level 3: Passing, or general mastery of grade-level knowledge and skills
- Level 4: Proficient, or solid mastery of grade-level knowledge and skills
- Level 5: Advanced, or beyond grade level mastery of knowledge and skills

The eighth ELA MAAP pairs achievement level with scale scores. Table 3 displays the scale scores for each level on the eighth ELA MAAP.

Table 3

*Eighth grade ELA MAAP Levels and Associated Scale Scores*

Eighth grade ELA MAAP Level	Scale Scores
Level 1	801–841
Level 2	842–849
Level 3	850–864
Level 4	865–879
Level 5	880–899

**Degrees of reading power core comprehension test.** The DRP Core Comprehension Test, developed by Questar Assessment Inc., measures student comprehension of passages of text in context (Patton, 2014). The DRP utilizes a modified cloze system that requires students

to fill in blanks and choose words while they are reading (Patton, 2014). The test provides data on each student’s instructional and independent reading level. The instructional reading level is the level on which students can work with support. In Vygotsky’s social constructivist theory of learning, this would be the potential development level or zone of proximal development. The independent reading level, which this research study focuses on, is the reading level that students can work on without support. In Vygotsky’s social constructivist theory of learning, this would be the actual development level. DRP scores are aligned with Common Core State Standards grade bands. Table 4 displays the levels of comprehension in DRP units by grade based on the end of year text complexity standards from the Common Core State Standards.

Table 4

*DRP End of Year Text Complexity by Grade Level*

Grade Level	DRP
Grade 2	42–49
Grade 3	48–54
Grade 4	52–57
Grade 5	55–60
Grade 6	57–62
Grade 7	60–64
Grade 8	62–67
Grade 9	62–69
Grade 10	64–72
Grade 11	67–72
Grade 12	67–74
College & Career Readiness	70

**Validity**

A valid instrument measures what it is designed to measure (Scholtes & Poolman, 2011). The Mississippi Department of Education states that MAAP assessments are used to evaluate student performance on the Mississippi College and Career-Readiness Standards. To understand the eighth grade ELA MAAP achievement levels, the researcher used the Mississippi

Assessment Program English Language Arts Blueprint Interpretive Guide for Grades 3–8. Based on practice tests provided by the Mississippi Department of Education, the eighth grade ELA MAAP has face validity. It appears to measure what it says it will measure.

Additionally, the eighth grade ELA MAAP test provides an overarching scale score, used in this study as the predictor variable in RQ1, that determines students' knowledge, skills, and academic growth based on the Mississippi College and Career Readiness Standards for ELA. The scale score is based on four strands of the eighth grade ELA MAAP: Reading Informational, Reading Literature, Language, and Writing. The researcher conducted this study using archival MAAP data.

The DRP is designed to measure students' reading ability in addition to the readability of instructional materials (Questar Assessment, Inc., 2013). The DRP provides an independent reading level, used as the criterion variable in this research study, which is based on three strands: Key Ideas and Details, Craft and Structure, and Integration of Knowledge and Ideas. Additionally, the test was found to have good convergent-discriminate validity and construct validity (Bruning, 1985). In one study conducted to determine how well the DRP identified students with reading difficulties and how well the DRP characterized students for remediation, the DRP was found to have a moderate to high statistically significant correlation with tests of writing ability (Estes, Richards, & Wetmore-Rogers, 1989). The results of that study also showed that students with higher DRP scores had a positive attitude about reading (Estes et al., 1989). Independent researchers determined that the test measures instructional materials along the text complexity ladder and in the direction of college and career readiness (Questar Assessment, Inc., 2013). The researcher conducted this study using archival DRP data.

## **Reliability**

A reliable instrument is consistent in its measurement of what it is supposed to measure (O'Dwyer & Bernauer, 2014). The four types of reliability are test-retest reliability, inter-rater reliability, alternate forms of reliability, and internal consistency reliability (Gravetter & Forzano, 2015). No public records or research was found on reliability data for the eighth grade ELA MAAP. Based on the MAAP's Test Administrator's Manual, accurate and reliable results depend on fidelity to the testing procedures. The DRP was found to reliably and highly correlate with grade level and text difficulty measures on a variety of texts (Appendix 321, n.d.; Bruning, 1985). For example, DRP scores for passages of text correlated with the Flesch-Kincaid grade level ( $r = .922$ ) and Flesch Reading Ease score ( $r = -.925$ ) (Sabatini, Albro, and O'Reilly, 2012). Overall, Flesch scores increased as a function of DRP grade level increases (Sabatini et al., 2012). The correlation was attributed to variables that included syllables per word, word frequency, and words per sentence (Sabatini et al., 2012).

## **Data Collection**

According to Hox and Boeije (2005), there are two types of data collection processes: primary and secondary. Primary data collection occurs when researchers collect the data themselves. Secondary data collection occurs when researchers use existing data or data that has already been collected. For this study, the researcher used a secondary data collection process. As the data were not available for public access, a copy of the permission letter to collect data is provided (see Appendix C).

To access the data for the research study, the researcher obtained approval from the Institutional Review Board at Concordia University on December 10, 2018, and the principal of the selected school site on October 31, 2018. An updated version of the principal's permission

letter was provided on December 10, 2018 (see Appendix C). The researcher did not obtain consent from students because the data were archival, and it was not necessary to have consent from students. Data for the research study consisted of the eighth grade ELA MAAP data that the sample population completed as eighth graders during the 2016–2017 school year and DRP Core Comprehension Test data that the sample population completed as ninth graders during the 2017–2018 school year.

The secondary data collection was appropriate for answering the research questions. The first research question asked to what extent is eighth grade ELA MAAP achievement significantly correlated to DRP score in lowest performing students in a selected Mississippi public school. The second research question asked to what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school. Both questions relied on secondary data collection since the researcher did not gather the data directly from the students when students completed the assessments. Instead, the researcher accessed data that had already been collected by others after receiving the required approvals and permissions. Data collected for 99 students were matched by combining data with the same unique identifier in an Excel spreadsheet. Students' personal information was protected by removing identifiers, such as names, student ID numbers, and school name from the data set. The researcher safeguarded the data by keeping it on a password-protected computer. The data will be erased three years after the conclusion of the research study.

According to Johnston (2014), there are several benefits to using archival or secondary research. Secondary research is cost-effective and convenient. Additionally, secondary research provides access to larger samples than one might have when collecting primary data.

## Operationalization of Variables

Quantitative, correlational research measures two variables and determines the relationship between them. The predictor variable and criterion variable were utilized for data analysis, to establish if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. The predictor for the correlational analysis was eighth grade ELA MAAP achievement in its scale score form. Scale scores describe achievement in equal interval ranges and indicate achievement as part of a continuum (ACSI PD Forum, 2016). The eighth grade ELA MAAP is a measure of student achievement in English Language Arts (MAAP, n.d.). The criterion variable for the correlational analysis was DRP score in its Normal Curve Equivalent form. The Normal Curve Equivalent was selected to represent the independent comprehension level of students in the sample population because it standardizes scores into a 0 to 100 scale while maintaining equal-interval properties (ACSI PD Forum, 2016). The Normal Curve Equivalent can also be averaged to determine achievement gains or losses (ACSI PD Forum, 2016). The DRP is an assessment that measures one's ability to read and understand text that is increasingly complex (Questar Assessment Inc., 2016). The predictors for the multiple linear regression analysis are the four strands of the eighth grade ELA MAAP in total raw points available within each strand: Reading Informational (30), Reading Literature (22), Language (8), and Writing (12). Students could score a 0 if they missed all the questions in a strand.

Table 5 displays the criterion and predictor variables, measurement, and measurement scales.

Table 5

*Display of Variables, Measurement, and Scale*

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Variable Type	Variable	Measurement Scale
Predictor	Eighth grade ELA MAAP	Continuous, Interval
Predictor	Reading Informational	Continuous, Ratio
Predictor	Reading Literature	Continuous, Ratio
Predictor	Language	Continuous, Ratio
Predictor	Writing	Continuous, Ratio
Criterion	DRP	Continuous, Ratio

### Data Analysis Procedures

It was not known if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students. The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school.

The following research questions and hypotheses directed this quantitative, correlational study:

RQ1: To what extent is eighth grade ELA MAAP achievement (PV) significantly correlated to DRP score (CV) in lowest performing students in a selected Mississippi public school?

H<sub>01</sub>: There is no statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>0</sub>:  $r = 0$

H<sub>a1</sub>: There is a statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>a</sub>:  $r \neq 0$

RQ2: To what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict

DRP score in lowest performing students in a selected Mississippi public school?

H<sub>02</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) do not significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

H<sub>a2</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

Prior studies that investigated the relationship between standardized assessments and universal screeners used a quantitative, correlational design (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016). This methodological pattern influenced the researcher's methodology and design. Essentially, the researcher used data analysis procedures consistent with the literature and relevant to the research questions.

The archival data were initially saved as an Excel spreadsheet. Data were checked for errors or missing data. Twelve rows that had a missing DRP score were removed before the data were uploaded to Statistic Program for the Social Sciences (SPSS) software and analyzed. Next, the researcher conducted a descriptive analysis. Descriptive statistics provided a way to describe the data (Laerd Statistics, 2015). The descriptive analysis determined the standard deviation, variance, skewness, kurtosis, minimum values, maximum values, and means for predictor and criterion variables.

Next, the researcher tested the sample for statistical significance using Pearson's *r* correlational analysis to see if the null hypothesis based on the first research question could be rejected. Correlational analysis is scientifically accepted as a method to determine the



relationship between variables. For a Pearson's correlation outcome to be valid, data utilized must satisfy five assumptions (Laerd Statistics, 2015). The first assumption is that both variables are measured at the interval or ratio level, which means that they are continuous. The first assumption for this study was met since scores for the predictor and criterion variables were measured at the interval or ratio level and were continuous. The next assumption is that the data are paired. This assumption was met since every case included in the data analysis had two variables. Overall, there were 87 paired values. The third assumption is that there is a linear relationship between both variables. A scatterplot was created to plot the predictor and criterion values and check for linearity. A scatterplot provides a graphic representation of the strength, direction, and relationship between variables.

The fourth assumption is that there are no significant outliers. To test that there were no significant outliers, the researcher conducted an exploratory data analysis in SPSS. Essentially, the researcher inspected the scatterplot to look for data points that did not fit the pattern of the rest of the data set. The fifth assumption is that the variables are normally distributed. To test that the variables were normally distributed, the researcher conducted a Shapiro-Wilk test in SPSS.

Correlational statistics were the most appropriate means of determining if and to what degree scale score on the eighth grade ELA MAAP achievement correlated to DRP Normal Curve Equivalent levels in lowest performing students in a selected Mississippi public school. A correlational analysis measures the strength of the relationship between the predictor and criterion variables. Since the quantitative, correlational study used interval data, the Pearson  $r$  statistical test was appropriate (Simpson, 2015). According to Gravetter and Wallnau (2013), correlation coefficients can be characterized as weak (up to 0.3), moderate (between 0.3 and 0.7),

or strong (above 0.7). Statistical significance is generally 0.05. This study tested hypotheses at 0.05 significance level. At  $p < 0.05$ , the study would reject the null hypotheses.

The hypotheses for RQ2 focused on regression analysis. Regression analysis includes creating a line of best-fit equation to make predictions about the value of a variable in the data pair (Aldred, 2014). Multiple linear regression could determine the extent to which the predictors positively or negatively predicted the criterion variable, which tested the null hypothesis based on the second research question. Eight assumptions must be satisfied for multiple regression results to be valid (Laerd Statistics, 2015). The first assumption is that there is one continuous, criterion variable. This assumption was met with the DRP Normal Curve Equivalent levels, as outlined in the previously mentioned correlational analysis. The second assumption is that there are at least two predictor variables that are measured at the nominal or continuous level. This assumption was met since the four eighth Grade ELA strand variables (Reading Informational, Reading Literature, Language, and Writing) were ratio scales measured at the continuous level. These variables were total raw points available within each strand.

The third assumption of regression analysis is that there should be independence of observations, which means that the data should not be skewed by somehow connecting two or more data points. This assumption was tested using the Durbin-Watson statistic. The fourth assumption is collective and individual linearity between the criterion and predictor variables, which is tested using scatterplots. The fifth assumption is that the data shows homoscedasticity, meaning that the variances of predictor and criterion variables along the line of best fit are similar. Homoscedasticity was assessed via scatterplot. The sixth assumption is that there are no problems with multicollinearity, which was tested by inspecting the correlation coefficients and tolerance/VIF values. The seventh assumption is that there should be no significant outliers,

high leverage points, or highly influential points. The eighth assumption is that regression line residual errors are normally distributed. A Q-Q Plot assessed this assumption.

The researcher analyzed the data using inferential statistics since all assumptions were met for Pearson's correlation analysis and multiple linear regression analysis. The researcher checked for Type 1 error to avoid rejecting a true null hypothesis (Gravetter & Forzano, 2015). A check for Type 1 error is determined through significance ( $\alpha$ ) level and  $p$ -value. An alpha ( $\alpha$ ) at a significance level of 0.05 indicates a 5% risk of concluding the existence of a difference where none exists (Gravetter & Forzano, 2015). This study set alpha at 0.05.  $P$ -value helps the researcher know if the null hypothesis is true or not.  $P$ -value results that are less than the alpha level of 0.05 are statistically significant, allowing the researcher to reject the null hypothesis. The researcher also checked for Type 2 error to avoid not rejecting a false hypothesis, by ensuring that the sample size was large enough and had a high confidence level (Gravetter & Forzano, 2015).

### **Limitations and Delimitations of the Research Design**

This section presents the limitations and delimitations of the research study. Limitations are not controlled by the researcher, while the researcher controls delimitations. The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. One uses a correlational design to investigate the relationship between variables (Gravetter & Wallnau, 2013). The researcher chose this design to address a gap in the literature specified by several researchers. Limitations and delimitations of the research design follow.

**Delimitations.** Delimitations are choices that the researcher made to control the boundaries of the research study (Haslam & McGarty, 2014). Delimitations included the research purpose, research questions, research variables, and research target population. The researcher chose to use a quantitative methodology with a correlational design. This study did not seek to determine causation. Alternatively, this study used Pearson's correlation analysis to determine whether a relationship existed between eighth grade ELA MAAP achievement and DRP results for lowest performing students.

Total population sampling of lowest performing students in one school in Mississippi was a delimitation of the research study. The study was not intended to explore the general association between scores of all students who completed both the eighth grade ELA MAAP and the DRP test. Therefore, there may be limited generalizability to other ninth grade students.

**Limitations.** All research has limitations. Limitations are elements of the research study that the researcher had no control over. The researcher had no control over the instruments used to produce the archival data. If there were errors in the archival data, the researcher could not control that. The researcher had no control over whether students who completed the eighth grade ELA MAAP and the DRP Core Comprehension Test worked to the best of their ability on both assessments.

This study used a quantitative methodology with a correlational design to seek to establish a relationship between eighth grade ELA MAAP achievement and DRP results for lowest performing students. The research study did not prove causality between variables. Additionally, the research study did not offer a narrative perspective of the data (Babbie, 2013). The researcher's use of a total population sample was a limitation of the research design, as the use of a total population sample affected the representativeness and generalizability of the data

(Total Population Sampling, n.d.). The research study was limited to a specific group of participants, namely students who were identified as lowest performing on the eighth grade ELA MAAP. Therefore, the results may not have an application to students in school districts that do not use the DRP Core Comprehension Test as a universal screener in addition to the eighth grade ELA MAAP. One other limitation was that the eighth grade ELA MAAP is only administered in Mississippi. To heighten validity, the researcher focused the study on describing relationships and making predictions, which is one objective of correlational research (Price, Jhangiani, Chiang, Leighton, & Cuttler, 2017).

### **Expected Findings**

The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. In response to the research questions, the researcher expected that the findings from the research would add to existing knowledge about universal screeners and standardized achievement assessments. It was expected that the research findings would explain the extent to which eighth grade ELA MAAP achievement is associated with DRP reading comprehension level for lowest performing students. It was expected that a statistically significant correlation existed between eighth grade ELA MAAP achievement and DRP reading comprehension levels for lowest performing students. More specifically, it was expected that lowest performing students identified via eighth grade ELA MAAP likely had below grade level DRP reading comprehension results. In general, the literature reflects educators' belief that reading comprehension impacts student achievement on standardized assessments.

## **Ethical Issues**

Following ethical guidelines is important when conducting research. To become aware of the ethics necessary when conducting academic or professional research, the researcher completed the Collaborative Institutional Training Initiative (CITI) on March 5, 2018. For this research study, no ethical problems were anticipated.

There was no concern about the treatment of research subjects, as the researcher used archival data to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. Therefore, there was no interaction between the researcher and human subjects. Additionally, it was not necessary to have consent from students. Overall, the researcher was responsible for protecting the confidentiality and anonymity of research subjects, and for reporting data as it existed. To reduce the risk of specific students being identified from the sample, the researcher removed names and other identifiable data. The researcher safeguarded the data by keeping it on a password-protected computer. The data will be erased three years after the conclusion of the research study.

## **Chapter 3 Summary**

Chapter 3 presented the methodology for this study. The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. Although prior studies investigated the relationship between standardized assessments and universal screeners, there was still a gap in the research about the relationship between the MAAP and DRP, specifically whether the MAAP can predict DRP score (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016). Therefore, the research

questions and corresponding hypotheses were devised to address the research gap. The target population was composed of 486 students who were in ninth grade during the 2017–2018 school year at a public high school in Mississippi. Of the 486 students who were in ninth grade during the 2017–2018 school year, 99 were identified as lowest performing students. A G\*Power analysis determined the need for a sample size of 84 to achieve significant statistical results based on correlation analysis (see Appendix A). The researcher used the larger sample size of 87 for the research study.

For multiple regression analysis of RQ2, the sample size was calculated using G\*Power 3.1.9.3 software as well. Settings for a multiple linear regression a priori power analysis with a type I error of  $\alpha = .05$ , type II error of  $(1-\beta)$  of .80, four predictors, and a moderate effect size of .15 calculated the need for a sample size of 85 (see Appendix B). The researcher used the larger sample size of 87 for the research study.

The MAAP, including its strands, the predictors, was the instrument used to determine a student's performance on Mississippi ELA standards. The DRP Core Comprehension Test, the criterion was the instrument used to determine a student's reading comprehension level. The researcher accessed the preexisting MAAP and DRP data for research purposes after receiving the required approvals and permissions.

The quantitative research method with a correlational design was appropriate because the data were analyzed to determine statistical significance between two variables (Mertens, 2014). After ensuring that assumptions were satisfied, the researcher used Pearson's correlation analysis and multiple linear regression analysis to determine if and to what degree eighth grade ELA MAAP achievement correlated and predicted DRP score in lowest performing students in a

selected Mississippi public school. Overall, the research methodology, instruments, variables, and data analysis process matched the proposed research study's purpose and questions.

It was expected that the product of the analysis would help answer the research questions and address an omission in the literature concerning whether standardized achievement results predict reading score. More specifically, it was expected that the results would confirm the literature about struggling adolescent readers: Lowest performing students identified via eighth grade ELA MAAP had below grade level DRP reading comprehension results. Both the eighth grade ELA MAAP and DRP identify zones of proximal development, based on Vygotsky's social constructivist theory of learning. Results are presented in Chapter 4.



## Chapter 4: Data Analysis and Results

### Introduction

The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year. A Pearson’s correlation analysis was conducted on the data from a total population sample of 87 lowest performing students, to reveal whether correlations existed between eighth grade ELA MAAP achievement and DRP score for lowest performing students. Additionally, a multiple linear regression analysis was conducted on the data from the sample to examine whether the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score. All data needed for this study was collected from pre-existing data: eighth grade ELA MAAP data and DRP Core Comprehension Test data.

The MAAP, including its strands, the predictors, was the instrument used to determine a student’s performance on Mississippi ELA standards. The DRP Core Comprehension Test, the criterion, was the instrument used to determine a student’s reading comprehension level. Although prior studies investigated whether screener results predict achievement, there was still a gap in the research about whether achievement results are predictive (Ball & O’Connor, 2016; Kent et al., 2018; Ralston et al., 2016). Therefore, the research questions and corresponding hypotheses were devised to address the research gap. The following research questions and hypotheses directed this quantitative, correlational study:

RQ1: To what extent is eighth grade ELA MAAP achievement (PV) significantly correlated to DRP score (CV) in lowest performing students in a selected Mississippi public school?

H<sub>01</sub>: There is no statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>0</sub>:  $r = 0$

H<sub>a1</sub>: There is a statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>a</sub>:  $r \neq 0$

RQ2: To what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school?

H<sub>02</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) do not significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

H<sub>a2</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

Delimitations that the researcher placed on the research study included the following: research purpose, research questions, research variables, and research target population (Haslam & McGarty, 2014). This research study used a quantitative methodology with a correlational design to find whether a relationship existed between eighth grade ELA MAAP achievement and

DRP results for lowest performing students. Since correlational research explores relationships between variables, this study did not determine causation. The use of a total population sample of lowest performing students in one school in Mississippi was a limitation of the research design, as the study did not explore the association between scores of all students who completed both the eighth grade ELA MAAP and the DRP Core Comprehension Test. Lowest performing students were the focus of the research study since they count twice in the ELA growth calculations for Mississippi's Accountability Model. As a result, there may be limited generalizability to other ninth grade students.

This chapter reports a description of the sample, a summary of the results, and detailed analysis. Based on the findings, the researcher provides answers to the research questions. An overall summary concludes the chapter.

### **Description of the Sample**

An adequate sample size was necessary to complete a correlation analysis of the data. The researcher conducted a G Power Analysis that indicated that a sample size of 84 was required to achieve significant statistical results with a power of .80 ( $1-\beta = .80$ ) and a significance level (alpha) of 0.05 needed to determine adequate results (see Appendix A). In this case, a sample of 84 students was acceptable. The sample size used for the study was 87, which exceeded the minimum sample size of 84 needed to achieve enough power per G\*Power 3.1.9.3 software. For multiple regression analysis of RQ2, the sample size was calculated using G\*Power 3.1.9.3 software as well. Settings for a multiple linear regression a priori power analysis with a type I error of  $\alpha = .05$ , type II error of  $(1-\beta)$  of .80, four predictors, and a moderate effect size of .15 calculated the need for a sample size of 85 (see Appendix B). The researcher used the larger sample size of 87 for the research study.

The researcher accessed the preexisting MAAP and DRP data for research purposes after receiving the required approvals and permissions. Data collected for 87 students were matched by combining data with the same unique identifier in an Excel spreadsheet. Twelve rows that had a missing DRP score were removed before transferring the data from Excel to SPSS, leaving 87 data sets.

Demographic data for the sample are included in Tables 6–9. Table 6 presents the gender of students in the sample. Males accounted for more than half of the sample, at 58.6%. Females were 41.4% of the sample.

Table 6

*Students by Gender*

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Female	36	41.4	41.4	41.4
	Male	51	58.6	58.6	100.0
	Total	87	100.0	100.0	

Table 7 shows that 51.7% of the sample were Black, while White made up the second largest group at 36.8%. Other ethnicities accounted for the remaining 11.4 % of the sample.

Table 7

*Students by Ethnicity*

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Asian	3	3.4	3.4	3.4
	Black	45	51.7	51.7	55.2
	Hispanic	7	8.0	8.0	63.2
	White	32	36.8	36.8	100.0
	Total	87	100.0	100.0	

Table 8 presents the SPED Membership of students in the sample. The highest concentration was Non-SPED membership, at 86.2% of the sample. 13.8% of the sample were SPED students.

Table 8

*Students by SPED Membership*

		Frequency	Percent	Valid percent	Cumulative percent
Valid	N	75	86.2	86.2	86.2
	Y	12	13.8	13.8	100.0
	Total	87	100.0	100.0	

Table 9 presents the English Learner Membership of students in the sample. The sample was overwhelmingly Non-EL as 96.6% of the sample were not English Learners. 3.4% of the sample were English Learners.

Table 9

*Students by English Learner Membership*

		Frequency	Percent	Valid percent	Cumulative percent
Valid	N	84	96.6	96.6	96.6
	Y	3	3.4	3.4	100.0
	Total	87	100.0	100.0	

Table 10 presents the Descriptive Statistics of Study Variables.

Table 10

*Descriptive Statistics of Study Variables*

	N	Min	Max	Mean	SD	Skewness	Kurtosis
MAAP	87	833	859	851.69	6.318	-.961	.401
DRP	87	10	76	35.00	10.843	.446	1.463
Informational	87	4	17	10.85	2.851	-.034	-.485
Literature	87	4	19	9.80	2.791	.387	1.167
Language	87	1	7	3.94	1.433	.297	-.136
Writing	87	0	8	5.90	1.726	-1.004	1.569

## Summary of the Results

The researcher focused the study on describing relationships and making predictions, which is one goal of correlational research (Price, Jhangiani, Chiang, Leighton, & Cuttler, 2017). Essentially, this research study used archival data to determine if and to what degree eighth grade ELA MAAP achievement correlated to reading level in lowest performing students in a selected Mississippi public school. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year.

A Pearson's correlation analysis was run to determine the relationship between eighth grade ELA MAAP scores and DRP scores in lowest performing students to assess RQ1. Eighty-seven data sets from the sample population were included in the statistical analysis. Preliminary analyses showed the relationship to be linear. Not all variables were normally distributed, as assessed by Shapiro-Wilk's test ( $p < .05$ ); however, the Pearson's correlation is robust to deviations of normality (Laerd, 2015). There was one outlier (856, 76). The researcher ran the Pearson's correlation analysis with and without the outlier to see if having it in the data altered the conclusions. Without the outlier, there was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students,  $r(85) = .30, p = .005$ . The outlier did not alter the conclusions, so the researcher kept the data point. There was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students,  $r(85) = .31, p = .004$ .

A multiple regression was run to predict DRP score from Reading Informational, Reading Literature, Language, and Writing stands of the eighth grade ELA MAAP to assess RQ2. The multiple regression model predicted DRP,  $F(4, 82) = 4.949, p < .001, \text{adj. } R^2 = .194$ .

Reading Literature added statistically significantly to the prediction ( $\beta=.419, p < .001$ ).

Regression coefficients and standard errors can be found in Table 11.

Table 11

*Summary of Multiple Regression Analysis*

Variable	Unstandardized Coefficients		Standardized	<i>t</i>	Sig.
	B	Std. Error	Coefficients		
1 (Constant)	16.099	6.267		2.569	.012
Information	-.047	.393	-.012	-.121	.904
Literature	1.630	.393	.419	4.146	.000
Vocabulary	.335	.788	.044	.426	.671
Writing	.358	.648	.057	.553	.582

**Detailed Analysis**

**Testing hypothesis one.** The first null hypothesis stated:

H<sub>01</sub>: There is no statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>0</sub>:  $r = 0$

This hypothesis was tested through a Pearson’s correlation, which had five assumptions that had to be met before running the test in SPSS. The first two assumptions were met: paired, continuous variables. Data were initially matched by combining data with the same unique identifier in an Excel spreadsheet. The third and fourth assumptions, linearity, and no significant outliers were assessed by generating a scatterplot in SPSS (Laerd Statistics, 2015). The scatterplot showed a linear relationship between eighth grade ELA MAAP and DRP,  $r(85) = .31, p = .004$  (see Figure 1). The researcher performed a Pearson’s correlation analysis with and without the outlier to see if the outlier altered the conclusions. It did not alter the conclusions, so the researcher kept the data point, to preserve the data. This assumption was considered met.

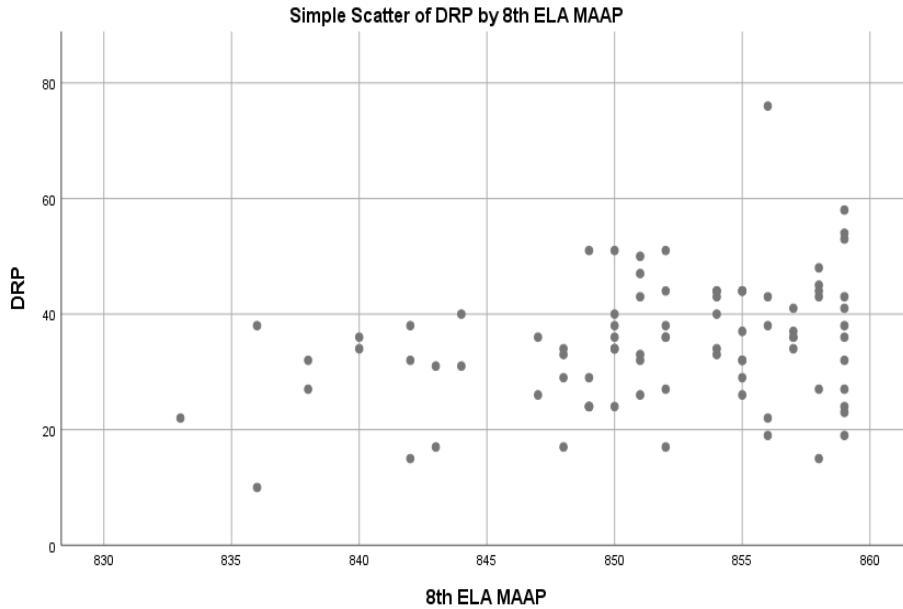


Figure 1. Scatterplot of DRP by eighth grade ELA MAAP.

The fifth assumption, bivariate normality, was tested through a Shapiro-Wilk's test for normality of distribution, generated in SPSS. Not all variables were normally distributed, as assessed by Shapiro-Wilk's test ( $p < .05$ ). The eighth grade ELA MAAP variable was not normally distributed,  $p < .001$ . The DRP variable was normally distributed as assessed by the Shapiro-Wilk's test,  $p = .099$ . The Pearson's correlation, however, is robust to deviations of normality,  $r(85) = .31, p = .004$ . Table 12 presented the results of the Shapiro-Wilk test for normality.

Table 12

*Tests of Normality*

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
8th ELA MAAP	.125	87	.002	.907	87	.000
DRP	.077	87	.200*	.976	87	.099

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



Based on Table 13, the researcher rejected the null hypothesis stated for the first research question and concluded that there was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students,  $r(85) = .31, p = .004$ .

Table 13

*Correlations*

		8th ELA MAAP	DRP
8th ELA MAAP	Pearson Correlation	1	.306**
	Sig. (2-tailed)		.004
	N	87	87
DRP	Pearson Correlation	.306**	1
	Sig. (2-tailed)	.004	
	N	87	87

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

**Testing hypothesis two.** After a relationship was found between eighth grade ELA MAAP and DRP, a multiple regression analysis was conducted to assess whether the strands of the eighth grade ELA MAAP assessment could predict DRP score. The null hypothesis tested for the second research question was:

H<sub>02</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) do not significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

The multiple regression analysis had eight assumptions that had to be met for test results to be valid. The first two assumptions were met as there was one continuous, criterion variable and at least two predictor variables that were measured at the nominal or continuous level. The third assumption of regression analysis, independence of observations, was tested through the Durbin-

Watson statistic in SPSS. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.863 (see Table 14).

Table 14

*Model Summary<sup>b</sup>*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.441 <sup>a</sup>	.194	.155	9.967	1.863

a. Predictors: (Constant), Writing, Literature, Information, Language

b. Dependent Variable: DRP

The fourth assumption required collective and individual linearity between the criterion and predictor variables, which was tested in SPSS using partial regression plots and a plot of studentized residuals against the predicted values. This assumption was met (see Figures 2–6).

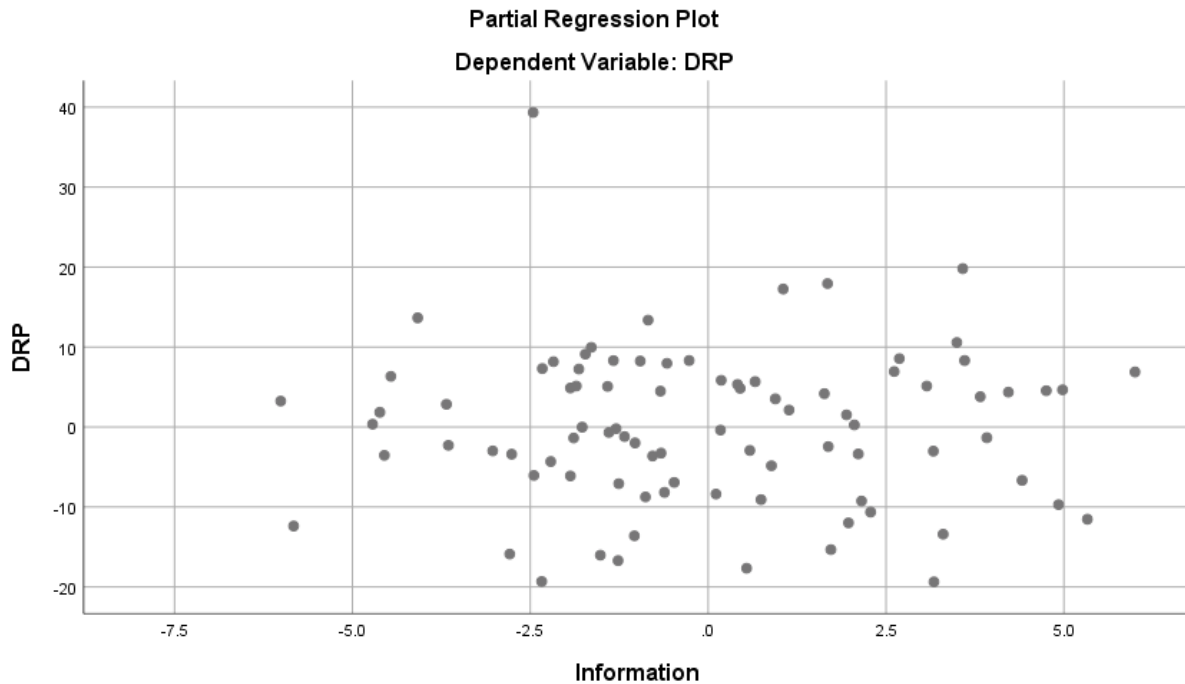


Figure 2. Partial regression plot for reading informational.

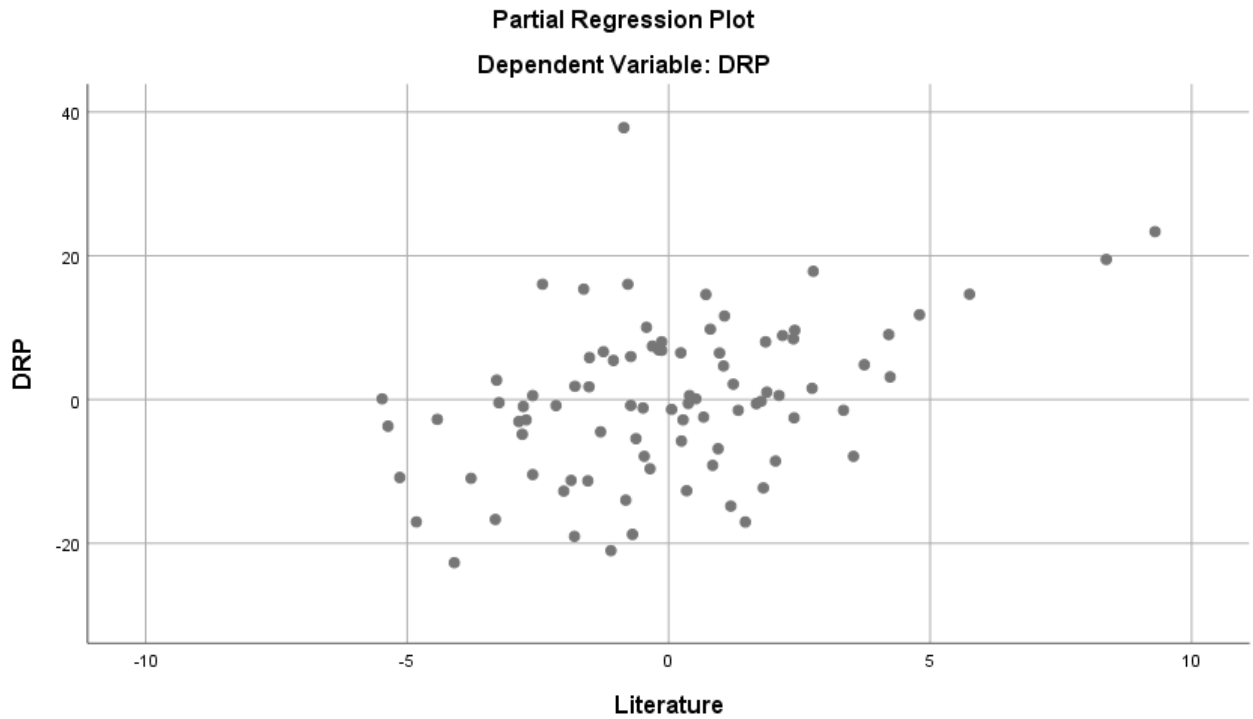


Figure 3. Partial regression plot for reading literature.

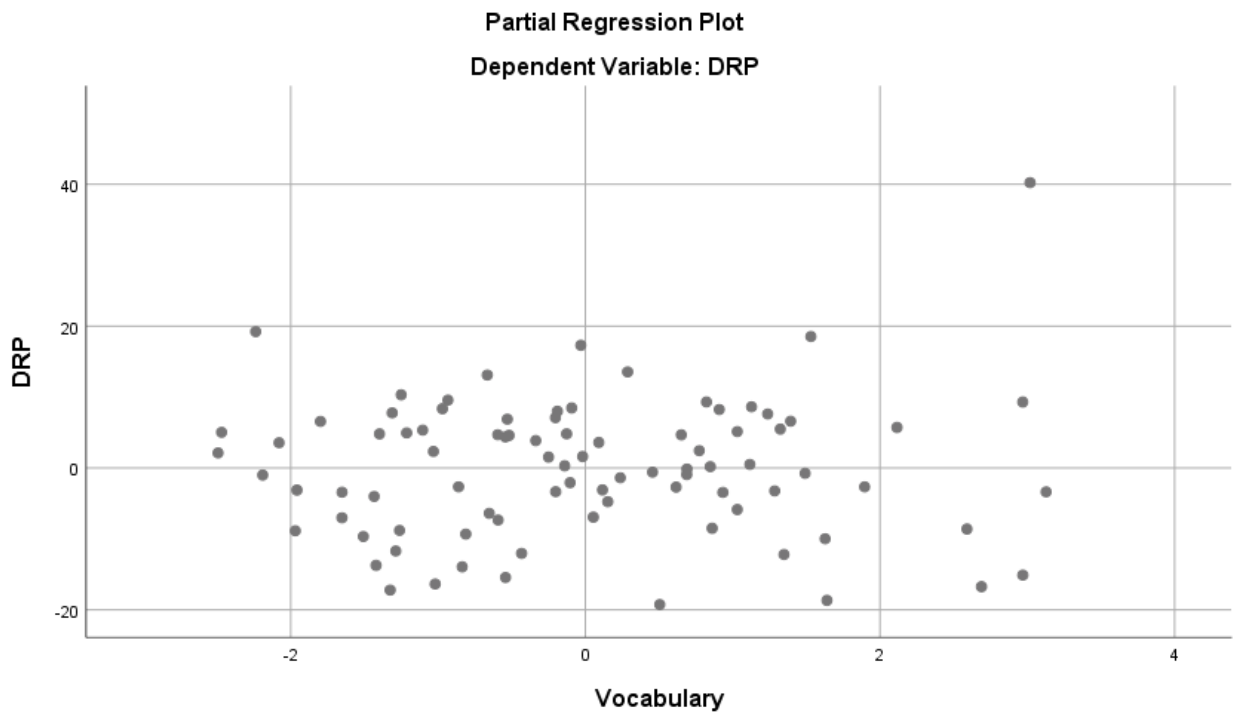


Figure 4. Partial regression plot for language.

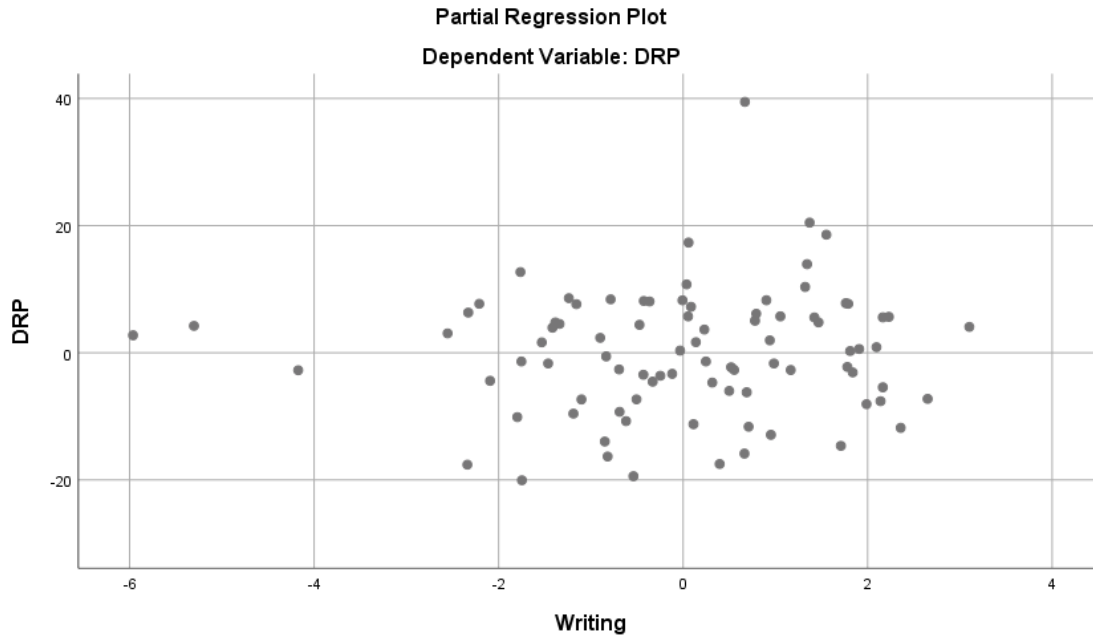


Figure 5. Partial regression plot for writing.

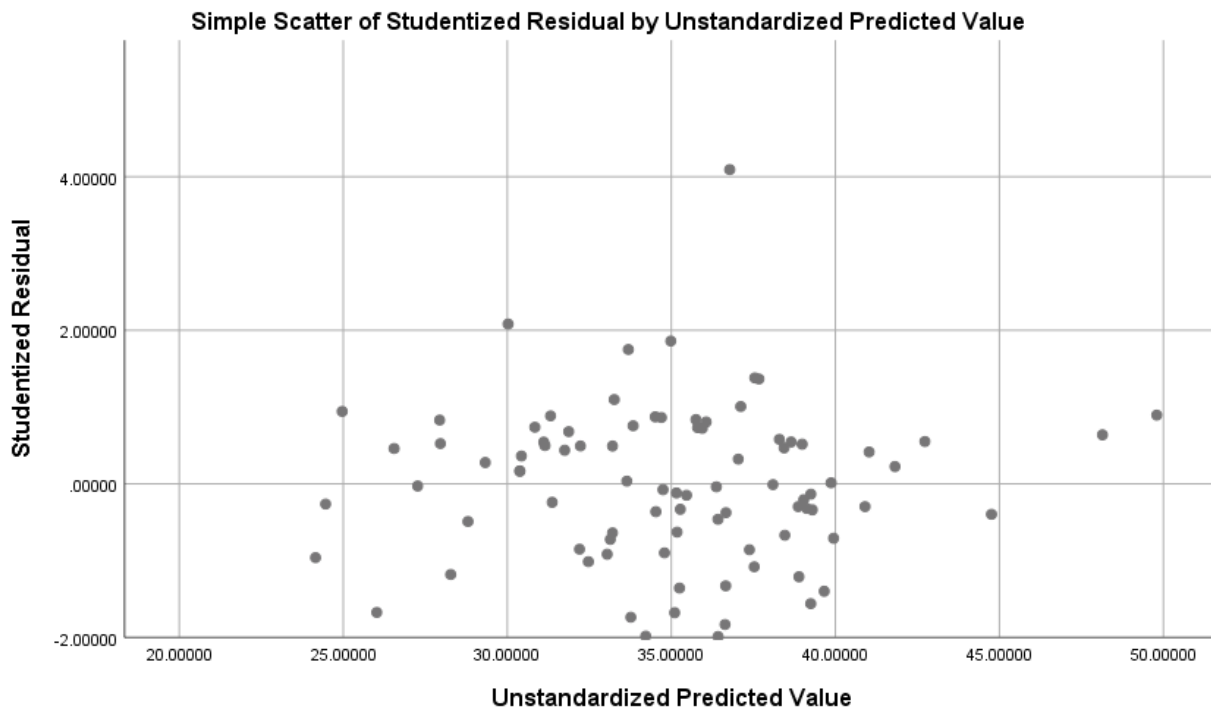


Figure 6. Plot of studentized residual by unstandardized predicted value.

The fifth assumption was that the data showed homoscedasticity, meaning that the variances of predictor and criterion variables along the line of best fit are similar. Homoscedasticity was

assessed via visual inspection of a scatterplot of studentized residuals versus unstandardized predicted values in SPSS. Studentized residuals determine the size of residuals in standard deviation units (The Pennsylvania State University, 2018). This assumption was met, as seen in Figure 6.

The sixth assumption is that there are no problems with multicollinearity, which was tested by inspecting the correlation coefficients and tolerance/VIF values greater than 0.1 (see Table 11). This assumption was met. The seventh assumption is that there should be no significant outliers, high leverage points, or highly influential points. There was one outlier that was kept as part of the data set (856,76) since it did not have a large leverage value and influence. There were no leverage values greater than 0.2 and no values for Cook's distance above 1. The seventh assumption was considered met. The eighth assumption is that regression line residual errors are normally distributed. This assumption was met, as assessed by a Q-Q Plot (see Figure 7).

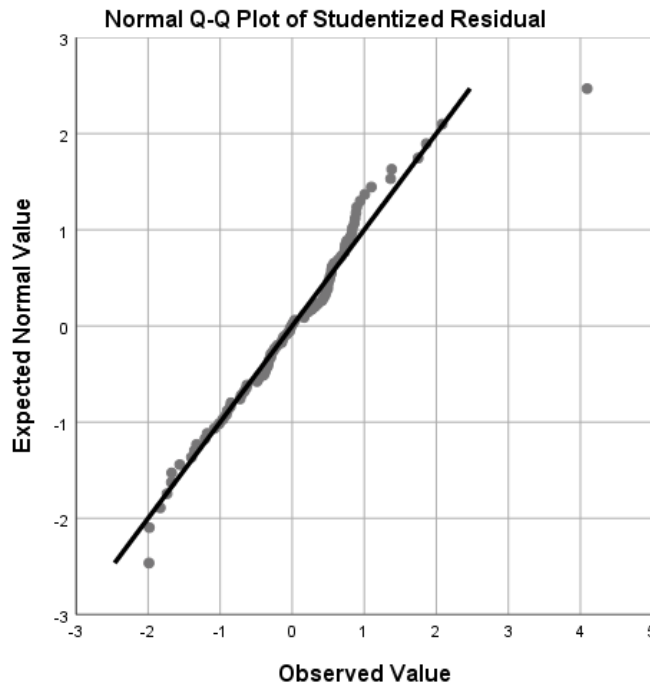


Figure 7. Q-Q Plot of studentized residual.

The researcher rejected the null hypothesis stated for the second research question and concluded that the multiple regression model predicted DRP,  $F(4, 82) = 4.949, p < .001, \text{adj. } R^2 = .194$ .

Reading Literature added statistically significantly to the prediction ( $\beta=.419, p < .001$ ).

Regression coefficients and standard errors can be found in Table 11.

#### **Chapter 4 Summary**

The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year. The MAAP, including its strands, the predictors, was the instrument used to determine a student’s performance on Mississippi ELA standards. The DRP Core Comprehension Test, the criterion, was the instrument used to determine a student’s reading comprehension score. Although prior studies investigated whether screener results predict achievement, there was still a gap in the research about whether achievement results are predictive (Ball & O’Connor, 2016; Kent et al., 2018; Ralston et al., 2016).

Analysis of the archival data yielded weak positive correlations between eighth grade ELA MAAP achievement and DRP scores. A Pearson’s correlation analysis was conducted on the data to reveal whether correlations existed between eighth grade ELA MAAP achievement and DRP score for lowest performing students. There was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students,  $r(85) = .31, p < .004$ . Additionally, a multiple linear regression analysis was conducted on the data from the sample to examine whether the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score. The multiple regression model

predicted DRP,  $F(4, 82) = 4.949, p < .001, \text{adj. } R^2 = .194$ . Reading Literature added statistically significantly to the prediction ( $\beta=.419, p < .001$ ). Implications of the findings are discussed in Chapter 5.

## **Chapter 5: Discussion and Conclusion**

### **Introduction**

This research study used archival data from 87 students to establish a significance level as it related to the correlation between eighth grade ELA MAAP achievement and DRP score. The findings were reported in Chapter 4. This last chapter presents the discussion and conclusion for this study. First, a summary of the results is presented. Next, a discussion of the results and their relation to the literature is presented. Third, the limitations of the study are discussed. Finally, the implications of the results and recommendations for future research are presented. The overall goal of this chapter is to discuss the value of the findings to the community of practice, the literature, and the community of scholars.

### **Summary of the Results**

This study was designed to determine if and to what degree eighth grade ELA MAAP achievement correlated to reading comprehension score in lowest performing students in a selected Mississippi public school. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year. The eighth grade ELA MAAP, including its strands, the predictors, was the instrument used to determine a student’s performance on Mississippi ELA standards. The DRP Core Comprehension Test, the criterion, was the instrument used to determine a student’s reading comprehension score. The following research questions and hypotheses directed this quantitative, correlational study:

RQ1: To what extent is eighth grade ELA MAAP achievement (PV) significantly correlated to DRP score (CV) in lowest performing students in a selected Mississippi public school?



H<sub>01</sub>: There is no statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>0</sub>:  $r = 0$

H<sub>a1</sub>: There is a statistically significant correlation between eighth grade ELA MAAP achievement (PV) and DRP score (CV) in lowest performing students in a selected Mississippi public school. H<sub>a</sub>:  $r \neq 0$

RQ2: To what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school?

H<sub>02</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) do not significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

H<sub>a2</sub>: The four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing (PV) significantly predict DRP score (CV) in lowest performing students in a selected Mississippi public school.

The research questions were influenced by the work of Lev Vygotsky. The ZPD or zone of proximal development is one idea from Vygotsky's work that best relates to this research study since the ZPD represents the gap between what students can do independently and what students can do with support from others (Vygotsky, 1978). With support from more knowledgeable others, potential development evolves into a level of actual development.

The eighth grade ELA MAAP and the DRP indicate students' ZPD as it relates to reading achievement and reading level. Additionally, assessment of student learning is part of the

scaffolding process that occurs when teachers seek to advance students from where they are to a state of mastery. The results of the study may offer educators and administrators guidance on using standardized achievement results to identify struggling adolescent readers within their lowest performing student population. For some, achievement results from previous years are the only data teachers have to begin the school year. If standardized achievement results predict reading ability, then teachers can use that information to plan instruction that targets the skill deficits of struggling readers.

Analysis and synthesis of relevant literature revealed several themes that helped to focus the research study. The literature addresses what complex text is, reveals numerous strategies for working with struggling readers, and explores the relationship between screeners and standardized assessments. Text complexity, as defined by the CCSS, includes the quantitative characteristics, qualitative characteristics, and reader and task dimensions of a text (Bunch, Walqui, & Pearson, 2014). Strategies for working with struggling readers address the role of motivation and engagement, multicomponent interventions, and teacher-student relationships.

As it relates to motivation and engagement, researchers investigated the role of motivation and engagement in improving struggling readers' reading comprehension (Cantrell et al., 2014; Kim et al., 2017; Klauda & Guthrie, 2014; McGeown et al., 2015; Neugebauer, 2014; Roberts et al., 2015; Wolters et al., 2014). Some of the literature minimized the role of motivation and engagement in growing readers (Cantrell et al., 2014; Klauda & Guthrie, 2014; Neugebauer, 2014). Some of the literature asserted that engagement and motivation increase achievement for struggling readers (Kim et al., 2017; Roberts et al., 2015). Some of the literature revealed that engagement and motivation predict performance on standardized assessments (McGeown et al., 2015; Wolters et al., 2014). As it relates to the strategy of multi-

component interventions, Barth and Elleman (2017), O'Connor et al. (2017), Oslund et al. (2018), and Swanson et al. (2017) all found that struggling readers who received a multicomponent intervention benefitted. As it relates to the strategy of teacher-student relationships, how teachers and students interact plays a role in students' level of literacy (Frankel, 2017; Glenn & Ginsberg, 2016; Glenn et al., 2016; Hall, 2016; Hikida, 2018; Kim et al., 2017; Learned, 2016).

Since schools are evaluated on student proficiency, the literature on screeners reveals that researchers want to know the relationship between screeners and standardized state achievement assessments (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016; Rowe et al., 2014; Stevenson, 2015). Overall, in literature exploring the relationship between universal screeners and standardized assessments, researchers used a quantitative methodology with a correlational design. Therefore, this study employed a quantitative methodology with a correlational design. The research methodology was also chosen based on its potential to address the research questions and purpose (Cunningham, 2014).

Analysis of the archival data yielded weak positive correlations between eighth grade ELA MAAP achievement and DRP scores. A Pearson's correlation analysis was conducted on the data to reveal whether correlations existed between eighth grade ELA MAAP achievement and DRP score for lowest performing students for RQ1. There was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students,  $r(85) = .31, p < .004$ . The researcher rejected the null hypothesis for the first research question. Additionally, a multiple linear regression analysis was conducted on the data from the sample to examine whether the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score for RQ2. The multiple regression model

predicted DRP,  $F(4, 82) = 4.949, p < .001, \text{adj. } R^2 = .194$ . Reading Literature added statistically significantly to the prediction ( $\beta=.419, p < .001$ ). The researcher rejected the null hypothesis for the second research question.

## **Discussion of the Results**

The purpose of this quantitative study with a correlational design was to determine if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students in a selected Mississippi public school. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–2017 school year. Two research questions guided this study. A separate summary of the findings and interpretation for each research question follows.

**Research Question 1.** To what extent is eighth grade ELA MAAP achievement (PV) significantly correlated to DRP score (CV) in lowest performing students in a selected Mississippi public school? The results determined that there was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students,  $r(85) = .31, p = .004$ . The findings determined that as eighth grade ELA MAAP achievement for lowest performing students increased, DRP score increased. This finding implied that lower eighth grade ELA MAAP scores were associated with lower DRP scores for lowest performing students and higher eighth grade ELA MAAP scores were associated with higher DRP scores for lowest performing students.

**Research Question 2.** To what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school? The results determined that eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language,

and Writing predict DRP score  $F(4, 82) = 4.949, p < .001, \text{adj. } R^2 = .194$ , but only Reading Literature was significant in the model ( $\beta=.419, p < .001$ ). This finding showed that for every one standardized deviation increase in Reading Literature, there is a .419 standard deviation increase in DRP score for lowest performing students. The results also determined that Reading Information, Language, and Writing were not significant predictors for DRP score.

### **Discussion of the Results in Relation to the Literature**

The results of the study relate to the community of practice, the literature, and the community of scholars. This study focused on whether student achievement results predict students' reading ability. Students' academic success is tied to their literacy skill since literacy is an integral part of every subject area (Mastropieri, Scruggs, & Graetz, 2003). With NAEP results confirming that there are a lot of struggling readers (Wixson, Raphael, & Au, 2018), it is most important to keep our struggling readers from falling further behind. The expectations of the Common Core Standards require all students to be able to read grade level texts that are both complex and challenging (CCSS, 2010). One way to prevent struggling readers from falling further behind is to identify them for intervention. This study was designed to address the problem by focusing on whether one could look at standardized achievement results and predict a student's reading ability.

**Community of practice.** In this study, there was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students. The results of this study are consistent with the literature (Ball & O'Connor, 2016; Kent et al., 2018; Kirkham & Lampley, 2014; Miller et al., 2015; Ralston et al., 2016; Stevenson, 2015). This study confirms previous research that demonstrated a correlation between reading screeners and standardized achievement. Researchers found that screeners predicted performance on a

standardized measure, that screeners had classification accuracy, or that screeners had concurrent validity (Ball & O'Connor, 2016; Kent et al., 2018; Kirkham & Lampley, 2014; Miller et al., 2015; Ralston et al., 2016; Stevenson, 2015). Similarly, this research study explored the relationship between a screener, the DRP, and an achievement test, the eighth grade ELA MAAP. While this study did not examine why Reading Literature may predict DRP score for lowest performing students rather than Reading Informational, Language, and Writing, the results do indicate that more attention with ensuring all students can read complex and challenging grade level texts is necessary (Fisher & Frey, 2013; Moreau, 2014). According to the literature, adolescent readers are good readers if they can read texts with complex language structures and high levels of vocabulary that require students to infer meaning (Goldman & Snow, 2015).

**Literature.** This study aligns with the literature on screeners and standardized achievement. In the study, the researcher used quantitative research that was consistent with previous literature. Previous studies that investigated the relationship between standardized assessments and universal screeners used a quantitative, correlational design (Ball & O'Connor, 2016; Kent et al., 2018; Ralston et al., 2016). For example, Kent et al. (2018) utilized a quantitative methodology with a correlational design to identify fourth-grade students who were in danger of failing a state reading assessment. In Kent et al.'s study, 321 fourth grade students were screened individually and as a group. Their study focused on the predictive validity and classification accuracy of multiple screeners to state assessments in Texas and Florida. This study also aligns with literature on screeners and standardized achievement, as the results confirm previous studies that indicate that there is a correlation between reading screeners and

standardized achievement (Ball & O'Connor, 2016; Kent et al., 2018; Kirkham & Lampley, 2014; Miller et al., 2015; Ralston et al., 2016; Stevenson, 2015).

**Community of scholars.** This research is also useful to the community of scholars. The study is unique in that it explores a different aspect of the relationship between screeners and standardized achievement tests. Further, this study targeted a specific group of students: lowest performing students in one specific school. The researcher believes that if educators and school administrators can use achievement results, particularly how students perform on Reading Literature, to predict DRP score and identify struggling readers, they can help those students become better readers in preparation for future achievement tests. Therefore, identifying and supporting struggling readers can have a positive impact on student achievement. The results of the study show that Reading Literature predicts DRP score for lowest performing students.

### **Limitations**

This study had several limitations or characteristics that the researcher had no control over. These limitations may have affected the results. The researcher's use of archival data resulted in limitations of the instruments used to produce the archival data, in limitations regarding the accuracy of archival data, and limitations in knowing whether students who completed the eighth grade ELA MAAP and the DRP Core Comprehension Test worked to their potential. The researcher's choice of a correlational research design resulted in design limitations. Due to the research design, the research study did not offer a narrative perspective of the data or prove causality between variables. The researcher's choice of a total population sample of lowest performing students resulted in additional limitations. A total population sample affects the representativeness and generalizability of the data (Total Population Sampling, n.d.). As a result, the research study may not apply to students in school districts that

do not use the DRP Core Comprehension Test as a universal screener or the eighth grade ELA MAAP as a state assessment.

### **Implication of the Results for Practice, Policy, and Theory**

**Implications for practice.** The Reading Literature strand of the eighth grade ELA MAAP test determines how well students read and understand stories, dramas, and poetry. Reading Literature may predict DRP score for lowest performing students rather than Reading Informational, Language, and Writing because students tend to have more experience with reading literature. Although the CCSS emphasize the need for increased exposure to informational texts, early literacy focuses on narrative stories. Research shows that parents and grade schoolteachers prefer storybooks for read alouds (Marinak & Gambrell, 2008; Robertson & Reese, 2017; Saracho & Spodek, 2010). Therefore, the results of Reading Literature may best predict students' comprehension. In addition to lowest performing students likely being more familiar with Reading Literature, Reading Literature may be less demanding for lowest performing students. Informational text requires a familiarity with the vocabulary, informational text structures, and relevant background knowledge that may present a challenge to struggling readers (Denton et al., 2015). Essentially, comprehension for lowest performing students is likely predicted by the strand that lowest performing students find most familiar and less demanding: Reading Literature. The findings imply that educators and school administrators have a responsibility to help students learn to read complex text, including informational text that requires students are familiar with the vocabulary, background, and text structures (Denton et al., 2015).

Additionally, the findings for practice imply that a multi-component intervention would best help students be better readers (Barth & Elleman, 2017; O'Connor et al., 2017; Oslund,



Clemens, Simmons, & Simmons, 2018; Swanson et al., 2017). Multicomponent interventions provide support in more than one area of the reading comprehension process. A potential intervention system might mirror O'Connor et al.'s (2017) multicomponent intervention. Their study focused on three comprehension strategies that were found to increase reading comprehension in other studies. Those strategies were determining the main idea of the text, comparing, and contrasting, and determining cause and effect. The researchers added word study and academic vocabulary to the intervention program.

O'Connor et al. (2017) explained the steps for each component of the intervention. For example, the instructional strategy for word study required students to use the acronym BEST as a strategy to take the following steps: Break the word apart, examine the parts of the word, say each part of the word, and try to say the entire multisyllabic word. The findings support the idea that the better students perform on each strand of an ELA assessment, the higher their overall achievement and comprehension scores will be. A multicomponent intervention could help teachers prepare struggling readers for all strands of an ELA assessment.

**Implications for policy.** With the high stakes standardized assessment prevalent in accountability systems, it is important for school systems and policymakers to explore means of improving reading. Both schools and policymakers can work to secure adequate funding for ongoing professional development where teachers focus on improving reading for all students. Schools and policymakers can also work with colleges/universities and state Departments of Education to raise the standards for teacher education programs and teacher certification. All prospective teachers might be required to take courses that address reading across the curriculum. Additionally, all prospective teachers might be required to pass the reading Praxis or an alternate assessment for teacher certification. These changes in policy teachers would better

prepare teachers to improve students' reading. A related outcome of policy changes like these may be a marked decrease in the number of struggling adolescent readers.

**Implications for theory.** The social constructivism theory of learning provides a framework for this research study. Lev Vygotsky's (1962) theory asserts the importance of learning as a collaborative experience between a student and those who have more knowledge. Within this theory of child development is the zone of proximal development (ZPD), which best aligns with the research study. The ZPD is the difference between what a student can do alone and what a student can learn to do with help (Vygotsky, 1978).

The first research study finding of a positive relationship between eighth grade ELA MAAP scores and DRP scores in lowest performing students connects to the ZPD since both assessments allow teachers to identify students' actual development level. Identification of actual development level helps teachers pinpoint students' potential development level. In other words, it helps teachers know where students are and where students need to go in order to grow in reading comprehension. Knowledge of students' actual development and potential development allows teachers to plan social, instructional experiences that will drive student learning. Educators are those more knowledgeable others who have a responsibility to monitor each student's cyclical process from actual development to potential development.

The second research study finding of Reading Literature being significant in the model for predicting DRP score connects with the ZPD as well. The research study found that there is a .419 standard deviation increase in DRP score for every one standardized deviation increase in Reading Literature for lowest performing students. This information can help teachers measure student performance and determine whether students have moved from their actual development level to their predetermined potential development level.

## **Recommendations for Further Research**

Analysis of the archival data yielded positive correlations between eighth grade ELA MAAP achievement and DRP scores for lowest performing students. Future research could extend and refine this study by examining the relationship between eighth grade ELA MAAP achievement and DRP scores for higher achieving students or all students in a selected location. Research into the results for a different population would allow more significant insights into how student achievement is related to reading level. Or, researchers could reexamine the relationship between eighth grade ELA MAAP achievement and DRP score by controlling for demographics like free and reduced lunch status, Special Education status, and English Learner status. This examination could allow researchers to discern the relationship between demographics, achievement, and reading level. Alternatively, future research could use random sampling across school districts so that the data can be generalized to a larger population. Future research could also explore causation. What causes high or low DRP scores? A study in causation might contribute new knowledge to the community of practice, literature, and community of scholars as it relates to reading comprehension. Finally, future research could use an experimental study to analyze primary data.

## **Conclusion**

It was not known if and to what degree eighth grade ELA MAAP achievement correlated to DRP score in lowest performing students. Vygotsky's social constructivism theory of learning provides a conceptual framework for this quantitative, correlational study design to determine whether a relationship existed between eighth grade ELA MAAP achievement and DRP results for lowest performing students. Lowest performing students, in this research study, are students who scored in the bottom 25% of their class on the eighth grade ELA MAAP during the 2016–

2017 school year. The eighth grade ELA MAAP, including its strands, the predictors, was the instrument used to determine a student's performance on Mississippi ELA standards. The DRP Core Comprehension Test, the criterion, was the instrument used to determine a student's reading comprehension score.

This study included a total population sample of 87 students who were in ninth grade during the 2017–2018 school year at a public high school in Mississippi and who were identified as lowest performing on the 2016–2017 eighth grade ELA MAAP. The first research question asked to what extent is eighth grade ELA MAAP achievement significantly correlated to DRP score in lowest performing students in a selected Mississippi public school. For RQ1, a Pearson's correlation analysis was conducted on the data to reveal whether correlations existed between eighth grade ELA MAAP achievement and DRP score for lowest performing students. There was a weak positive correlation between eighth grade ELA MAAP scores and DRP scores in lowest performing students,  $r(85) = .31, p < .004$ . The researcher rejected the null hypothesis stated for the first research question.

The second research question asked to what extent, if any, do the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score in lowest performing students in a selected Mississippi public school. For RQ2, a multiple linear regression analysis was conducted on the data from the sample to examine whether the four eighth grade ELA MAAP strands of Reading Informational, Reading Literature, Language, and Writing predict DRP score. The multiple regression model predicted DRP,  $F(4, 82) = 4.949, p < .001, \text{adj. } R^2 = .194$ . Reading Literature added to the prediction ( $\beta = .419, p < .001$ ). The researcher rejected the null hypothesis stated for the second research question.

Study results may guide educators and administrators interested in identifying struggling adolescent readers within the lowest performing student population using standardized achievement results. In some schools, achievement results from previous years are the only data teachers have, to begin the school year. Since eighth grade ELA MAAP results predict DRP score for lowest performing students, teachers can use that information to plan instruction and intervention for struggling readers. It is important to continue to examine the relationship between achievement and reading comprehension in adolescent students. The literature on whether achievement results are predictive of reading ability is limited and worthy of further exploration.

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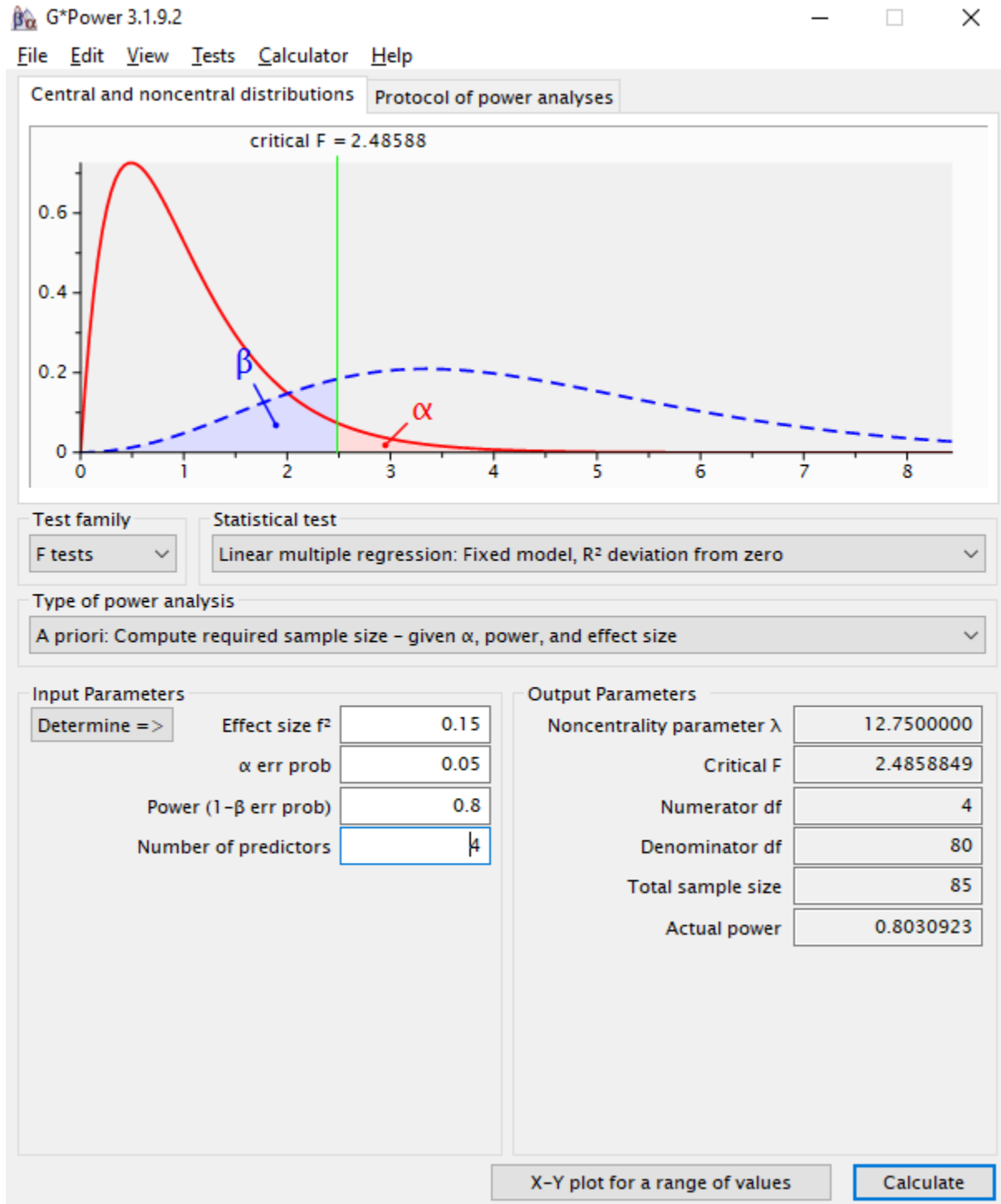
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## Appendix A: G\*Power Sample Size Computation for Two-tailed Significance



## Appendix B: G\*Power Sample Size Computation for Linear Multiple Regression



## Appendix C: Permission from Facility

[Redacted]

On Dec 10, 2018, at 12:34 PM, [redacted] wrote:

Ms. Johnson,

You have permission to utilize ELA MAAP and DRP data from the 2016-2017 and 2017-2018 school years. I understand that you would like to examine the relationship between ELA MAAP achievement scores and reading comprehension levels in lowest performing students. I also understand that you will protect students' personal information by removing identifiers, such as names, student ID numbers, and school name from the data set.

Sincerely,

[Redacted]

Principal

[Redacted]

## **Appendix D: Statement of Original Work**

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously- researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

### **Statement of academic integrity.**

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

### **Explanations:**

#### ***What does “fraudulent” mean?***

“Fraudulent” work is any material submitted for evaluation that is falsely or improperly presented as one’s own. This includes, but is not limited to texts, graphics and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate’s final work without full and complete documentation.

#### ***What is “unauthorized” assistance?***

“Unauthorized assistance” refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another’s work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

**Statement of Original Work (Continued)**

I attest that:

1. I have read, understood, and complied with all aspects of the Concordia University- Portland Academic Integrity Policy during the development and writing of this dissertation.
2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*

**Monifa Johnson**

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Digital Signature

Monifa Johnson

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Name (Typed)

July 16, 2019

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Date