A Correlational Study: Kindergarten Readiness and Third Grade State Assessment scores within Title I and non-Title I Schools

---

A Dissertation

Presented to

The College of Graduate and Professional Studies

Department of Special Education

Slippery Rock University

Slippery Rock, Pennsylvania

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Special Education

---

by

Danelle Locke

December 2023

Locke, 2023

Keywords: School Readiness, Kindergarten Readiness Assessment, Title I, School achievement, MCAP

Slippery Rock University of Pennsylvania
Department of Special Education

A Dissertation Written By
Danelle Locke

Bachelor of Arts in Early Childhood Education and Special Education, Seton Hill University, 2017
Master of Arts in Special Education, Seton Hill University, 2018
Doctorate of Education in Special Education, Slippery Rock University of Pennsylvania, 2023

Approved by

Richael Barger-Anderson Date 11-7-2023
Dr. Richael Barger-Anderson
Dissertation Committee Chair

Date 11/6/2023
Dr. Anne Rose
Committee Member

Date 11/2/2023
Dr. Jeannette Monteith
Committee Member

Accepted by

A. Keith D Date 11/7/23
Dr. Keith Dills, Dean, College of Education, Slippery Rock University of Pennsylvania

ABSTRACT

The Kindergarten Readiness Assessment was administered to every kindergartener in Maryland with the purpose of identifying students for interventions and support. Title I schools received federal funding to close the achievement gap between socioeconomic groups. Given KRA data and additional funding, Title I schools are given additional support to close the achievement gaps. This study investigated if the scores correlate to the third-grade state assessment (Maryland Comprehensive Assessment Program) in ELA and Math when sorted by Title I and non-Title I schools. Descriptive statistics were conducted to determine skewness and kurtosis and then Pearson's Correlation was conducted to determine correlation between scores. It was determined that there was a correlation between KRA scores in both MCAP-ELA/L and MCAP-M in both Title I and non-Title I schools, but it was not as strong in Title I schools as it was in non-Title I schools. It is recommended that future research investigates testing fidelity when teacher administer the KRA and MCAP assessments. Research should also review how Title I schools use funding in early childhood interventions, and if the funding is effective or efficiently used to close the achievement gap. If the purposes of KRA and Title I were effective, the achievement gap would be closing between Title I and non-Title I school.

ACKNOWLEDGMENTS

I want to take the opportunity to thank my committee members and academic teaching staff for your support on this journey. Dr. Jeannette Monteith, thank you for keeping me on track every week to ensure that I am working to my capabilities and supporting me in the process. This was only done with your time and support. I want to thank Dr. Rose for strengthening my understanding of my research and stretching my knowledge. Dr. Barger-Anderson, thank you for always being positive and supportive throughout every email. Thank you, Dr. Kremelberg, for supporting the methods and data analysis process. I was able to complete this with your knowledge. In addition, I would like to thank Breanna Ransome for your revisions and writing advice.

I would also like to thank my colleagues and administrators for their support and assistance. Jason Anderson and Susan Amerena have gone above and beyond to ensure that I would be successful as a teacher and a student. Tim Brown and Kelli Fink, thank you for brainstorming and problem-solving my research and all the speed bumps that came my way.

My family has been highly supportive. Mom and Dad, thank you for letting this dream become a reality. I would not have been able to do this without you and your support. Gram and Eric, thank you for checking in and for your positive thoughts. Thank you, Samantha and Mark Rouse, for reading and editing portions, asking questions, and encouraging me the entire time. Finally, CJ, for taking these past few years to have some boring weekends filled with movies I did not know existed. You were calm when I was overwhelmed, and I could not have done it without your understanding.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I: Introduction

Efforts to improve overall student outcomes in the United States developed the Race to the Top (RTT) grant. The RTT outlined priorities to close the achievement gap, increase graduate rates, and better prepare students for college and career success (Carnock, 2018; Howell, 2015; U.S. Department of Education, 2009). These priorities included assessing kindergarten readiness and establishing prekindergarten (Pre-K) programs (U.S. Department of Education, 2009). Kindergarten as a concept has its complex developmental history, but what was created as an invention to create space for children to develop social skills through play and exploration has, over the years, morphed into the preparation grounds for students to meet the academic demands of first grade. With the inception of this 4.35-billion-dollar grant in 2009, as well as the general academic progression of kindergarten, readiness became a significant factor in education funding and policymaking, especially at the early childhood level (Boser, 2012; Daily et al., 2010; Howell, 2015). It became necessary to determine the readiness benchmarks and to regularly assess whether they were reached through the collection and analysis of standardized data. Kindergarten Entry Assessments (KEAs), also referred to as Kindergarten Readiness Assessments (KRAs), became the method for collecting this standardized data to assess readiness and to better inform the design of kindergarten classroom instruction based on readiness results (Schachter et al., 2019, p. 5).

Presently, most U.S. states have implemented a KRA. However, how it is administered and how data is used and shared varies by state, creating inconsistencies that often lead to unusable data or misuse of the data collected. Only 12% of kindergarten teachers report using KRA data to guide instruction. A significant portion of the kindergarten teacher population finds

insufficiencies with KRAs or deems them an overall inappropriate assessment for kindergarten students (Schachter et al., 2019).

The inconsistencies and insufficiencies are further amplified by student subgroups like English Language Learners (ELL) and special education students, who are required to take KRAs but for whom determining readiness is unclear with a standardized assessment that lacks accommodations and modifications. Before 2021, KRA data served not only as a readiness assessment but as an indicator of student needs for special education (Salmon, 2021, p. 3).

Title I students are also required to take KRAs, but the disparities families of lower socioeconomic status (SES) face in accessing high-quality childcare before kindergarten put most Title I students at a disadvantage in meeting standards for kindergarten readiness. Although a sizable financial commitment was made to implement KRAs as a normative practice, little research has been conducted on the implications of KRA data in public education, including Title I schools. In other words, it was an investment made without a follow-up return analysis. As an assessment only administered once at the beginning of kindergarten, the KRA does not consider growth and developmentally relevant data in relation to student subgroups (Snow, 2011).

Organizational Context

In the U.S., each state determines the mandatory age for beginning formal education. A child's educational experience varies from state to state. In Maryland, kindergarten is compulsory for children who turn five on or before September 1st (Age for School, 2021). The form of Maryland's KRA is administered to students within their first 45 days of school (U.S. Department of Education & Health Human Services, 2014). In 2020, Maryland House Bill 1300, the Blueprint for Maryland's Future (Blueprint), was passed to improve Maryland's public

school system. Blueprint expanded Pre-K programs to make them more accessible for families for three- and four-year-old children, as well (Blueprint, 2021).

Eighty percent of public schools that administer a KRA report that the data is used for multiple purposes. Ninety-three percent report that the scores help teachers and educators individualize instruction (Shields et al., 2016). According to the Commission to Review (2016), Maryland's KRA was initially designed for four primary purposes: to help teachers develop data-informed instructional practices, advise school and district leaders to close the achievement gap among subgroups and student groups, inform parents on their child's skills, and help community and stakeholders to understand the needs of the students and how to allocate funds properly. Teachers were informed that the assessment would take less than 45 minutes per student. However, with class sizes ranging from 14 to 30 students, even at the intended 45-minute standard, KRA administration takes a substantial amount of time (Maryland State Education Association, 2014). In reality, administration takes over an hour and a half to two hours per student (MSEA Report, 2014), and the MSDE recognized there was insufficient data to support the assessment's purpose (Maryland State Department of Education, 2016). In other words, the actual usable student data and instructional information the KRA yielded were not proportionate to the lost instructional time due to KRA administration. Historically, KRA data was collected by local education agencies and shared with teachers. However, based on the research and teachers' perception of the KRA, these intentions were not followed through or happening in most schools (Schachter et al., 2019). Regenstein et al. and Snow recommended that states collect readiness data throughout the school year rather than within the first few weeks of school to allow more time for students to build relationships with teachers and peers and establish routines of being in school and working through academic tasks (Regenstein et al., 2017; Snow, 2011). However, in

Maryland, the readiness data is collected within the first 45 days of school. When not appropriately administered, the KRA does not gather the data needed for teachers to identify skill deficits in children and allow educators to begin intervention services to support the knowledge and development of the skills (Justice et al., 2019).

In 2016, Maryland state officials recommended reiterating the KRA's purpose, intent, and administration fidelity. The state adjusted its laws to allow the KRA data to be used during special education eligibility decisions for Pre-K students. The adjustment allowed educators to determine if students were ready for kindergarten and created the KRA, a formal educational assessment (Maryland State Department of Education, 2016). In 2019, MSDE reverted the law to remove this from practice, only allowing students to take the KRA within the first 45 days of Pre-K, which aligns with the intention of KRA in Maryland (Statewide Kindergarten, 2021). Kindergarten Readiness Assessment scores were uploaded into the student's Individual Education Plan (IEP) so future staff and service providers could reference the scores. All state assessment scores in Maryland are kept in the IEP (Maryland State Department of Education Early Intervention, 2019). Wooster City Schools use the Kindergarten Readiness Assessment - Literacy (KRA-L) as an intervention screening tool to determine qualification for Response to Intervention (RTI). This process acknowledges the need for intervention services before school teams consider a student for special education eligibility (Wooster City School District, 2011). Justice et al. (2019) claim that historically, identifying students and providing them intervention services early into their formal education allows them the support needed to improve their skills.

The KRA can provide assessment data schools need to identify struggling students and make intervention decisions. Justice et al. (2019) conducted a study in Ohio to determine if the KRA-ELA/L was working as intended. The KRA is intended to be a proactive assessment to

identify “at risk” students in reading and then develop an RTI to bring them up to grade-level expectations as they enter third grade. However, when the predictability of KRA-ELA/L was compared to third-grade literacy assessments, the results suggested the KRA data did not meet the intended goal of identifying these at-risk students in reading for the subsequent design of a remedial intervention plan.

The U.S. Department of Education requires these third-grade literacy and math assessments. In 2022, Maryland implemented the Maryland Comprehensive Assessment Program (MCAP), a new standardized third-grade assessment. The MCAP “provides information to educators, parents, and the public on student progress towards proficiency on the Maryland College and Career Ready Standards” (Maryland Comprehensive, n.d.). There was a lack of research on the correlation between Maryland students’ KRA and MCAP scores. In addition, very few prior studies investigated how this correlation between students’ KRA and MCAP scores differs within Title I and non-Title I schools. Since the KRA and the MCAP are standardized state assessments, they would be cohesive and comparable longitudinal data.

Existing Research

Logan et al. (2014) compared the KRA-English Language Arts/Literacy (KRA-ELA/L) score of 11,000 Ohio students to their third-grade standardized reading score on the Ohio Achievement Assessment (OAA). The initial aim of this study was to determine the extent to which kindergarten readiness scores, third-grade reading scores, and any observed relations between the two reflect the performance status of the school a student attends. It was investigated whether students who performed well on these assessments attended equally high-performing schools and whether that exact correlation held for low-performing students attending low-performing schools. They also investigated to what extent the KRA predicts students’ academic

success on the state's standardized third-grade reading assessment, with the hypothesis that if a child were ready for kindergarten, that same child would be more likely to pass the third-grade assessments. Finally, they examined subtests within the KRA, like the KRA-ELA/L, to determine if a specific subject area served as the best predictor of future student success. This study finds that the assessment scores were not highly dependent on the SES of the school's student body.

Additionally, the research showed a positive relationship between students' KRA-L scores and third-grade OAA reading scores. If a student scored in the highest band on the KRA-L, they would be eight times more likely to score proficient on the OAA reading portion in third grade. Students who scored high on the KRA letter identification subtest were more likely to have future success on the OAA reading portion.

In Ohio, it is crucial to establish third-grade success because the state passed the third-grade reading guarantee in 2012. This legislation set parameters so every kindergarten through third-grade student is tested annually in reading. It also requires school districts to set up reading improvement and monitoring plans and ensure highly qualified teachers instruct students needing reading support. Non-proficient third-grade readers were retained in third grade rather than permitted to graduate to fourth grade (Logan et al., 2019). Since the first study conducted by Ohio State University in 2014, the KRA-L was adapted and changed based on feedback from stakeholders, and the third-grade reading assessment was changed from the OAA to Grade 3 English Language Arts (ELA) (Justice et al., 2019). In 2019, Ohio State set out to conduct a similar study to determine if the KRA-L has continued to accurately predict student success on third-grade assessments. However, this time, the focus of the KRA-L would be to determine if

the KRA-L was an accurate predictor of a student's promotion to fourth grade (Justice et al., 2019).

Justice et al.'s 2019 study focused on approximately 2,000 Ohio students who were in kindergarten in the 2014 to 2015 school year. Participants had no IEP, meaning they were not identified as special education students or considered limited English language learners (ELL). There was no discussion of SES in this study. This study found that, overall, there was a significant relationship between students' KRA scores, the subtests, and their scores on the Grade 3 ELA test. A child's score on the KRA-L was also positively and significantly associated with their third-grade ELA performance. Students who demonstrate readiness on the KRA are approximately three times more likely to meet the reading expectations at the start of third grade than those who demonstrate emerging readiness on the KRA. This study uses data from the beginning of students' third-grade year, which differs from the 2014 study, which used data from the end of students' third-grade year (Justice et al., 2019; Logan et al., 2014). Research suggests that students who score lower on the KRA-L would be considered for reading intervention programs and ongoing formative assessments, and it was noted that without the interventions, the number of students not meeting third-grade standards may have been higher (Logan et al., 2019).

A 2018 study in Alameda County, California, used their state's KRA to determine future readiness. Ohio and Maryland collaborated with WestEd and Johns Hopkins to develop the KRA. Similarly, California used guidance from the federal government to establish its own KRA, the Kindergarten Observation Forms (Applied Survey Research, 2018). Alameda County found that low readiness scores in different subgroups generally persisted into third grade, and some children's achievement gaps even widened. It was also noted that when students enter kindergarten healthy, well-rested, and well-fed, come from a family of higher SES, and are

proficient in English, they score better on the kindergarten assessment, which remained consistent with their third-grade scores. The study also noted the importance of student attendance in their third-grade year. Consistent attendance led to higher assessment scores. The study finds that one in four students considered not ready for kindergarten were also not proficient in third grade, and these findings were consistent with other results across the state.

Earlier research suggests that the KRA-L has a correlational relationship to predict student success on third-grade standardized assessments. Students who score low on the KRA-L are likelier to score low on the reading portion of the standardized third-grade assessments. Low SES students are not commonly defined in KRA research, so it can be presumed they are not considered in the findings. In Maryland, low SES students are referred to as free and reduced meal (FARM) students, and most Maryland elementary schools have at least a small population of FARM students (Maryland State Department of School and Community, n.d.). Schools with a higher population of FARM students are designated Title I schools, which receive federal Title I funds (Title I, Part, 2023). Title I funding was created to supplement educational funding for low-income students and not supplant funding for schools with a high concentration of students near or below the poverty level. (Boyle & Lee, 2015; McDonnell, 2005).

Studies have been conducted examining the achievement gap in early childhood education and understanding all the subgroups affected by the achievement gap (Bradbury et al., 2018; Kuhfeld et al., 2020; Owens et al., 2016; Reardon & Portilla, 2016; Temple et al., 2022). Schools that serve most students from economically disadvantaged communities, Title I schools, often lack adequate resources, including humans, materials, and curriculum, to meet their students' academic and socioemotional needs (Owens et al., 2016)—resulting in Title I students' unequal access to learning opportunities and resources that can promote success and are often

found available to students from wealthier families, in non-Title I school communities (Edley et al., 2019; Owens et al., 2016). These educational disadvantages impact student's learning and education, resulting in an achievement gap (Owens et al., 2016). A report by the National Academies of Sciences, Engineering, and Medicine (2019) highlighted that "disparities in academic readiness" are a crucial indicator of educational inequity. The authors called on the federal government to ensure the assessments meet the equity aspect of the Every Student Succeeds Act (ESSA) and develop indicators and ways for schools and districts to ensure they meet equity standards. The authors also recommended that equity be measured and reported to the federal government so that it is easy to see the disparity in education and educational scores (Edley et al., 2019).

Research conducted by Bradbury et al. (2018) compared the achievement gaps in the United States to the gaps in the United Kingdom, Australia, and Canada. When comparing low-income students, this study found that the United States had a more significant achievement gap than the other three countries. Research also showed that middle-income families in the United States were often compared to low-income families in other countries and high income compared to middle-income in other countries. The author attributes different ideals in families and different values among the countries to the difference in income class.

Reviewing data from the Early Childhood Longitudinal Survey-Kindergarten Cohort (ECLS-K) was also conducted to investigate the income gap and student achievement in early childhood classes (Bassok & Latham, 2017; Kuhfeld et al., 2020; Reardon & Portilla, 2016). Bassok and Latham (2017) investigated how children have differed between 1998 and 2010 based on teacher-reported measures and why there are differences. The study also analyzed the findings to examine whether the skills differ across racial and socioeconomic subgroups, leading

to changes in school-entry achievement gaps (Bassok & Latham, 2017). Results found that students entered kindergarten with stronger academic skills, such as math and literacy. It was noted that these stronger skills were across all subgroups and SES, but there were more significant gains in Black students (Bassok & Latham, 2017). There was a more significant skill gain among Hispanic students when compared to white students (Bassok & Latham, 2017). These findings align with Reardon and Portilla's (2016) findings that the racial achievement gap is closing. This demonstrates that the racial achievement gap and the low- and high-income gap are beginning to close (Bassok & Latham, 2017; Reardon & Portilla, 2016).

Purpose of study

The purpose of this study was to determine the effectiveness of a school's Kindergarten Readiness Assessment (KRA) scores in predicting that same class's third-grade scores on the Maryland Comprehensive Assessment Program English Language Arts and Literacy (MCAP-ELA/L) and Maryland Comprehensive Assessment Program Math (MCAP-M). Maryland Comprehensive Assessment Program indicates a reference to both the MCAP-ELA/L and MCAP-M. This study examined the correlation between these KRA and MCAP scores within Title I and non-Title I schools.

Research Questions

This study aimed to answer five research questions:

1. Overall, is there a statistical correlation between the KRA and schools' third-grade proficiency rates on the MCAP- ELA/L?

H1: There is no statistical significance between the school's proficiency rate on the KRA and the MCAP-ELA/L.

H1A: There is a statistical significance between students' proficiency rates on the KRA and MCAP-ELA/L.

2. Is there a statistical correlation between the KRA proficiency rate and schools' third-grade proficiency rate on MCAP-M?

H2: There is no statistical significance between the school's proficiency rate on the KRA and the MCAP-M.

H2A: There is a statistical significance between students' proficiency rates on the KRA and MCAP-M.

3. Is there a difference in the correlational relationship between Title I schools' KRA and MCAP-L proficiency rates and non-Title I schools' KRA and MCAP-ELA/L proficiency rates?

H3: There is no statistical correlation between Title I KRA and MCAP-ELA/L and non-Title I school's proficiency rate.

H3A: There is a statistical correlation between Title I KRA and MCAP-ELA/L and non-Title I school's proficiency rate.

4. Is there a difference in the correlational relationship between Title I schools' KRA and MCAP-M proficiency rates and non-Title I schools' KRA and MCAP-M proficiency rates?

H4: There is no statistical correlation between Title I KRA and MCAP-M and non-Title I school's proficiency rate.

H4A: There is a statistical correlation between Title I KRA and MCAP-M and non-Title I school's proficiency rate.

5. Is there a difference in the correlational relationship between MCAP-ELA/L and MCAP-M proficiency rates in Title I and non-Title I schools?

H5: There is no statistical correlation between Title I MCAP-ELA/L and MCAP-M and non-Title I school's proficiency rate.

H5A: There is a statistical correlation between Title I MCAP-ELA/L and MCAP-M and non-Title I school's proficiency rate.

Significance of Study

This study is significant in the early childhood education department, primarily in Title I schools. It looks at the differences between Title I and non-Title I schools in Maryland and their assessment proficiency rates within early education. Understanding how state assessment scores differ within Title I and non-Title I schools may lead to staffing changes, intervention adjustments, and adjustments to systemic initiatives. School districts may develop professional learning opportunities for all staff members to help them understand the importance of KRA and how to continue to support or formulate plans to boost the school's third-grade MCAP proficiency rate. This study's findings will help reinforce current state assessment practices and establish a strong association between a school's KRA and MCAP proficiency rates. This study's findings will also determine if a school's KRA proficiency rate is an accurate predictor of a school's MCAP proficiency rate within Title I schools.

Delimitations

Historical data was collected before this study's development. Maryland has a code of conduct surrounding the administration of KRA (Test Administration Manual, 2023). Choudhury (2022) states that all teachers who administer the KRA are given support and training when administering and scoring the KRA. Teachers must be certified to administer the KRA assessment and score over 80%. There is intensive training the first year a teacher administers the KRA and annual refresher training in subsequent years. Over 50% of the KRA is observable.

There are supports and guides on correctly scoring the observable data. Maryland State Department of Education has taken action to ensure ample training is done for teachers administering the KRA. However, there is no way for the researcher to ensure that the administration of the KRA was done with fidelity.

Structure of Study

This study was organized into five chapters. Chapter One included the introduction, problem statement, study significance, and research questions. Chapter One also consisted of defining terms, delimitations, limitations, and an overview of the study. Chapter Two reported the review of the related literature. The in-depth literature review encompassed the history of kindergarten, mandates around and the intention of the KRA, teachers' perception of KRA, subgroups, and the KRA, and an overview of Title I. Chapter Three outlined the methodology used in the study. Chapter Four presented the findings and the data analysis. Chapter Five presented this study's summary, findings, conclusions, and recommendations.

Definition of Terms:

The field of education is rife with jargon. Different field areas sometimes use disparate terminology to describe similar concepts. The following terms and acronyms are essential in the current study. Terms are listed in alphabetical order.

Achievement Gap- Academic scores are often considered a racial disparity (Sacks, 2016).

American Recovery and Reinvestment Act of 2009 (ARRA)- An economic recovery law signed by the Obama administration in response to the 2008 recession. Within this law, there was an education reform initiative (Howell, 2019).

English language learner (ELL)- "A national-origin-minority student who is limited-English-proficient" (U.S. Department of Education, 2020).

Income Gap- Academic gap between low- and high-income students (Sacks, 2016).

Kindergarten Readiness Assessment (KRA)- The KRA is a kindergarten readiness tool administered within the first 45 days of the school year. The assessment allows teachers to measure each child's school readiness across multiple domains using observational and direct performance items. It provides baseline data about incoming kindergarteners that can help schools and districts plan to meet each child's needs. They can guide stakeholders to make well-informed programmatic, policy, and funding decisions (Administration Guide, 2021).

Kindergarten Entry Assessment (KEA)- The KEA is an interchangeable term with the Kindergarten Readiness Assessment (Shields et al., 2016).

Maryland Comprehensive Assessment Program (MCAP)- Assessments of Maryland College and Career Ready Standards (MCCRS) will build a pathway to college and career readiness by the end of high school (MCAP Interpretation Guide, 2021).

Maryland Comprehensive Assessment Program English Language Arts and Literacy (MCAP- ELA/L)- An assessment that analyzed literature and informal text, and effective writing to analyze text. (MCAP Interpretation Guide, 2021).

Maryland Comprehensive Assessment Program Mathematics (MCAP-M)- An assessment focused on applying skills and concepts, understanding multi-step problems that require abstract reasoning, and modeling real-world issues with precision, perseverance, and strategic use of tools (MCAP Interpretation Guide, 2021).

Maryland State Department of Education (MSDE)- The department that oversees the public education systems in Maryland. (Maryland State, n.d.).

Maryland State Education Association (MSEA)- The teachers association represents public school educators within Maryland (Maryland State Education Association, n.d.).

Race to the Top (RTT)- a federal government initiative created by the Obama administration to improve student outcomes by closing the achievement gap, improving graduation rates, and preparing students for career and college success (Howell, 2019).

Title I- A federal grant for schools that serve disadvantaged students to improve academic achievement. Grant money is determined based on a student demographics formula (U.S. Department of Education, 2018).

Chapter Summary

Measuring kindergarten readiness was not a funding priority before 2009. Beginning in 2009, only seven states had a kindergarten assessment tool (Daily et al., 2010). The Race to the Top grant contained $4.35 billion (Boser, 2012; Howell, 2015) and was developed and aimed to improve student outcomes by closing the achievement gap, improving graduation rates, and preparing students for career and college success. (Carnock, 2018; Howell, 2015; U.S. Department of Education, 2009) Priority three of the Race to the Top grant was the creation of prekindergarten programs within the states and improving school readiness (U.S. Department of Education 2009). Kindergarten readiness assessments are common in the United States (Bornfreund & Sillers, 2017; Carnock, 2018). In 2018, over 25 states mandated using KRAs (Carnock, 2018). Kindergarten readiness has not been officially defined (Ackerman, 2018; Pierson, 2018; Snow, 2006). States are responsible for creating their definition of kindergarten readiness. However, RTT established criteria for developing a KRA that consists of four guidelines states must follow to maintain grant funding (U.S. Department of Education & Health Human Services, 2014). The definition of readiness varies from state to state -- even within some states (Regenstein et al., 2017).

KRA scores can be used to improve instructional practices in the classroom and identify students for specialized instruction and intervention, but the data also ranges beyond the school into the school systems and state departments (Pierson, 2018; Regenstein et al., 2017; Schachter et al., 2019). Some states found the KRA supplied data that could be used to evaluate large- and small-scale financial initiatives at the local level (Yun et al., 2021). At the state and national level, the KRA data can develop and track educational trends in public early childhood education (Daily & Maxwell, 2018). Some states claim it was designed to collect standardized readiness data readily usable to personalize instruction in the classroom (Schachter et al., 2019, p. 5) and for local or state legislatures to use (Ackerman, 2020).

Teachers do not believe the assessments benefit the teacher and the student's educational experiences (Schachter et al., 2019). Research and data surrounding the teacher's perspective of KRA proved that the assessment took away valuable instructional minutes from teachers and students. Future research must review to what extent teachers effectively use readiness data (Ackerman, 2018). In fact, over half of kindergarten teachers in the U.S. feel that administering the KRA takes away valuable instructional minutes, and only 12 percent of teachers reported using the data to drive instruction within the classroom (Ackerman, 2018). Teachers feel that formative classroom-based assessments were administered more efficiently, and the data was readily used to personalize instruction in the school (Ackerman, 2020; Blessing, 2019; Schachter et al., 2019).

Many teachers feel that special education and ELL subgroups are unfairly assessed (Blessing, 2019). All items on the KRA must be administered to all students (Administration Guide, 2021). Modification may not be made to the KRA, testing administrators should not paraphrase questions and are not permitted to change, modify, or add to the existing script in any

way, nor are they allowed to eliminate or change items or the testing materials. The only reason students with disabilities or ELL should score 'Not Scorable' is because of their disability or language barrier. However, if they do not know the answer due to their lack of knowledge, it should be scored a 0. Teachers do not feel adequately equipped or prepared to administer the KRA to students with disabilities and are unsure how to identify appropriate supports or scores for these students (Golan et al., 2016). Since the KRA is only administered once during a student's schooling, it cannot be used to evaluate how subgroups of students change over time (Snow, 2011).

Students in a Title I school may have a varied KRA experience versus a non-Title I student because teachers are biased about the assessment depending on the school population. Teachers working in low-SES schools often view the data as information students would need to learn during their kindergarten year (Schachter et al., 2019). On the contrary, teachers and administrators in affluent schools (high SES) use the results to measure skills they believe a child should have developed before kindergarten (Schachter et al., 2019). Some research has questioned the appropriateness of assessing students at a young age due to their limited attention span and working memory (Goldstein & Flake, 2015). Researchers were also concerned with Title I students because the assessment assumed the students' microsystems did not impact academic performance (Goldstein & Flake, 2015). A microsystem consists of the child's immediate environment, the child's reference point for the world (Swick & Williams, 2006). A microsystem can be physical, social, and psychological; it is the basis of how the child views the world (Swick & Williams, 2006). Research shows that schools that serve students from Title I schools often lack adequate resources, including humans, materials, and curriculum, to meet their students' academic and socioemotional needs (Owens et al., 2016). Low- and high-income

children in the United States have an achievement gap, and low-income students historically score lower on the KRA (Temple et al., 2022).

Studies have been conducted examining the achievement gap in early childhood education and understanding all the subgroups affected by the achievement gap (Bradbury et al., 2018; Kuhfeld et al., 2020; Owens et al.; Reardon & Portilla, 2016; Temple et al., 2022). Notably, a report edited by Edley et al. (2019) in the National Academies of Sciences, Engineering, and Medicine (2019) highlighted "disparities in academic readiness" as a critical indicator of educational inequity. Nevertheless, they struggled to compare readiness skills across districts and states due to differences in KRA. The report's authors recommended additional research to track inequity in academic scores and the available resources (Edley et al., 2019).

In addition, studies surrounding KRA and its impact on future reading standardized assessments were conducted (Logan et al., 2014; Schachter et al., 2019; Schachter et al., 2017). The studies found that KRA-L scores align with third-grade scores in ELA (Logan et al., 2014; Schachter et al., 2019; Schachter et al., 2017). Studies found that overall, there was a significant relation between students' KRA scores (overall and subdomains) and their scores on the Grade 3 ELA test (Justice et al., 2019). A child's score on the Language and Literacy of the KRA was also positively and significantly associated with third-grade ELA performance (Justice et al., 2019). Students who score a demonstrating readiness on the KRA are approximately three times as likely to meet the reading expectations at the start of third grade compared to students who score an emerging readiness on the KRA (Justice et al., 2019). The research suggests that students who score low on the KRA-L would be considered for reading intervention programs and ongoing formative assessments (Logan et al., 2019).

Prior research and gaps in current research support the purpose of this study. Studies found that the KRA is closely linked to students' third-grade reading success, but it fails to identify Title I students and their success. As previously noted, Title I students often have a score gap compared to peers, but it is limited what that gap looks like at a school level. In addition, ELL and special education students were not considered when exploring the KRA-L's predictability of future student success. Failure to include the ELL and special education subgroups suggests an inaccurate depiction of the overall predictability of the KRA-L. Including these subgroups in research provides state and local school systems with academic data that can be linked to funding allocations used to support the academic success of the targeted students.

The following chapter contains a sizable in-depth literature review. This literature review will encompass the history of kindergarten, mandates surrounding and the intention of KRA, teachers' perception of KRA, subgroups, and the KRA, as well as an overview of Title I.

CHAPTER II: Review of the Literature

Purpose

The literature review addressed these two research questions. It included a history of kindergarten as a level of study, criteria for how readiness is defined, background on state mandates for kindergarten readiness, the intent of implementing the KRA, an impression of teachers' perception of the KRA, an explanation of the different administration types of the KRA to various subgroups, and an overview of Title I schools and the rotating role the federal government played in the development of kindergarten readiness. A quantitative study was conducted to determine if there was a statistical correlation between a school's KRA proficiency rating and that same school's third-grade scores on the MCAP-ELA/L and MCAP-M.

Research Questions

This study aimed to answer five research questions:

1. Overall, is there a statistical correlation between the Kindergarten Readiness Assessment (KRA) and schools' third-grade proficiency rates on the Maryland Comprehensive Assessment Program English Language Arts and Literacy (MCAP- ELA/L)?

H1: There is no statistical significance between the school's proficiency rate on the KRA and the MCAP-ELA/L.

H1A: There is a statistical significance between students' proficiency rates on the KRA and MCAP-ELA/L.

2. Is there a statistical correlation between the Kindergarten Readiness Assessment (KRA) proficiency rate and schools' third-grade proficiency rate on Maryland Comprehensive Assessment Program Mathematics (MCAP-M)?

H2: There is no statistical significance between the school's proficiency rate on the KRA and the MCAP-M.

H2A: There is a statistical significance between students' proficiency rates on the KRA and MCAP-M.

3. Is there a difference in the correlational relationship between Title I schools' KRA and MCAP-L proficiency rates and non-Title I schools' KRA and MCAP-ELA/L proficiency rates?

H3: There is no statistical correlation between Title I KRA and MCAP-ELA/L and non-Title I school's proficiency rate.

H3A: There is a statistical correlation between Title I KRA and MCAP-ELA/L and non-Title I school's proficiency rate.

4. Is there a difference in the correlational relationship between Title I schools' KRA and MCAP-M proficiency rates and non-Title I schools' KRA and MCAP-M proficiency rates?

H4: There is no statistical correlation between Title I KRA and MCAP-M and non-Title I school's proficiency rate.

H4A: There is a statistical correlation between Title I KRA and MCAP-M and non-Title I school's proficiency rate.

5. Is there a difference in the correlational relationship between MCAP-ELA/L and MCAP-M proficiency rates in Title I and non-Title I schools?

H5: There is no statistical correlation between Title I MCAP-ELA/L and MCAP-M and non-Title I school's proficiency rate.

H5A: There is a statistical correlation between Title I MCAP-ELA/L and MCAP-M and non-Title I school's proficiency rate.

History of Kindergarten

The philosophy of kindergarten and the optimal length of an educational day has changed drastically over the past two decades (Kelley et al., 2020; Miller & Almon, 2009). A U.S. Department of Education-funded research team established that the goal of kindergarten is to prepare children for first-grade academics (Lee et al., 2006); therefore, kindergarten teaching and expectations for students became comparable to first-grade expectations (Brown, 2016). Half-day kindergarten was changed to full kindergarten days to extend instruction periods and decrease the focus on play-based learning (Kostelnik & Grady, 2009). In observing a kindergarten classroom, Brown (2016) noticed students engaged in 15 different academic tasks during their seven school hours. Recess was limited to 15 minutes and took place at the end of the student's school day (Brown, 2016) rather than in the middle of the day as a break between academic tasks. Miller & Almon (2009) observe, "Children now spend far more time being taught and tested on literacy and math skills than they do learning through play and exploration, exercising their bodies, and using their imaginations."

To meet the new state standards and demands for performance on standardized tests, many kindergartens began relying upon "highly prescriptive curricula" (Miller & Almon, 2009, p. 11). Teachers tested students frequently and said students were pressured to perform at a high academic level (Brown, 2016). Brown (2017) recorded resistance from both students and parents: Students requested to play more at school and have more recess; parents shared their fear that their child would lose their love of learning due to being inundated with academic tasks and assessments.

Kindergarten students considered behind or underdeveloped in skills by the time they proceeded to first grade struggled to catch up indefinitely for the remainder of their education (Hair et al., 2006).

The cornerstone of early childhood education is the belief that young children think and learn differently from older children (Chung & Walsh, 2000). A teacher also acknowledged that while kindergarten teachers expected a lot out of their students, expectations for first-grade students were comparatively even higher (Brown, 2017). Pre-K teaching styles and expectations became misaligned with kindergarten teaching styles and expectations; therefore, kindergarten classes became more comparable to upper-grade levels (Justice et al., 2021). According to Bassok et al. (2016), a longitudinal study examining kindergartens from 1998 to 2010 found three significant changes:

1. Classroom structure.
2. Length of the school day.
3. Opinions on what students should be learning.

In 1998, 31 percent of teachers believed students should learn to read in kindergarten, whereas in 2010, 80 percent of teachers agreed (Bassok et al., 2016). Just as academic expectations of kindergarten changed, so did the assessment types. Twenty years ago, kindergarten assessments were primarily conducted through observation; however, a more formal, standardized assessment style has become the norm (Blessing, 2019).

According to Fromberg (2006), the twenty-first century began with almost all eligible students attending kindergarten:

Ninety-six percent of children between 5 and 6 attended school in 2002 (compared with 91% in 1972 and 84% in 1965). Seventy to eighty percent of these children have had one year of preschool, and 45–55% have had two years of preschool experience compared with 20.5% of 3- and 4-year-olds who attended some preschool in 1970. (Percent of Population, 2002; as cited in Fromberg, 2006)

Although it was historically federally mandated for states to administer state-level assessments during students' elementary years, kindergarten was not federally mandated (Improving the Academic, 2016).

Even by 2020, there were only 19 states and Washington, D.C. that considered kindergarten mandatory, 12 states that required students to enroll in school by the age of five, and two states that required students to enroll in school by the age of eight (Kelley et al., 2020; Diffey & Steffes, 2017). "At least 39 states plus the District of Columbia require districts to offer full or half-day kindergarten (Kelley et al., 2020). Out of the states that considered kindergarten mandatory, 17 states and Washington, D.C. required an entire day: Alabama, Arkansas, Colorado, Delaware, Hawaii, Illinois, Louisiana, Maryland, Mississippi, Montana, North Carolina, Oklahoma, Rhode Island, South Carolina, Tennessee, Washington, and West Virginia (Kelley et al., 2020). In four states of these states (Illinois, Indiana, Montana, and Texas), whether a full- or half-day would be offered was up to the discretion of the local school districts (Kelley et al., 2020). Nineteen states required districts to offer half-day kindergarten (Kelley et al., 2020). In 2020, nine states had no kindergarten requirement: Alaska, Florida, Idaho, Michigan, Minnesota, New Hampshire, New Jersey, New York, and Pennsylvania (Kelley et al., 2020).

An academic-focused kindergarten driven by high expectations was not the intention of kindergarten; the creator of kindergarten stressed the importance of self-exploration and play-based learning. Influenced by Johann Heinrich Pestalozzi and Jean-Jacques Rousseau, Fredrich Froebel developed kindergarten in the nineteenth century (Bowlby, 2016; Dombkowski, 2001; Flaws, 1985; Forkner, 2013; Fromberg, 2006; Park & Yang, 2016). Pestalozzi and Rousseau believed early childhood education should be focused on nature and driven by self-exploration (Bowlby, 2016; Forkner, 2013; Hewes, 1992).

Pestalozzi was an educator and passionate advocate for people experiencing poverty to have equal access to meaningful education, which he defines as one that encouraged a child's moral, physical, and intellectual development (Flaws, 1985; Forkner, 2013; Nair, n.d.). He believed this multipronged development was accomplished by learning through the senses, which requires students to take an active role in their education through investigation and discovery (Nair, n.d.). Pestalozzi argues that the traditional call-and-response approach to teaching – which primarily focuses on students relaying a correct answer to a posed question – inhibits students from taking this active role, so he urges educators to explicitly encourage students to initiate their own learning experience through a more explorative approach (Forkner, 2013; Hewes, 1992). For Pestalozzi, this explorative approach to early childhood education looks like forgoing textbooks. Hence, students' ideas were not dependent upon preexisting external views (Hewes, 1992). They focused more on hands-on learning through interaction with their environment, including spending more time in nature (Bowlby, 2016; Hewes, 1992).

Rousseau similarly advocates for students' active participation in their education by interacting with nature, and he discourages a child's learning from being limited to an indoor environment (Park & Yang, 2016) or to dependence upon books and stories (Brehony, 2013). Given the correct materials, Rousseau proposes that students naturally develop robustly and that educators are responsible not for leading but for supporting and nurturing that development (Bowlby, 2016; Reinhold et al., 2017).

Aligned with both Pestalozzi's and Rousseau's emphasis on nature as an essential element of a child's growth, Froebel's "kindergarten" comes from the German words *kinder*, meaning "children" and *Garten*, meaning "garden" (Park & Yang, 2016). Much like gardeners nurturing the growth of their plants, it is the educators' role in Froebel's kindergarten to foster the development of their students. Froebel's kindergarten philosophy comprises three core elements: response, relationship, and responsibility (Bowlby, 2016). His philosophy maintains that play and other self-directed activities were students' highest teachers. Shapiro (1983) elaborates, "The child would develop naturally, while the teacher kept out of nature's way defending the happiness and rights of children." Bowlby (2016) also acknowledges that Froebel considered a child's social well-being in developing his kindergarten, which "was to be the bridge between home and school." According to Froebel, kindergarten's primary purpose was cultivating a child's "move from an egocentric position to an awareness and consideration of others." Upon the pillars of play, nature study, and music (Hewes, 1992), Frobel's instructional thinking intended students between the ages of two and six would explore various materials, songs, and items to engage in playful exploration (Fromberg, 2006; Lee et al., 2006; Reinhold et al., 2017).

He packaged these materials in six “gifts” to reinforce students’ critical thinking skills and allow them to use their imaginations (Bowlby, 2016; Reinhold et al., 2017). Gift 1 includes six balls made of different materials, whereas Gift 2 includes a variety of solids (cube, cylinder, sphere). In contrast, Gifts 3, 4, 5, and 6 represent the idea of decomposing the cube into smaller units like small cubes, tiny cuboids/rectangular prisms, and triangular prisms of different sizes. (Reinhold et al., 2017)

Frobel theorized that children interacting with these play materials purposefully would gain a better understanding of the world around them compared to if they did not have the play materials and were intentionally taught (Fromberg, 2006; Lee et al., 2006; Reinhold et al., 2017). German-American Margarethe Meyer-Schurz was educated on Froebel’s kindergarten theory and opened a German-language kindergarten classroom in Wisconsin, the first in the U.S. (Fromberg, 2006). Four years later, Elizabeth Peabody followed suit to open the first English-language kindergarten classroom in Boston, Massachusetts (Passe, 2010). In the years following, charities within large cities began to fund private kindergartens for families of immigrant factory workers. There was no emphasis on academic work in these kindergartens but rather an assurance that the children’s basic needs were being met to develop their cognitive and social-emotional skills. In 1873, Missouri introduced the first private kindergarten in St. Louis, of which there was a cost to attend (Fromberg, 2006; Lee et al., 2006). Private kindergartens became the norm until the middle of the twentieth century, when kindergarten classrooms in public schools began to emerge.

Public school kindergarten classrooms shifted from the original structure to incorporate activities deemed more suited to promoting academic development in the 1970s (Lee et al., 2006). Meisels & Shonkoff (2000) identify several factors that catalyzed this shift to more academic kindergarten classrooms:

- Sputnik and the rejection of the principles of progressive education;
- emerging research on cognitive growth in infants and young children;
- intervention programs for poor young children, such as Head Start and
- the growing importance of quality early education to the middle class.

As a result, kindergarten developed from a play-based curriculum to a curriculum that focused on formally teaching discrete skills (Lee et al., 2006).

By the 1990s, the importance of student preparedness and the need for a standard set of expectations to which educators should adhere to achieve student preparedness came to the forefront of discussion around kindergarten education (Kagen, 1990). In 1994, the Improving America's Schools Act (IASA) required states to establish content and performance standards in core subjects like Reading and Math and create formative assessments aligned to these standards (McDonnell, 2005). There was an overarching sense of urgency for states to meet third-grade state assessment proficiency levels, which drew attention to determining the effectiveness of the education students received in kindergarten through to second grade (Fromberg, 2006; Goldstein, 2007; Lee et al., 2006). States had to submit plans demonstrating they presented challenging content and established performance standards for all students, including state assessments (McDonnell, 2005). Schools that consistently did not meet adequate yearly progress (AYP) had to create interventions to ensure they would improve their programs to meet AYP (Boyle & Lee, 2016).

In 2001, the No Child Left Behind (NCLB) Act was passed to improve primary and secondary schools, including kindergarten, by increasing school district and state accountability for student performance (Goldstein, 2007). The NCLB Act provided states guidance for more rigorous academic standards. Before the NCLB Act, when students left kindergarten, they were ready to learn (Repko-Erwin, 2017). The new standards increased that expectation, and students were to be already reading by the time they left kindergarten (Repko-Erwin, 2017; Yoon, 2014). By 2006, 74.8 percent of public school students were enrolled in full-day kindergarten (National Center for Educational Statistics, 2020).

Russell (2011) finds that, in the 1950s, 95 percent of press publications about kindergarten highlighted developmental stories. “Patsy and Cathy [in photo] are having fun with modeling clay. Song, dance, rest, and milk are also part of the kindergarten program. Youngsters soon adjust to their school careers” (“Day in Kindergarten,” 1953 as cited in Russell, 2011). By the 1980s and 1990s, press publications about kindergarten acknowledged academics and child development (Russell, 2011). Notably, in the 2000s, 80 percent of press publications about kindergarten covered academic stories: “States and districts are writing formal curriculums for kindergarten, requiring students to learn skills like simple addition and reading that were once taught in first grade” (Zernike, 2000). This was a substantial increase from the 1950s when 95 percent of the press publications were developmental stories about kindergarten education (Russell, 2011). This significant shift in press publications about kindergarten from primarily developmental to mostly academic reports can be attributed to the educational standards, expectations, and assessments introduced and implemented during this period (Lee et al., 2006).

Mandates Surrounding the Kindergarten Entry Assessment

In response to the 2008 recession, the Obama Administration signed the American Recovery and Reinvestment Act (ARRA) into law in 2009 (Howell, 2015). A report from this same year shows only seven states were using a kindergarten assessment tool (Daily et al., 2010). One hundred billion dollars of the ARRA was uniquely dedicated to education reform (Howell, 2015), and another portion of the funds were set aside for the Race to the Top (RTT) grant program. RTT was an initiative to improve student outcomes by closing the achievement gap, improving graduation rates, and preparing students for college and career success (Carnock, 2018; Howell, 2015; Race to the Top Summary, 2009; Snow, 2011).

According to Race to the Top Summary (2009), priority three is creating pre-kindergarten programs within states and improving school readiness. The need to measure school readiness and its improved rate led to a spike in states using kindergarten assessment tools (Snow, 2011). The National Association for the Education of Young Children (NAEYC) created a set of standards for creating comprehensive kindergarten assessment models that were developmentally appropriate for young children (Snow, 2011). By 2016, 31 states had implemented or were at least in the process of drafting Kindergarten Entry Assessments (KEAs) (Center on Standards and Assessment Implementation, 2016). 20 of these 31 states received support from RTT – Early Learning Challenge grants (King et al., 2018).

By 2018, more than 40 states were implementing or drafting a KEA (Bornfreund & Sillers, 2017; Carnock, 2018). KEAs are comparable to KRAs (Weisenfeld et al., 2020). In 2018, over 25 states mandated using KRAs (Carnock, 2018). Kindergarten readiness is not officially defined (Ackerman, 2018; Pierson, 2018; Snow, 2006). States are responsible for creating their definition of kindergarten readiness; however, RTT did establish criteria for developing a KRA that consists of four guidelines states must maintain grant funds (U.S. Department of Education

& Health Human Services, 2014). The KRA must be administered within the first month of school, cover five domains of child development, conform to the National Research Council reports on early childhood, and have valid and reliable data aligned to state standards (U.S. Department of Education & Health Human Services, 2014). The five domains of child development for school readiness are "physical well-being and motor development, social/emotional development, approaches toward learning, language development, and cognition and general knowledge" (Weisenfeld et al., 2020, p. 3). Additionally, KEA results should be used to help close the achievement gap and drive funding and instruction (U.S. Department of Education & Health Human Services, 2014).

Because KEAs vary from state to state, the assessment's quality ranges, and no individual state's KEA has all the characteristics of a high-quality assessment (Yun et al., 2021). Six popular commercial assessment tools states use to evaluate kindergarten readiness, the most common being Teaching Strategies GOLD®, which is used by 12 states (Yun et al., 2021; Carnock, 2018). Many states create their assessment tools or participate in one of three interstate consortia supported by federal grants (Carnock, 2018). For example, the California Department of Education created its assessment, Desired Results Developmental Profile–Kindergarten (DRDP–K), used by five other states (Yun et al., 2021). The Maryland Department of Education, Ohio Department of Education, WestEd, and Johns Hopkins University collaborated to develop their KRA (Hopkins, 2022; Weisenfeld et al., 2020; Yun et al., 2021), which is a three-part assessment to include multiple choice questions, performance-based measures, and observational items (Yun et al., 2021).

The Ready for Kindergarten (R4K) Comprehensive Assessment System was developed in collaboration with officials from Maryland, Ohio, an assessment company WestEd, and Johns

Hopkins researchers (Hopkins, 2022). R4K intends to appropriately assess the new Pre-K through twelfth-grade academic standards (Maryland State Board, 2015). The Maryland-Ohio-WestEd-Johns Hopkins KRA was broken down into four domains that still aligned with RTT's five domains but are more specific for data collection in their given state: physical well-being and motor development, social foundations, language and literacy, and mathematics. These domains were chosen because the developers felt they had the most significant impact on kindergarten readiness. Initially comprising 63 items, teachers found it too elaborate, so Maryland pared it back to 50 items (Yun et al., 2021). While this 50-item Maryland KRA was found valid and reliable, it is only implemented within the first 45 days of school and, therefore, does not allow for the assessment to be used as a continuation of formative assessments throughout students' kindergarten education (Administration Guide, 2021). The Maryland KRA also requires all students to be tested in English and, therefore, does not account for the test-taking barriers English Language Learners (ELLs) may face (Yun et al., 2021).

School systems within Maryland are free to choose whether they assess all kindergarten students or a random sample of students (Hopkins, 2022). In 2021, only three out of 24 school districts in Maryland assessed a random sample of students, and students who were enrolled in a virtual learning setting were required to come to a local school in person so the KRA could be administered (Hopkins, 2022). Statewide in South Carolina, Ohio, and Michigan, school systems are required to assess all kindergarten students who must take the KRA in person and during the administration window (Aiken County Public Schools, n.d.; Michigan Department of Education, 2016; Michigan Department of Education, 2018; Ohio Department of Education, n.d). In Alaska, the Alaska Development Profile (ADP) is administered to all kindergarten or first-grade students who were not enrolled in a kindergarten program (Alaska Department of Education, 2022).

Before 2022, the ADP was also administered to first-grade students who were out-of-state transfers or were private- or home-schooled and, therefore, would not have completed the ADP during their kindergarten year. No longer having to assess first graders without the ADP allows teachers to begin instruction for that child at the start of school rather than administering an assessment to them.

Depending on the chosen assessment tool, there are various methods for administering a KEA, including direct assessments between an instructor and students, an observational checklist, or a combination of both (Carnock, 2018). The Maryland, Ohio, and South Carolina KRA is administered using direct assessments between a student and instructor and observational data (Administration Guide, 2021). States also differ in how they share KRA data with the public. Maryland publishes KRA data on their Department of Education website, and local school districts publish KRA data on their websites (Carnock, 2018; Weisenfeld, 2017). Maryland also sends parents a report of their child's performance but only provides scores on the assessments, not actual strengths and needs assessed (Student Report, 2023). The state and district data are divided into subgroups: ELL, special education, students receiving free and reduced meals (FARM), and ethnicity (Carnock, 2018; Weisenfeld, 2017). Individual schools also receive student-specific student data reports, and parents receive a copy of their child's KRA scores (Carnock, 2018; Weisenfeld, 2017). Similar to Maryland, Oregon publishes KRA data on the Oregon Department of Education website (Carnock, 2018). Colorado also shares KRA data for stakeholders on their website, but it also sends families a performance summary so that parents can see specific data points and strengths and needs (Colorado Department of Education, 2022; Colorado Department of Education Early Learning, 2016; Weisenfeld, 2017). Washington shares KRA data in ways that vary by stakeholder. Principals and teachers are the

first to receive student scores; then, they are compiled into district data, and eventually, they're released as statewide data that is published into the state report card and accessible to the public on the state Department of Education website (Carnock, 2018; Weisenfeld, 2017). New Jersey is an example of a state that chooses not to publish KRA data for the public, keeping the data only for state and school officials to review because all schools are not required to participate in the administration of the KRA (Carnock, 2018; Weisenfeld, 2017). A report from The U.S. Department of Education found that throughout the United States, KRA data is often not shared with parents, even though many states mandate schools to share the data, for a few reasons, whether it's because the data returns to the district too late (e.g., in late fall or early winter). The timing was not aligned with parent-teacher conferences or because teachers thought parents would not be interested in the data (Golan et al., 2016). Some districts also express concern for parents' perception of assessing students at an early age and presume some parents would not be in favor of their kindergarten student taking a standardized assessment at an early age because districts were concerned with the perception of assessing students at an early age (Golan et al., 2016).

What Does Readiness Mean?

There is no agreed-upon definition of kindergarten readiness (Snow, 2011). It varies from state to state -- even within some states (Regenstein et al., 2017). 17 U.S. states, including Washington, D.C., have established their definition of kindergarten readiness (Education Commission of the States, 2020). Maryland defines it as "the stage of human development that enables a child to engage in and benefit from primary learning experiences" (Forry & Wessel, 2012). The National Education Goals Panel (NEGP) broadly addresses school readiness, emphasizing the crucial role "families, communities, and schools play in promoting readiness

and, at the child level, identifying multiple dimensions of readiness, including health and motor development; social-emotional development; language and literacy development; approaches to learning; and cognition and general knowledge" (Georgia Early Education Alliance for Ready Students, 2017).

Georgia Early Education Alliance for Ready Students (GEEARS) conducted a 2017 survey to understand better how different stakeholders; families, early childhood educators and administrators, elementary educators and principals, school system leadership, pediatricians and other health care providers, higher education/researchers, and community organization staff, view kindergarten readiness and prioritize creating a definition (Georgia Early Education Alliance for Ready Students, 2017). Most responses are child-centered to include what skills responders think "kindergarten-ready" students should have but do not address where, when, or from whom the child should learn these skills (Georgia Early Education Alliance for Ready Students, 2017). The results do not help establish the school's responsibility to develop skills.

It is still being determined whether parents are responsible for ensuring their children are ready for kindergarten and to what extent is frequent discussion among teachers and educators. To include parents in determining their children's education expectations, GEEARS invited parents to share their definitions of what kindergarten readiness meant (Georgia Early Education Alliance for Ready Students, 2017). Although parent definitions were missing crucial parts, salient points were to be considered and incorporated into the state's official definition of kindergarten readiness (Georgia Early Education Alliance for Ready Students, 2017). It becomes clear that parents and stakeholders have varying ideas about kindergarten readiness.

These differences also extend to childcare center directors and providers (Forry & Wessel, 2012). According to a report conducted by Forry & Wessel (2012), while childcare

providers and childcare center directors emphasize the importance of incoming kindergarteners understanding essential mathematical thinking, kindergarten teachers place greater emphasis on the importance of incoming kindergarteners having literacy skills (Forry & Wessel, 2012). Childcare providers and kindergarten teachers felt fine motor skills were necessary. However, there were notable differences between the two groups regarding what skills were essential for safety, and childcare center directors did not emphasize fine motor skills (Forry & Wessel, 2012).

Miller and Almon (2009) wrote a report surrounding the kindergarten climate, proposing a crisis in kindergarten between the academic rigor and the desire to engage students in play and keeping kindergarten developmentally appropriate. After the release of Miller and Almon's report, Bassock et al. (2016) decided to use ECLS to examine the changes in kindergarten education. The U.S. Department of Education conducts the Early Childhood Longitudinal Study (ECLS) and follows public school students from entry through to their elementary or middle school years. This study aims to track trends in early childhood public education and policy across the U.S. (National Center for Educational Statistics, n.d.). Bassock et al. (2016) used the ECLS reports to examine the changes in kindergarten education. The study used the longitudinal report conducted from 1998 to 2010 and found that there has been a shift in what academic skills educators expect children to enter kindergarten and who supports the development of academic skills. The study found that from 1998 to 2010, there was a 30 percent increase in the number of teachers who agreed that parents should teach their children the alphabet before starting kindergarten and a 30 percent increase in the number of teachers who agreed the Pre-K setting should provide formal reading and math instruction. These increases demonstrate the shift to a

more academic emphasis and coincide with the rise of kindergarten readiness assessments and legislature.

While below-average reading and math skills are acknowledged as barriers to student learning, insufficient social-emotional development affects their motivation to learn and achieve academically (Murray et al., 2015). Daily et al. (2010) and Cappelloni (2017) note that children's curiosity level is an essential factor in determining their kindergarten readiness, and Joy (2016) supports the claim that students who are considered socially ready are more prepared for academic success. A report from West et al. (1993) supports the GEEARS 2017 study's findings that stakeholders prioritize students' social and emotional well-being over academic abilities in determining kindergarten readiness, demonstrating that kindergarten teachers are more concerned with social and emotional abilities as well, noting the impact that social deficits have on learning and emphasizing the importance of students having the ability to communicate their needs and wants effectively (Rimm-Kaufman et al., 2000) as well as having a basic understanding of personal boundaries (Forry & Wessel, 2012). Rimm-Kaufman et al. (2000) further demonstrate how necessary social skills are for children to function effectively as students, presenting the data that one-third of all students struggle to adapt to the academic classroom environment due to underdeveloped social skills.

It is suggested that kindergarten readiness is a set of skills that should be prepared before children enter kindergarten to understand how social-emotional learning impacts how students learn academics and engage in social experiences with peers (Pianta & Walsh, 1998). These differences demonstrated that there were not only differences between states on what readiness means but also differences between education stakeholders. Having differences allows for

misinterpretation of skills students need before entering kindergarten and who is responsible for developing these skills, impacting the intention and interpretation of KRA data.

KRA Use and Misuse Impacts Teacher Perception

The 2009 RTT grant federally encouraged the KRA (Daily et al., 2010). It was designed to collect standardized readiness data readily usable to personalize instruction in the classroom (Schachter et al., 2019, p. 5) and for local or state legislatures to use (Ackerman, 2020). Aligned with reports that the KRA is counterproductive to meeting individual student's needs (Blessing, 2019), in general, teachers feel teacher-created assessments provide better data and are more appropriate than the KRA, allowing for more flexible, individualized implementation (Ackerman, 2020; Blessing, 2019). However, these teacher-created assessments do not produce standardized data. With not all teachers prepared to interpret and apply KRA data to meet students' needs better (Harvey & Ohle, 2018, p. 18; U.S. Department of Education, 2016; Schachter et al., 2019), overall, teachers find little use for the KRA and its intention to guide the personalization of instruction is lost between administration of the assessment and the classroom (Schachter et al., 2019). KRA scores are also unavailable on time, further impeding teachers' ability to use the assessment data as intended (Ackerman, 2018). Only 12 percent of teachers report using KRA data to guide instruction (Schachter et al., 2019), and to better understand how effectively they do requires additional research (Ackerman, 2018).

Over half of kindergarten teachers in the U.S. feel that administering the KRA takes away valuable instructional minutes (Ackerman, 2018). Maryland teachers report spending over one and a half hours per student when they administer the KRA (Flannery, 2015), and Ohio teachers report spending over two hours per student for almost 30 hours per kindergarten class to administer the KRA (Schachter et al., 2019). Brown (2017) observes students engaging in over

ten academic tasks in a full day of kindergarten, leaving little time for play and socialization (Brown 2017).

To counteract the KRA's inability to meet individual student's needs, Snow (2011) notes the importance of teachers establishing a rapport with their students before administering the assessment. However, according to Blessing (2019), even teachers who establish a rapport report observing discomfort in their students' body language when they do not know the answers. Kindergarten teachers have requested that policymakers make kindergarten more play-based again and that state administrators reduce testing, so it is more developmentally appropriate (Brown, 2017). Schachter et al. (2019) and Progress: 2015 (2016) identify a call for state policymakers to consider teachers' perspectives and input when creating new and adapting existing KRA policies, designs, and best practices. The U.S. Department of Education released a written report stating the need for KRA developers to be more explicit about how specifically KRA data can be used to increase teacher buy-in.

Subgroups and the KRA

All students in Maryland must take the KRA upon kindergarten entry, including ELL and special education students (Hopkins, 2022; Yun et al., 2021). Snow (2011) emphasizes that the KRA must be administered in a way, so all student subgroups have equitable opportunities for success. According to MSDE's KRA administration guide (2021), there are universal KRA design allowances meant to increase student engagement and participation, but these allowances are geared more toward developmentally appropriate practices. The assessment should be administered in a familiar and comfortable school setting that minimizes distractions and disruptions; directions can be repeated with inflection of the voice and redirection provided for students as needed; breaks can occur during testing; students can respond verbally or point to the

correct answer; text can be enlarged, color can be adjusted (e.g., changing color images to black and white images), and the orientation of the testing materials can be altered to meet students' needs. It was noted that testing administrators should not paraphrase questions and are not permitted to change, modify, or add to the existing script in any way, nor are they allowed to eliminate or change items or the testing materials. All items on the KRA must be administered to all students. There is also an alternative KRA testing book and materials available for students who are vision and hearing-impaired or disabled (Maryland State Department of Education, 2021).

The KRA Administration Guide (2021) outlined what supports students with disabilities are allowed Level the Field support and access to the supplemental aids and accommodations recorded in their individualized education program (IEP). The Level the Field supports for selected responses or performance task items on the KRA allows for the use of braille, sign language, and non-verbal responses, which can be recorded through gestures or augmentative and alternative communication (AAC) devices, such as an eye gaze board. The Level the Field supports for observational rubric items allow for adapted writing utensils and multimode of communication (e.g., verbal, AAC, sign, written, or gesture). The Administration Guide outlines the level of supports rules as follows:

"If applicable, educators must administer every item possible using the Level the Field supports. After consultation with [an English to Speakers of Other Languages] ESOL teacher, the rating of Not Scorable should only be applied to a KRA assessment item when the student could not access the item due to the student's level of English proficiency." (p. 16).

According to the KRA Administration Guide (2021), the only reason students with disabilities should score Not Scorable is their disability, but their lack of knowledge should score

a 0. In Maryland, special education students must take the KRA. Counties that use sample administration, i.e., assess 10 percent of the county's kindergarten students, must have special education students represented in that data. Therefore, Teachers do not feel adequately equipped or prepared to administer the KRA to students with disabilities and are unsure how to identify appropriate support for these students (Golan et al., 2016). Maryland students with disabilities historically score lower than students without a disability (Hopkins, 2022).

Regenstein et al. (2017) and Daily & Maxwell (2018) caution against using the KRA as an assessment to identify students with disabilities. Yun et al. (2021) explain that while KRA results might be used to indicate additional testing and assessments are required, there needs to be more specific information that can be gleaned from the KRA alone to determine special education eligibility. However, some educators and researchers feel the KRA is often misused to identify students for special education services or to move least restricted environment (LRE) student placements (Aiona, 2005; Maxwell & Clifford, 2004). According to Aiona (2005), "Six states reported that data is used for screening purposes and to identify children with special needs and developmental delays; four states reported that local districts decide how to use the information" (p. 48). In Colorado, all students receive an Individual School Readiness Plan based on their KRA scores and encompass the current plans that are already established within the school, such as IEP, 504, and so on, as well as goals for the student to obtain and strategies to teach the student (Colorado Department of Education, 2017).

Other than the universal design allowances and Level of Field supports, there are no additional adaptations or unique or alternative KRAs for ELL learners (Administration Guide, 2021). The National Association for the Education of Young Children (NAEYC) affirms the KRA should be aligned with and account for cultural linguistics as well as be administered by an

administrator who speaks the same native language as the child tester or with whom the child tester can have a rapport (National Association for the Education of Young Children, 2009). Snow (2011) supports the NAEYC's position to purport that if the purpose of the KRA is to determine the student's proficiency in the English language, then it would be appropriate only to administer the KRA in English; however, because the purpose of the KRA is to determine the student's readiness skills, then it is more appropriate to administer the KRA in the child's native language (Snow, 2011). According to a study completed by Ackerman (2020), some states administer the KRA in the child's native language or have a translated copy of the KRA. However, a few states only administer the KRA in English and prohibit any written or verbal translation during the assessment.

ELL students often score poorly on the KRA. They are frequently labeled "at risk," but Blessing (2019) finds their lower scores are primarily due to an English Language deficiency rather than their actual knowledge of KRA content. In North Carolina, many teachers believe it is unfair to assess these kindergarten students for readiness in an unfamiliar language and claim this assessment's results must be paired with additional teacher-created assessments within more flexible testing constraints to honestly assess the students' knowledge (Blessing, 2019; Golan et al., 2016). In Maryland, the KRA questions cannot be translated, neither in print nor orally, to the student's native language (i.e., the language they speak at home), and all student responses must be given in English (Administration Guide*,* 2021). Maryland ELL students historically score lower than students without a disability and English proficient learners (Hopkins, 2022).

History of Title I

As a result of the war on poverty, the Elementary and Secondary Education Act (ESEA) of 1965 was passed (Boyle & Lee, 2015; Jennings, 2000), which led to the creation of Title I

(Harris & Chrispeels, 2010, p. 32; McDonnell, 2005; Wong & Meyer, 1998). Title I was designed to ensure schools focus on their low-income students to provide them with accurate services (Boyle & Lee, 2015; McDonnell, 2005), and Title I funding decreases the disparity between low-income school communities and affluent school communities (Borman & D'Agostino, 1996; Boyle & Lee, 2015; Wong & Meyer, 1998). This Title I funding does not intend to replace overall school funding but rather supplement funding for low-income students (Boyle & Lee, 2015; McDonnell, 2005). Only the states of California, New York, and Massachusetts spent Title I funding as was appropriate for the intended student population (Murphy, 1971). A primary criteria for spending was established in 1969 to address the mismanagement of Title I funding in the remaining states (Boyle & Lee, 2015). To ensure the funds were spent appropriately, students who qualified for Title I funding were separated from the general student population for instruction in smaller group settings in a resource room or learning lab (Harris & Chrispeels, 2010, p. 32; Mcdonnell, 2005). However, this approach was highly scrutinized because it isolated students already stigmatized for their low-income status (Harris & Chrispeels, 2010, p. 32). The Education Amendments of 1978 adapted the Title I funding formula so that if 75 percent of a school's students were low-income, that school could utilize Title I funding school-wide if the LEA could match the funding provided by the state (Boyle & Lee, 2015; Mcdonnell, 2005).

Title I funding continued to undergo a few more shifts during the 1980s. McDonnell (2005) notes the essential elements of Title I funding in 1980:

1. Federal regulations required states and Local Education Agency (LEAs) to indicate how federal aid was targeted to support eligible students and how it was used to provide supplemental support;

2. Respect the states' and LEAs' opinions on the substance of the services funded; and
3. Limit the states' commitment to special needs students beyond the distribution of federal categorical programs.

The Education Consolidation and Improvement Act (ECIA) of 1981 combines many federal education initiatives and funding into one act to reduce the federal government's involvement in public education (Boyle & Lee, 2015; McDonnell, 2005), which in turn reduced Title I funding (Jennings, 2000; McDonnell, 2005) and the impact it had on students (McDonnell, 2005). The public held concern with the policy changes related to education funding, and business groups worried these changes would impact the economy later because of the low education standards they set (McDonnell, 2005).

The ESEA was reauthorized, resulting in the Hawkins-Stafford Elementary and Secondary School Improvement Amendments of 1988, which increased Title I funding and allowed states and LEAs to create their definitions of academic achievement that Title I students should attain (McDonnell, 2005). The Hawkins-Stafford Amendments also removed the requirement that school districts match federal government funding, allowing LEAs to utilize all federal funds allotted rather than only the funds they could match (Boyle & Lee, 2015). In the late 1980s and early 1990s, the ESEA's rules changed to permit all students within those schools to use the materials Title I funding provided (Wong & Meyer, 1998). States were expected to demonstrate how Title I programs impact student achievement, and interventions were implemented for those programs that were not successfully contributing to student achievement (Boyle & Lee, 2015).

In 1994, the Clinton administration aimed to increase Title I funding with the objective that it would impact more students (McDonnell, 2005) and therefore reduced the Title I

requirement threshold from 75 percent to 50 percent of the student population being low-income for schools to utilize Title I funding school-wide (Boyle & Lee, 2015; McDonnell, 2005). Furthermore, the Improving America's Schools Act (IASA) of 1994 required states to establish content and performance standards in core subjects like Reading and Math and create formative assessments that align with these standards (McDonnell, 2005). These standards were expected to be met and followed by Title I students and the general student population, meaning the expectations for achievement were applicable to all students (Boyle & Lee, 2015; McDonnell, 2005). These conditions for Title I funding ensured that states and LEAs were accountable for all student achievement, including Title I students (McDonnell, 2005).

States must submit plans to present challenging content and apply performance standards to all students, including state and other assessments (McDonnell, 2005). Schools were expected to show progress, and those that consistently did not meet AYP (adequate yearly progress) were required to implement interventions to improve these programs to meet standards (Boyle & Lee, 2015). IASA allowed states and LEAs more flexibility in utilizing Title I funding, simultaneously creating less paperwork but more rigorous standards and higher expectations for student achievement (Jennings, 1998). Title I was moving closer to the core curriculum, eliminating Title I's reliance on pullout services and allowing low-income students to remain in their core classrooms while still receiving Title I support (McDonnell, 2005).

IASA had a six-year implementation plan. By the halfway mark in 1997, only a few states met AYP standards, and only 17 met AYP standards by the sixth year in 2001 (McDonnell, 2005). A total of 14 states were waived from IASA requirements because those states were expected to meet the criteria given some additional time (McDonnell, 2005

Even the 17 states deemed successful in meeting AYP standards by the time IASA was fully implemented varied in their student success standards and the timeframe to determine whether success was achieved (McDonnel, 2005). For example, some states expected 90 percent to 100 percent of students in each school to meet the state's standard of proficiency, while other states set a goal of 50 percent of students in each school to meet proficiency (McDonnell, 2005). Some states did not have a defined duration of progress measurement, while other states' duration ranged from six years to 12 years (McDonnell, 2005). When measuring AYP, these discrepancies ultimately worked against IASA's goal to ensure that states consistently supported all students' progress according to state standards. California, Alabama, West Virginia, and Wisconsin found that IASA necessitated redevelopment of their state assessments because they were assessments not aligned with the state standards (McDonnell, 2005).

The George W. Bush administration passed the No Child Left Behind (NCLB) Act in 2002 to replace the IASA (Klein, 2015). The NCLB Act significantly increased the federal government's role in ensuring public schools were accountable for supporting the progress of all students (Klein, 2015), Focusing on supporting subgroups such as ELL, Special Education, FARM, and other historically underachieving groups. The NCLB Act was not federally mandated, but states uncompliant risked a reduction in Title I funding (Klein, 2015). It also affected teacher qualifications. From 2002 to 2003, teachers must be considered highly qualified (holding a valid state teaching certificate) (What Educators, 2016). Paraprofessionals must also be considered highly qualified by 2006 (Klein, 2015), which was determined by state standards, often passing a para pro assessment (Tennessee Department of Education, 2021). These highly qualified teachers were evenly distributed throughout districts' low-income and wealthy schools (Klein, 2015).

Similar to the IASA, the NCLB Act enforced that students take standardized assessments aligned with state standards to measure student achievement (Weckstein, 2003). States could set their standards, but all students were required to achieve proficiency via these assessments (Klein, 2015). Schools not consistently meeting proficiency on AYP standards faced consequences, including allowing students to transfer to schools that were meeting AYP, converting into charter schools, undergoing state intervention, and applying 10 percent of their Title I funding to offer free tutoring for students (Klein, 2015). Originally, states were supposed to have met proficiency targets by 2013 to 2014, but it became clear in 2010 that most schools would not. A 2008 article criticizes the NCLB Act, suggesting that it focuses on the scores students receive rather than their education (Sanders, 2008) or learning experience. Sanders (2008) notes that schools do not evenly distribute materials or highly qualified teachers. If schools focused less on scores and more on making an equitable learning environment, the scores would inevitably improve (Sanders, 2008).

To prevent schools from failing the NCLB Act's proficiency, the Obama administration established a waiver system in 2011 (Klein, 2015). For schools to become eligible for a waiver, they had to agree to follow the Common Core Standards or prove that their state standards were rigorous enough (Klein, 2015). By 2015, and the deadline for proficiency passed, the NCLB Act was ineffective. No state met proficiency standards, and most states were waived. In December 2015, the Obama administration passed the Every Student Succeeds Act (ESSA) into law, following the NCLB Act (Klein, 2015). The ESSA essentially had the same goal as the NCLB Act in student achievement: to ensure America's disadvantaged and high-risk students are protected and educated and to outline accountability and appropriate action to support low-performing schools (U.S. Department of Education, n.d.).

Title I and School Readiness:

Research shows that schools that serve most students from economically disadvantaged communities, Title I schools, often lack adequate resources, including humans, materials, and curriculum, to meet their students' academic and socioemotional needs (Owens et al., 2016)—resulting in Title I students unequal access to learning opportunities and resources that can promote success and are often found available to students from wealthier families, in non-Title I school communities (National Academics, 2019; Owens et al., 2016). These educational disadvantages impact students learning and education, resulting in an achievement gap (Owens et al., 2016).

The "achievement gap" is often referred to as a racial disparity. However, when discussing the gap between low- and high-income students, it is more appropriate to refer to it as the "income achievement gap" (Sacks, 2016). Students with lower socioeconomic status (SES) are more likely to be disadvantaged in attaining school readiness; impoverished students are less

likely to have cognitive and early literacy skills than those living in high-income households (Sacks, 2016). In 2016, one in five children lived in poverty and were behind their higher-income student counterparts before they even enrolled in school (Sacks, 2016). The income achievement gap has widened over the past 50 years, 30 percent to 60 percent wider than the income gap in the 1970s (Reardon, 2018).

According to Sacks (2016), "The difference in cognitive skills between low- and high-income children is already apparent when they enter kindergarten, and research tends to find that it holds steady from there." Low-income students rarely catch up to their peers, which is not surprising given that students from lower SES backgrounds enter kindergarten one year behind in language and academic skills compared to their higher SES counterparts (Sabol & Pianta, 2017).

Shields et al. (2016) explained that the KRA was implemented in various schools with students across the spectrum of SES backgrounds when assessing students for school readiness. This readiness assessment was not specific to high-performing schools or Title I schools only. KRA data is gleaned from Title I and low-performing schools because it can draw resources to students and families who are most underserved and under-resourced before kindergarten entry (Schachter et al., 2019, p. 4). This data proves that funding is needed in Title I and low-income schools to boost school readiness.

In his State of the Union address in 2013, former President Barrack Obama explained the importance of early childhood education. A 2013 press release states, "A zip code should never predetermine the quality of any child's educational opportunities" and that there is a need for universal Pre-K in the United States (The White House, 2013). Thompson et al. (2022) discuss that Pre-K expansion allowed children access to a higher quality early childhood education to

prepare them for school better. Bassok and Galdo (2016) researched the differentiations among early childcare options in low- and high-income communities. They found unequal access to quality Pre-K programs and that "The highest-income communities had the greatest availability of care, while Hispanic communities had deficient levels of availability" (Bassok & Galdo, 2016). Not only was there a discrepancy between the availability of early childhood options, but the quality of available early childhood programs ranges among communities (Bassok & Galdo, 2016). Informal care arrangements (such as in-home childcare and relative care) yield lower cognitive and social-emotional development than formal care arrangements (such as Head Start, a childcare center) (Bassok & Galdo, 2016). Hispanic children were less likely to have formal care arrangements than Black and Caucasian children (Bassok & Galdo, 2016). Only 33 percent of three- and four-year-old children enrolled in school are Hispanic, the lowest of ethnicities, whereas 43 percent of three- and four-year-old children enrolled in school are Caucasian (Thompson et al., 2022). Immigrant families are even less likely to enroll their children in a formal childcare setting (Malik et al., 2018). Almost 60 percent of immigrant and native-born Hispanic families live in a "childcare desert," a geography with insufficient childcare options to meet the demand based on the number of children residing there (Malik et al., 2018). The lack of accessibility to formal childcare impacts school readiness, as data shows that four-year-old Hispanic children score the lowest in vocabulary, literacy, and math skills (Murphey et al., 2014).

The academic achievement gap between Black and Caucasian students has narrowed over time, according to Slack (2016). Historically, Pre-K and other early childhood programs worked for Caucasian children and against Black children (Cahan, 1989). For example, day nurseries would deny Black children childcare, necessitating Black families to reprioritize their needs or

Black communities to develop their day nurseries (Cahan, 1989). Since then, Title I funding has worked to prioritize Black families and their children's care (Thompson et al., 2022). Black families face a similar situation or predicament that Hispanic families face regarding childcare; they are not offered equitable access to high-quality education (Hardy & Huber, 2020; Thompson et al., 2022). Only 54 percent of Black children eligible for Head Start are enrolled in a Head Start preschool, partially because there are not enough Head Start preschools in Black communities for children to enroll in locally, and the same constraint applies to Hispanic and Asian children (Hardy et al., 2020).

Additionally, a study conducted in North Carolina finds that childcare centers located in neighborhoods with a high concentration of Black families, low employment, and poverty have delivered lower quality childcare than in higher-income neighborhoods (Hatfield et al., 2015). There is an emphasis on not only making Pre-K more accessible in low-income and diverse communities but also ensuring these Pre-K options are of high quality, which is another challenge altogether. A study conducted in Georgia finds that, in these lower-income communities, there are more public Pre-Ks than in higher-income communities where private Pre-Ks dominate, which correlates with Georgia's goal to increase access to Pre-K for lower-income families (Bassok & Galdo, 2016). Nevertheless, the quality of these Pre-Ks is still lower than those in higher-income communities (Bassok & Galdo, 2016).

Historically, black and Hispanic students have a lower readiness score in reading and math than other ethnicities (Temple et al., 2022). However, since the late 1990s, racial gaps in children's early skills have narrowed (Bassok & Latham, 2017). Racial gaps are not the only achievement gap in public education; on average, lower-income students from all races score lower when assessed for school readiness when compared to students from families with higher

incomes (Temple et al., 2022). Reardon and Portilla (2016) acknowledge that the racial academic achievement gap received more public attention than the income gap. There is a more significant gap between low- and high-income children. The achievement gap grew wider between low- and high-income students from the 1970s to the 1990s (Reardon & Portilla, 2016). Another study discovered that low-income students in the United States have a wider achievement gap than those in other countries, such as the United Kingdom, Canada, and Australia (Bradbury et al., 2018). In recent years, the gap has begun to close; many researchers connect the scores to the expansion of full-day pre-k (Kuhfeld et al., 2020; Bassok & Latham, 2017; Reardon & Portilla, 2016). Research also suggests that while the gap is beginning to close, it is predicted to take almost 100 years to fully close (Reardon & Portilla, 2016; Temple et al., 2022).

Chapter Summary

Every aspect of kindergarten is debated, from its purpose to its content (Brown, 2016), and the fluctuation of education policy overall and on a federal level influences this debate (Howell, 2015). Kindergarten has become a precursor to first grade in most states (Zernike, 2000). Half-day kindergarten was changed to full kindergarten days to include more extended instruction periods and decrease the focus on play-based learning (Kostelnik & Grady, 2009). Currently, most U.S. states hold full-day kindergarten structured with longer, more demanding academic learning blocks (Brown, 2017).

Frobel developed kindergarten based on the ideas of Pestalozzi and Jean-Jaques Rousseau, intending that kindergarten would be student-focused and driven by self-exploration (Bowlby, 2016; Forkner, 2013; Hewes, 1992). Pestalozzi believed this multipronged development was accomplished by learning through the senses, which requires students to take an active role in their education through investigation and discovery (Nair, n.d.). Rousseau

discourages a child's learning from being limited to an indoor environment (Park & Yang, 2016) or dependent upon books and stories (Brehony, 2013). Frobel's kindergarten was a blend of both philosophies. Froebel's "kindergarten" comes from the German words kinder, meaning "children," and Garten, meaning "garden" (Park & Yang, 2016). Frobel's instructional thinking intended that students between the ages of two and six would explore various materials, songs, and items to engage in playful exploration (Fromberg, 2006; Lee et al., 2006; Reinhold et al., 2017).

In the following years, German-American Margarethe Meyer-Schurz would bring Froebel's kindergarten theory to the United States and opened a German-language kindergarten classroom in Wisconsin, the first in the U.S. (Fromberg, 2006). Soon after, charities in large cities would develop kindergartens for families of immigrant, migrant workers; these kindergartens were not intended to to enrich children but to ensure their basic needs were met (Passe, 2010). Public schools began to include early childhood education classes in the 1970s, resulting in formal teaching rather than exploration of skills (Lee et al., 2006). By the 1990s, kindergarten expectations were established due to IASA (McDonnell, 2005). In 2001, NCLB was established, adding more pressure on student's academic success, and students were expected to leave kindergarten already reading (Repko-Erwin, 2017). 74.8 percent of public school students were enrolled in full-day kindergarten (National Center for Educational Statistics, 2020).

American Recovery and Reinvestment Act (ARRA) was signed into law in 2009 (Howell, 2015). A report from this same year shows that only seven states were using a kindergarten assessment tool (Daily et al., 2010). Funding from the RTT grant came from the ARRA (Howell, 2015). One of RTT's priorities was creating and developing public pre-

kindergarten programs throughout the United States (U.S. Department of Education, 2009). By 2018, more than 40 states were implementing or drafting a KEA (Bornfreund & Sillers, 2017; Carnock, 2018). KRA's varied from state to state based on the guidelines (Run et al., 2021). Twelve states used a preexisting assessment tool, while others, such as Maryland, created their own KRA (Carnock, 2018; Hopkins, 2022). Maryland aligned their KRA with five domains: physical well-being and motor development, social foundations, language and literacy, and mathematics (Maryland State Board, 2015). In Maryland, the assessment is based on student response scores and observational data collected within the first 45 days of school (Administration Guide, 2021). States have a variety of ways that the KRA results are shared and discussed with parents and community members; most commonly, states will post the state-wide and school scores on the state department of education website (Carnock, 2018; Colorado Department of Education, 2022; Colorado Department of Education Early Learning, 2016; Weisenfeld, 2017). A study discovered that parents do not often receive this data even though many states mandate it; schools cite delays in scores, timing of parent conferences, and misinterpretation of parent involvement as reasons for the lack of parent communication (Golan et al., 2016).

The definition of kindergarten readiness is not universal throughout the United States. It varies state to state (Regenstein et al., 2017; Snow, 2011), but the National Education Goals Panel (NEGP) broadly addresses school readiness, emphasizing the crucial role "families, communities, and schools play in promoting readiness and, at the child level, identifying multiple dimensions of readiness, including health and motor development; social-emotional development; language and literacy development; approaches to learning; and cognition and general knowledge" (Georgia Early Education Alliance for Ready Students, 2017). A survey

conducted by GEEARS found that education stakeholders also had a variety of definitions surrounding kindergarten readiness. However, they had a common theme of being child-centered and kindergarten-ready (Georgia Early Education Alliance for Ready Students, 2017). The survey results did not address where or when students are expected to learn these skills to be kindergarten-ready, leaving it unknown what responsibility, if any, the schools had when developing kindergarten skills (Georgia Early Education Alliance for Ready Students, 2017).

A study by Miller and Almon (2009) suggested that kindergarten may have had an academic rigor crisis. It noted that the students desired to play but were instead engaging in academic work. A longitudinal study conducted by Bassock et al. (2016) also found that kindergarten shifted from social development to an academic focus. Teachers express that kindergarten students should have academic skills before entering kindergarten. Some students need more time to be ready for academic success in kindergarten. Joy (2016) suggests that students need to be socially prepared to be ready for academic learning. Joy's research aligns with the beliefs found in the GEEEARS 2017 and West et al. (1993) studies; stakeholders prioritize social and emotional well-being over academic ability regarding kindergarten readiness. Teachers have expressed more concern with social and emotional abilities than academic abilities. One-third of all students struggled to adapt to the academic rigor of kindergarten due to underdeveloped social skills (Rimm-Kaufman et al., 2000). It is suggested that kindergarten readiness is a set of skills that should be prepared before kindergarten. These skills combine social, emotional, and academic readiness (Pianta & Walsh, 1998).

While the KRA was designed to collect standardized readiness data readily usable to personalize instruction in the classroom (Schachter et al., 2019, p. 5) and for local or state legislatures to use (Ackerman, 2020), many teachers felt that it was a counterproductive

assessment (Blessing, 2019). It was felt that kindergarten teachers could develop more meaningful assessments and collect appropriate data (Harvey & Ohle, 2018, p. 18; 2015 Progress, 2016; Schachter et al., 2019). Many researchers and teachers have called on policymakers to edit the KRA policy and design to make it developmentally appropriate (Schachter et al., 2019; Progress: 2015., 2016), allowing (teachers to establish a rapport with students; this is important to administering assessments (Snow, 2011). The KRA is a robust assessment; Maryland and Ohio teachers claim it takes about one and a half hours to two hours per child and 30 hours per kindergarten classroom (Flannery, 2015; Schachter et al., 2019). KRA scores are also unavailable on time, further impeding teachers' ability to use the assessment data as intended (Ackerman, 2018). Teachers find little use for the KRA, and its intention to guide the personalization of instruction is lost between the administration of the assessment and the classroom (Schachter et al., 2019).

All students in Maryland must take the KRA upon kindergarten entry, including ELL and special education students (Hopkins, 2022; Yun et al., 2021). The KRA must be administered in a way so all student subgroups have equitable opportunities for success (Snow, 2011). Maryland has implemented guides and allowances for teachers to administer the KRA to ensure that student's knowledge is measured developmentally appropriately these can be located for teachers in the administration guide (Administration Guide, 2021). Modifications such as reducing testing questions or modifying the materials on the assessment are not allowed. The only reason students with disabilities should score Not Scorable is their disability, but their lack of knowledge should score a 0. Many teachers do not feel adequately equipped or prepared to administer the KRA to students with disabilities because they are unsure how to identify appropriate support and accurately score the assessments (Golan et al., 2016).

The KRA was not intended to identify students for special education services, and this practice is cautioned by researchers (Daily & Maxwell, 2018; Regenstein et al., 2017; Yun et al., 2021). Researchers Aiona (2005) and Maxwell & Clifford (2004). have found that this is a common practice in states, and it may be a data point used to move students from LRE; studies found that six states use the KRA as a screener for special education services, four additional states allow local districts to determine if the KRA can be a data point for special education purposes (Aiona, 2005).

In Maryland, ELL students do not have unique adaptations to the KRA, which is administered the same way English-speaking students are administered (Kindergarten Readiness, 2022). It is stated that the KRA must be administered in English rather than their native language (Kindergarten Readiness, 2022). Other states can administer the KRA in the native language (Ackerman, 2020). Maryland's assessment practice goes against NAYCE's recommendation (NAYCE, 2009), and it goes against the intention of KRA to measure student knowledge, not the ability to understand the English language (Snow, 2011). Often, ELL students score poorly on the KRA and are mislabeled "at risk" due to their lack of English proficiency, not knowledge (Blessing, 2019). In Maryland, special education and ELL students historically have lower KRA scores than students without a disability and English proficient learners (Hopkins, 2022).

Schools that serve most students from economically disadvantaged communities lack adequate resources, including humans, materials, and curriculum, to meet their students' academic and socio-emotional needs (Owens et al., 2016). These educational disadvantages impact students learning and education, resulting in an achievement gap (Owens et al., 2016). The achievement gap in education has been a topic of conversation since the War on Poverty initiative in 1965 and the creation of ESEA (Boyle & Lee, 2015; Jennings, 2000), resulting in

Title I funding (Harris & Chrispeels, 2010, p. 32; McDonnell, 2005; Wong & Meyer, 1998). Title I was a funding source to close the gap in services between low-income and affluent schools (Borman & D'Agostino, 1996; Boyle & Lee, 2015; Wong & Meyer, 1998) and to ensure that low-income students were a focus (Boyle & Lee, 2015; McDonnell, 2005). Title I funds were not intended to replace school funding but to supplement funding (Boyle & Lee, 2015; McDonnell, 2005), but only three states were found using the funding appropriately (Murphy, 1971). Regulations were implemented to ensure the funds were used as the government intended. Title I students were to be pulled out and provided the funded instruction outside of the whole group to ensure that Title I funds were going to only the Title I students (Harris & Chrispeels, 2010; McDonnell, 2005), even though it was highly criticized because it was targeting low-income student to their peers, often isolating them from their peers (Harris & Chrispeels, 2016).

In the early 1980s, another change came to Title I funding; this time, the federal government reduced its involvement in public education and reduced the Title I funding to schools, eliminating ESEA (Boyle & Lee, 2015; Jennings, 2000; McDonnell, 2005). However, by 1988, ESEA was reinstated, and it was no longer required to match the funding (Boyle & Lee, 2015). It also allowed all the students within the school to use Title I materials provided (Wong & Meyer, 1998). It was expected that states would be able to have data to provide the impact Title I funds had on student achievement (Boyle & Lee, 2015). In 1994, ESEA was changed to IASA, and the requirement for a school to qualify for Title I funds was lowered to 50 percent of the student population (Boyle & Lee, 2015; McDonnell, 2005). Regulations surrounding content areas and standards were established in core subjects to ensure that formative assessments were developed so that student achievement could be tracked (McDonnell, 2005). The assessments and standards had to be followed by the general education population to ensure that there was a

standard expectation for all students (Boyle & Lee, 2015). States had to submit the plans and assessments to the government (McDonnell, 2005). They were expected to show progress, and when AYP was not met, interventions were implemented to ensure the education standards were being met (Boyle & Lee, 2015). However, by 1997, halfway through the implementation of AYP, only a few met the standards, and only 17 states met it by the sixth year (McDonnell, 2005). By 2002, The NCLB Act replaced IASA, which focused on the performance of historically underachieving subgroups (Klein, 2015). NCLB requires Title I educators to be highly qualified and continue to take standardized assessments within the state to measure student achievement and allow states to set their standards and goals (Klein, 2015). Schools were supposed to have met their goals and proficiency level by 2014. However, in 2010, it became apparent that most states would not achieve their goal, so the Obama Administration developed a waiver system to ensure schools did not lose funding and were held accountable (Klein, 2015). The stipulation for obtaining a waiver required states to adopt a common core curriculum or prove their state standards were rigorous (Klein, 2015). By 2015, no state met AYP, and NCLB was replaced with ESSA (Klein, 2005).

Title I funding decreases the disparity between low-income and affluent school communities (Borman & D'Agostino, 1996; Boyle & Lee, 2015; Wong & Meyer, 1998). Title I students had unequal access to learning opportunities and resources that can promote success. These resources are often available to students from wealthier families in non-Title I school communities (National Academics, 2019; Owens et al., 2016). These educational disadvantages impact students' learning and education, resulting in an achievement gap between races and incomes (Owens et al., 2016; Sacks, 2016). Students in low-income areas are less likely to be academically school-ready (Sacks, 2016). Low-income students who come into kindergarten

disadvantaged are often a year behind in language and academic skills and rarely catch up to their more affluent peers (Sabol & Pianta, 2017).

The KRA data from Title I schools support funding in programs available to families before kindergarten entry (Schachter et al., 2019). Expanding Pre-K allowed children to access high-quality early childhood education (Thompson et al., 2022). However, there was unequal access for low-income and racial communities (Bassok & Faldo, 2016). There needed to be more availability and quality of programs (Bassok & Faldo, 2016). The lack of accessibility to formal childcare impacts school readiness; immigrant, Hispanic, and black families are often the victims of the lack of childcare (Hardy et al., 2020; Murphey et al., 2014). Overall, the quality of Pre-K programs is lower in low-income communities than in high-income communities (Bassok & Faldo, 2016), leading to lower readiness skills (Temple et al., 2022). The United States has a more significant income achievement gap than the United Kingdom, Canada, and Australia (Bradbury et al., 2018). The income achievement gap is beginning to close, but according to calculations, it may take more than 100 years to close fully (Reardon & Portilla, 2016; Temple et al., 2022).

CHAPTER III: Methodology

This chapter addressed the methodology for this study's research design. This study determined if a Maryland school's proficiency rate on the Kindergarten Readiness Assessment's (KRA's) proficiency rate is an accurate predictor of the school's proficiency rate on the third-grade assessment Maryland Comprehensive Assessment Program (MCAP) in Literacy (MCAP-L) and Math (MCAP-M). Details about the participants of this study, including their location, were discussed in the Action Plan and Participants sections. The Data Collection section outlined the types of facts and figures collected and how they were collected. The Research Design section addressed the data analysis process, which proposed the independent-samples *t*-test/Mann-Whitney *U* test, depending on normality, along with Pearson's/Spearman's correlations, also depending on normality, and *z*-tests to determine whether pairs of correlations significantly differed. Data were shared via tables categorized by the independent and dependent variables: the schools' socioeconomic status and the assessments' proficiency rate, respectively. This chapter included study limitations and required permissions from institutions and local education agencies.

This study collected data from the same school for its KRA, MCAP-ELA/L, and MCAP-M proficiency rates. The MCAP-ELA/L assesses a third-grade student's proficiency level in reading literature, informational text, foundational skills, vocabulary interpretation and use, and writing (Maryland State Department of Education (MSDE), n.d.). MCAP-M assesses a student's proficiency level in applying skills and concepts, understanding multi-step problems that require abstract reasoning, and modeling real-world problems with precision, perseverance, and strategic use of tools (Maryland State Department of Education, 2021). According to the Maryland State Department of Education (n.d.), "As an additional part of the MCAP K-2 assessment systems,

the Kindergarten Readiness Assessment (KRA) is administered at the beginning of kindergarten," making it a part of the MCAP program as a whole (Maryland State Department of Education, n.d.). These assessments are aligned with the Maryland State College and Career Readiness Standards for each grade level (Maryland State Department of Education, n.d.).

A non-experimental qualitative design was used as the methodology of this study. This study aimed to examine how a school's KRA proficiency rate can predict the school's MCAP-ELA/L and MCAP-M and how these scores differ within Title I and non-Title I schools. The data were organized and analyzed using descriptive and inferential statistical analyses conducted in IBM's Statistical Package for Social Sciences. Presented explicitly in this chapter were the research questions and null hypotheses, participants, data collection procedures, and data analysis.

Action Plan: Intervention

As of March 2023, little research was conducted to determine if the Maryland KRA proficiency rates helped predict a student's future success on the third-grade MCAP-ELA/L and MCAP-M. There was a lack of research into how a school's KRA MCAP-ELA/L and MCAP-M scores correlate. Very few prior studies investigated how the correlation of kindergarten scores and third-grade scores may differ between Title I and non-Title I schools. Since the KRA MCAP-ELA and MCAP-M are standardized and assess state standards, these assessments are positioned to provide cohesive and comparable longitudinal data; therefore, a quantitative study can be conducted to determine if there is a statistical correlation between a school's KRA proficiency rate and that same school's proficiency rate on the third-grade MCAP-ELA/L and MCAP-M.

This quantitative study was conducted to determine if there is a statistical association between a school's KRA proficiency rate and the state's MCAP-ELA/L and MCAP-M proficiency rate. The study also analyzed data to determine if there was a difference in correlation between schoolwide Title I schools and non-Title I schools. The study focused on five research questions and their hypotheses:

1. Overall, is there a statistical correlation between the Kindergarten Readiness Assessment (KRA) and schools' third-grade proficiency rates on the Maryland Comprehensive Assessment Program English Language Arts and Literacy (MCAP- ELA/L)?

H1: There is no statistical significance between the school's proficiency rate on the KRA and the MCAP-ELA/L.

H1A: There is a statistical significance between students' proficiency rates on the KRA and MCAP-ELA/L.

2. Is there a statistical correlation between the Kindergarten Readiness Assessment (KRA) proficiency rate and schools' third-grade proficiency rate on Maryland Comprehensive Assessment Program Mathematics (MCAP-M)?

H2: There is no statistical significance between the school's proficiency rate on the KRA and the MCAP-M.

H2A: There is a statistical significance between students' proficiency rates on the KRA and MCAP-M.

3. Is there a difference in the correlational relationship between Title I schools' KRA and MCAP-L proficiency rates and non-Title I schools' KRA and MCAP-ELA/L proficiency rates?

H3: There is no statistical correlation between Title I KRA and MCAP-ELA/L and non-Title I school's proficiency rate.

H3A: There is a statistical correlation between Title I KRA and MCAP-ELA/L and non-Title I school's proficiency rate.

4. Is there a difference in the correlational relationship between Title I schools' KRA and MCAP-M proficiency rates and non-Title I schools' KRA and MCAP-M proficiency rates?

H4: There is no statistical correlation between Title I KRA and MCAP-M and non-Title I school's proficiency rate.

H4A: There is a statistical correlation between Title I KRA and MCAP-M and non-Title I school's proficiency rate.

5. Is there a difference in the correlational relationship between MCAP-ELA/L and MCAP-M proficiency rates in Title I and non-Title I schools?

H5: There is no statistical correlation between Title I MCAP-ELA/L and MCAP-M and non-Title I school's proficiency rate.

H5A: There is a statistical correlation between Title I MCAP-ELA/L and MCAP-M and non-Title I school's proficiency rate.

The participating district was chosen because it offered a diverse student population of one-third Title I. Determined by the number of students within the community that qualified for free and reduced meals (FARM), a Title I school receives Title I funding schoolwide (*Title I, Part,* 2023). In Maryland, children are considered members of the kindergarten population if their birthday is on or before September first of their fifth year (Age for School, 2021).

There are exceptions to this kindergarten rule, as some parents may petition the local school superintendent to waive their child entering kindergarten at five (Age for School, 2021). Some reasons parents might delay their child's entry into kindergarten are to provide a child an additional year to mature, to acknowledge the child is enrolled in an alternate educational

location, or because the child has moved into the state of Maryland after their fifth birthday and was not previously enrolled in kindergarten (Age for School, 2021).

All students in Maryland, including special education and English Language Learner (ELL) students, must also take the KRA, and counties that use sample administration must have special education students represented in the data (Administration Guide, 2021). Previously, Maryland used the KRA to assess the special education eligibility of students already enrolled in public Pre-K. However, that practice stopped in 2019 (Maryland State Department of Education Early Intervention, 2019), even though Regenstein et al. (2017), Daily & Maxwell (2018), and Yun et al. (2021) claim to use it for such a purpose, it is against best practice and violates the purpose of the KRA. The KRA is not a data point during the unique education eligibility *process* (Salmon, 2021). During the administration of the KRA, students with established individualized education programs (IEPs) and those identified as ELL can access their accommodations if they are considered allowable supports, which are explained in the Administration Guide (2021). However, not all accommodations are acceptable, meaning that some IEP and ELL students are expected to take the KRA without IEP accommodations (Administration Guide, 2021). All KRA proficiency rates are reported back to school staff, and special education teachers are responsible for inputting students' results into their student's IEPs.

Subgroups such as special education students and English Language Learners (ELL) must take the KRA and the MCAP in Maryland. Special education students are students that have a disability, which is defined as follows:

Child with a disability means a child evaluated per §§300.304 through 300.311 as having an intellectual disability, a hearing impairment (including deafness), a speech or language impairment, a visual impairment (including blindness), a severe emotional disturbance (referred

to in this part as “emotional disturbance”), an orthopedic impairment, autism, traumatic brain injury, and other health impairment, a specific learning disability, deaf-blindness, or multiple disabilities, and who, by reason thereof, needs special education and related services. (Child with a Disability, 2017)

Children with a disability have the right to access public education “under the federal law called the Individuals with Disabilities Education Act (IDEA),” and corresponding state laws deem that “a child with a disability, which affects his or her learning, has a right to a free and appropriate public education” (Maryland State Bar Association, 2018). For this study, participants identified as special education students were identified as special education in either pre-kindergarten, kindergarten, first grade, second grade, or third grade. Special education participants do not have to be identified consistently. For example, a student can be identified late in their first-grade year or early in their kindergarten year, dismissed from special education services, and still considered special education in this study. Potential ELL students in Maryland must meet the following criteria:

- May have been born outside of the U.S., or
- Communicate in a language other than English; or
- Have family who uses a primary language other than English in the home, and
- Have English language proficiency rates that fall within the range established by the state for an English language development program (English Learners, n.d.).

These students can qualify for English language (EL) services via an English Language Proficiency (ELP) placement test. The ELP placement test must take place “No later than 30 days after the beginning of the school year for students who enter at the start of the school year or within the first two weeks of a student being placed in such a program if the student was not

identified as an EL before the beginning of the school year (Maryland State Department of Education, n.d.). For this study, participants who are identified as ELL were identified as such in either pre-kindergarten, kindergarten, first grade, second grade, or third grade. ELL study participants do not have to be identified consistently. For example, a study participant can be identified as ELL late in their first-grade year or early in their kindergarten year to be dismissed from EL services in second grade and still considered ELL in this study.

Participants

Provided by the Maryland State Department of Education, this study's data were public, historical, and derived from an anonymous participating Central Maryland school district in a relatively highly diverse area comprising families from multiple socio-economic and ethnic backgrounds. One-third of the student population is Title I, meaning they qualify for FARM. The schools within the selected district administered the KRA and a series of MCAP assessments during the 2021-2022 school year.

The Maryland KRA is administered within the first 45 days of school (U.S. Department of Education & Health Human Services, 2014). For the subjects of this study, KRA data were collected and reviewed by the LEA in fall 2022. These scores were returned to the schools and student's families in the late fall or early winter of the 2021-2022 school year, and the scores are stored in the district's online database and the student's cumulative file. The school's proficiency rates and KRA data are stored on the MSDE website, which is available to the public. MCAP assessments were administered in person in the spring of 2022, and these scores were returned to schools and students' families in the summer of 2022, with these scores stored in the district's online database and the student's cumulative files. The school's proficiency rates and MCAP data scores are stored on the MSDE website, which is available to the public.

Data Collection

The participating Maryland school district comprises over 25 elementary schools, and one-third are Title I schools. This study maintained their consideration as Title I schools. KRA data collected were from Maryland's state-mandated KRA, administered at the school level by school officials to new kindergarten students during the 2021-2022 school year before October 1. The schools' KRA proficiency rate was sourced from the MSDE's website through a Public Information Act (PIA) request. MCAP data was collected from Maryland's state-mandated MCAP, administered at the school level by school officials to third-grade students during the 2021-2022 school year. The schools' MCAP proficiency rate was sourced from the MSDE report card website.

Permission and cooperation from the participants were not required to collect data for and to complete this study. The data were derived from historical records and are considered public information through the MSDE. The school district's website determined each school's Title I status.

Data Analysis

This correlational study determined the statistical relationship between the KRA proficiency rate and the third-grade MCAP-ELA/L and MCAP-M proficiency rates within the same schools. This study was conducted in a single district in Maryland. The 2021-2022 KRA proficiency rate and the 2021-2022 MCAP-ELA/L and MCAP-M proficiency rate were analyzed to determine whether there was a correlation between the two assessments provided by each measure. The correlational study determined the relationship between the KRA proficiency rate and the school's MCAP-L and MCAP-M proficiency rate. A two-way, independent-sample *t*-test/Mann-Whitney *U* test (Berkman & Reise, 2012) was conducted to determine if there is a

difference between the KRA and MCAP proficiency rate between Title I and non-Title I schools. The normality of the proficiency rate was first tested to determine whether this assumption of the *t*-test was violated (Berkman & Reise, 2012). Histograms were run to visually illustrate the extent of normality and measure skewness and kurtosis being calculated and reported. Skewness and kurtosis values above +2 or below -2 indicated substantial non-normality (Strunk & Mwavita, 2020). Independent-sample *t*-tests will be run if normality is indicated, while the non-parametric Mann-Whitney *U* test will be used if non-normality is suggested (Berkman & Reise, 2012).

Additionally, a *z*-test will be used to determine whether a pair of correlation coefficients significantly differ (Dehmer et al., 2016). Suppose Spearman's correlation is suggested based on the assumptions tests. In that case, Pearson's correlation will also be conducted for the *z*-test to be appropriately conducted, as these tests require Pearson's correlation as opposed to Spearman's correlation. These analyses will determine whether the KRA proficiency rate correlates to the MCAP-ELA/L and MCAP-M proficiency rates and whether these correlations significantly differ between Title I and Non-Title schools. A significant result at the .05 alpha level about the z-tests will indicate a significant difference between the two correlation coefficients examined. Finally, an alpha of .05 will be used in all analyses for hypothesis testing, with probability values below .05 indicative of statistical significance, leading to the rejection of the associated null hypothesis. The analyses proposed are as follows:

1. A two-way, independent samples *t*-test or Mann-Whitney *U* test to determine if the KRA rate in Title I schools was equal to the KRA rate in non-Title I schools.

2. A two-way, independent samples *t*-test or Mann-Whitney *U* test to determine if the MCAP-M rate in Title I schools was equal to the MCAP-M rate in non-Title I schools.

3. A two-way, independent samples *t*-test or Mann-Whitney *U* test to determine if the MCAP-ELA/L rate in Title I schools was equal to the MCAP-ELA/L rate in non-Title I schools.

4. A Pearson's or Spearman's correlation coefficient to determine if there was an association within Title I schools between the KRA rate and MCAP-M rate.

5. A Pearson's or Spearman's correlation coefficient to determine if there was an association within non-Title I schools between the KRA rate and MCAP-M rate.

6. A Pearson's or Spearman's correlation coefficient to determine if there was an association within Title I schools between the KRA rate and the MCAP-ELA/L rate.

7. A Pearson's or Spearman's correlation coefficient to determine if there was an association within non-Title I schools between the KRA rate and MCAP-ELA/L rate.

8. *z*-tests to determine if the strength of the correlations significantly differ between Title I and non-Title I schools.

School information was sorted, and scores were analyzed using SPSS. This software specializes in statistics to support research within an educational setting and the social sciences.

Collection and Analysis of Data

Data Collection

Correlations were also applied to examine these data, specifically being used to determine whether an association exists between two variables: KRA and MCAP-L and KRA and MCAP-M. Normality was also examined initially, as well as linearity, both being assumptions of Pearson's correlation. Pearson's correlation will be used if normality and linearity are indicated, with Spearman's correlation coefficient, a non-parametric alternative, being used if either or both assumptions are violated (Weaver et al., 2017). Normality will be tested again using histograms and measures of skewness and kurtosis, as previously detailed. At

the same time, linearity will be determined by creating scatterplots of the continuous measures in question along with a superimposed line of best fit. A relatively straight-line relationship between the two measures, judged subjectively, will determine linearity.

The first set of data was collected from the Maryland state-mandated standardized KRA. The Maryland KRA is an assessment combining observable and student response data. The student response data were collected via one-on-one interaction with the certified educator, and a certified educator collected the observable response through a group setting (Hopkins, 2022). Once the data was collected, it was entered into an online database that relayed the scores to the MSDE. Local schools and the LEA receive the student scores from MSDE in the late fall of the student's kindergarten year. Parents also receive a copy of their child's performance on the KRA.

The second data set was collected from the Maryland state-mandated MCAP ELA/L and MCAP-M. The MCAP is a standardized assessment administered in a whole group setting via an online testing website, and students access it through a student ID and password (MCAP Test Administrator Manual, 2022). The scores are sent to MSDE and then delivered to the local schools and school districts during the following summer months or early fall. Parents are also notified of their child's performance on the MCAP. All data are collected and housed in a district database and the student's cumulative school records (Choudhury, 2023).

Collection Method

School quantitative data was sourced from existing 2021-2022 school year data reports for this study. The school's KRA administration initially collected KRA data in the fall of 2021, and the school's MCAP administration initially collected MCAP data in spring 2022. All data collected by the testing administration were housed in a district database and students'

cumulative school records (Choudhury, 2023). School names were kept anonymous to protect the identity of the participants in this study.

Statistical Methods

The correlational study determined the relationship between a school's KRA proficiency rate and the MCAP-ELA/L and MCAP-M proficiency rate, differences based on Title I status, and how associations between proficiency rates differed based on Title I status. SPSS is a software package used for the statistical analysis of data. This software specializes in statistics to support research within an educational setting and the social sciences. The research aimed to test whether a school's Title I status affected the ability of a school's KRA scores to predict the school's MCAP scores. Dependent and independent variables were identified based on the research questions and hypotheses identified for this study. The dependent variable in this study was the schools' assessment proficiency rate. The independent variables were the schools' Title I status.

Site Permission

Data were obtained through a PIA request to the MSDE, and approval was received by Slippery Rock University's Institutional Review Board.

Presentation of Results

The study's results were published using tables that share specific numerical data. A table represented the *t*-test/Mann-Whitney *U* test findings, the correlations between Title I and non-Title I schools, and their KRA MCAP-ELA/L and MCAP-M proficiency rates.

Limitations

Limitations existed within the research confines. Since the research focused on one state and one LEA, there was less opportunity to collect larger data. Because the KRA and the series

of MCAP assessments were conducted within Maryland and were not administered federally, the possibility of expanding this study outside of state lines is limited. Maryland also has statewide curriculum standards known as Maryland College and Career Ready (MCCR) Standards. Students' proficiency on grade level standards was assessed through MCAP ELA/L and MCAP-M.

The KRA and MCAP were administered by certified staff who have been formally but not cohesively trained. In other words, staff training could have varied by location, staff, and presentation, resulting in variations in testing administration. There is no standardized assessment practice for the KRA in this LEA. The KRA was administered to collect observable and student response data. A script was provided when administering the KRA's student response portion to ensure validity in the delivery. Allowing each school to create its assessment expectations can lead to varied results. Factors of testing administration that could impact student results may include:

1. Testing administrator (classroom, specialist, interventionist, special education teacher, ELL teacher, etc.)
2. Student and teacher rapport before the assessment
3. Time of day the assessment is given
4. Length of testing block
5. Location of testing (homeroom classroom, unfamiliar room, loud, noisy, bright lights, dim lighting).

During MCAP administration, students are subject to similar testing environment variables. The MCAP administration schedule is determined by the LEA’s testing coordinator, which could be a factor in student scores. For example, one student may score better when the

MCAP is administered after lunch, whereas another may score better when the MCAP is administered before physical education class. The time of the MCAP testing block is predetermined by the state department, allowing for conformity among the schools and LEAs. The MCAP is a scripted assessment that allows the teacher to administer the assessment to fidelity, but this entails reliance upon the administrating teacher to follow the script. MSDE claims that the MCAP is a reliable and valid measure of student performance (The Path, n.d.); however, the first administration of the MCAP was in the spring of 2022. This study used scores from the first MCAP administration.

The COVID-19 pandemic also limited and impacted this study. The third-grade student participants in the study were in first grade in March 2020 when the nationwide COVID-19 school closures occurred. It is unknown which student participants were actively engaged in virtual and distance learning offered by the LEA during the closures. In February 2021, schools reopened to students for smaller group sessions. It was not possible to determine which students participated in hybrid learning. Student learning status and approach during the COVID-19 pandemic may have altered student growth from first to third grade, impacting their MCAP scores. The author assumes that the COVID-19 pandemic also impacted the kindergarten student participants, although they were not enrolled in public schools then. The impact of the pandemic on the students, both educationally and developmentally, was undetermined.

Chapter Summary

Chapter three addressed the methodology for this study's research design. This study determined if a Maryland school's proficiency rate on the Kindergarten Readiness Assessment's (KRA's) proficiency rate is an accurate predictor of the school's proficiency rate on the third-grade assessment Maryland Comprehensive Assessment Program (MCAP) in Literacy (MCAP-

L) and Math (MCAP-M). Details about the participants of this study, including their location, were discussed in the Action Plan and Participants sections. The Data Collection section outlined the types of facts and figures collected and how they were collected. The Research Design section addressed the data analysis process using the independent-samples *t*-test/Mann-Whitney *U* test, Pearson's or Spearman's correlations, and *z*-tests. Data were shared via tables categorized by the independent and dependent variables: the schools' socioeconomic status and the assessments' proficiency rate, respectively. This chapter included study limitations and required permissions from institutions and local education agencies.

All students in Maryland, including special education and English Language Learner (ELL) students, must also take the KRA, and counties that use sample administration must have special education students represented in the data (Administration Guide, 2021). The KRA is an assessment aligned with the Maryland State College and Career Readiness Standards for each grade level (Maryland State Department of Education, n.d.). Maryland State College and Career Readiness Standards are for each grade level (Maryland State Department of Education, n.d.). Maryland considers students part of the kindergarten population if their birthday is on or before September 1 of their fifth year (Age for School, 2021). Parents can access a waiver process within local school districts to delay their child's kindergarten start (Age for School, 2021). Enrolling the child into kindergarten before their fifth birthday is another process if their fifth birthday lies between September 1 and October 15 (Age for School, 2021). Upon kindergarten entry, these students, like all other students, are expected to take the KRA (Administration Guide, 2021).

All kindergartners took the KRA within the first 45 days of school, including students who have special education services and ELL services, (Administration Guide, 2021). During the

administration of the KRA, students with established individualized education programs (IEPs) and those identified as ELL can access their accommodations if they are considered allowable supports, which are explained in the Administration Guide (2021). To be eligible as an ELL student, students must meet the criteria set by MSDE and the standards via the ELP placement test (Maryland State Department of Education, n.d.).

A quantitative study was conducted to determine if there is a statistical association between a school's KRA proficiency rate and the state's MCAP-ELA/L and MCAP-M proficiency rate. The study also analyzed data to determine whether these correlations differed between schoolwide Title I schools and non-Title I schools. The participants in this study were derived from a single school district in Maryland comprising over 25 elementary schools, one-third of which are Title I. The district was chosen because it offered a diverse student population of one-third Title I. A Title I school receives Title I funding (Title I, Part, 2023). The following chapter will review the data analysis and the data findings. The data analysis process in Chapter Four used the independent-samples *t*-test/Mann-Whitney *U* test, Pearson's or Spearman's correlations, and *z*-tests to determine a correlation between scores and the school's socioeconomic levels.

Chapter IV: Findings

Introduction

This chapter presents and discusses the results of the analyses conducted for this study, including a series of initial descriptive statistics conducted on the measures of interest in this study, followed by assumptions testing for the proposed Pearson's correlations. A set of Pearson's correlations was then conducted, along with post-hoc z-tests, to determine whether there were significant differences in the strengths of the correlations between Title I and non-Title I schools. Independent-sample t-tests followed these tests to determine whether there were significant differences in the mean measures of interest between Title I and non-Title I schools.

Descriptive Statistics

Initially, descriptive statistics were conducted on the study's measures of interest to illustrate these data, and the sample was drawn for this study. All study measures were continuous except for Title I status. Based on the data's measurement level, frequencies and percentages associated with Title I status was calculated and reported, as well as measures of central tendency and variability for the remaining continuous study variables. The measures of central tendency calculated and reported consisted of the mean and median, with measures of variability consisting of the standard deviation, minimum and maximum scores, and range. Regarding Title I status, seven (29 percent) of the 24 total cases consisted of Title I schools, and 17 (71 percent) of the 24 total cases consisted of non-Title I schools. The remaining descriptive statistics are presented and discussed in the following sections.

Correlations Assumptions Testing

Before conducting the correlation coefficients, initial diagnostics were conducted for assumption testing. Pearson's correlation coefficient, a parametric statistical test, assumes

normality and linearity, or a linear association exists between the two measures. If either or both of these assumptions are violated, then a non-parametric alternative, such as Spearman's rho, is more appropriate. To test these two assumptions, histograms were constructed for all three continuous measures of interest, with skewness and kurtosis also calculated and reported to explore further the extent of these measures' normality or non-normality. To determine whether linearity was present with respect to the association between these pairs of measures, scatterplots were constructed for each of these variable pairs.

First, Figure 1 presents the histogram associated with KRA percent. A relatively normal distribution is present, and while there is some suggestion of skew, kurtosis is not suggested. KRA percent was found to have a mean of 44.504, a median of 45.750 and a standard deviation of 14.464. Additionally, about the remaining measures of variability, this measure was found to have a minimum value of 11.900, with a maximum of 66.700, producing a range of 54.800.

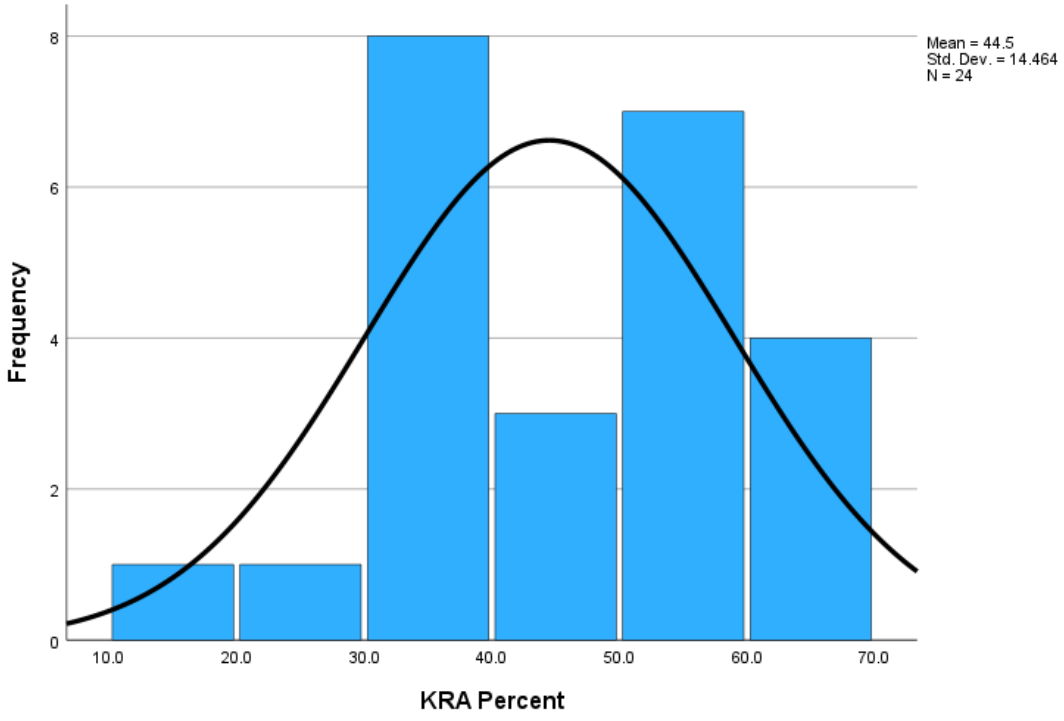

Figure 1. Histogram of KRA percent

Next, Figure 2 presents the histogram constructed on MCAP-M frequencies. Again, this illustrates a relatively normal distribution; while some skew is also suggested here, kurtosis is not based on this figure. This measure was found to have a mean of 40.844, along with a median of 42.350 and a standard deviation of 15.597. The smallest value associated with this measure was 13.600, with a maximum of 71.700, producing a range of 58.100.

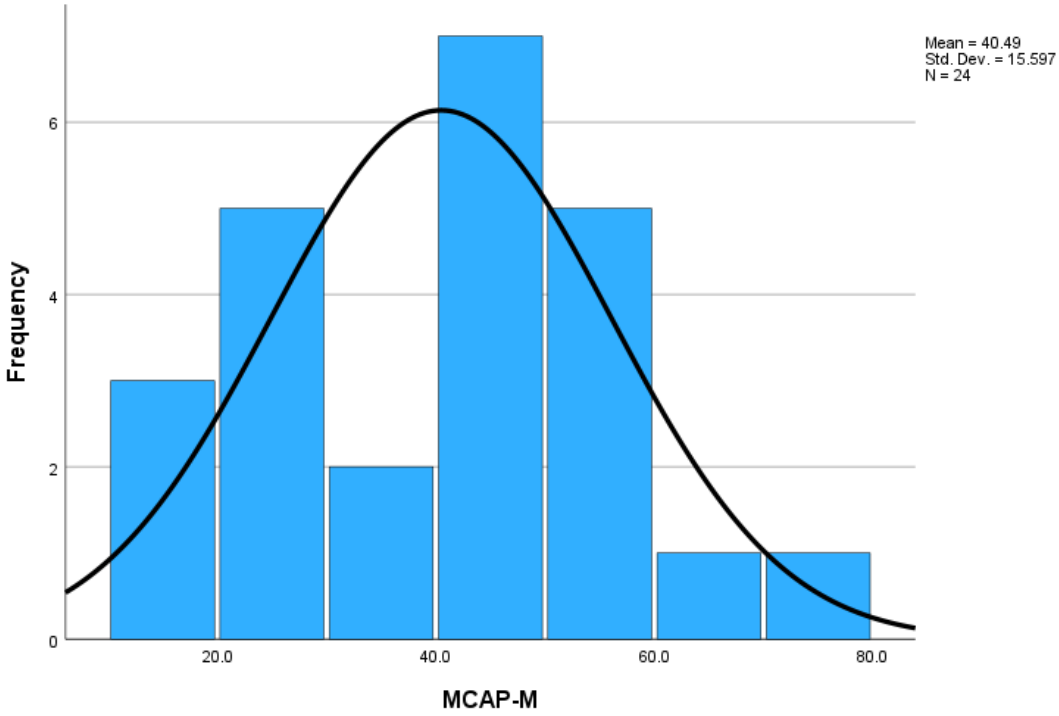

Figure 2. Histogram of MCAP-M frequencies

Finally, Figure 3 presents the histogram of MCAP-ELA-L frequencies. This again illustrates a relatively normal distribution, while in this case, neither substantial skew nor kurtosis are indicated based on this figure. This final measure was found to have a mean of 48.387, with a median of 46.850 and a standard deviation of 15.159. The minimum value associated with this measure was found to be 24.000, with a maximum of 77.800, producing a range of 53.800.

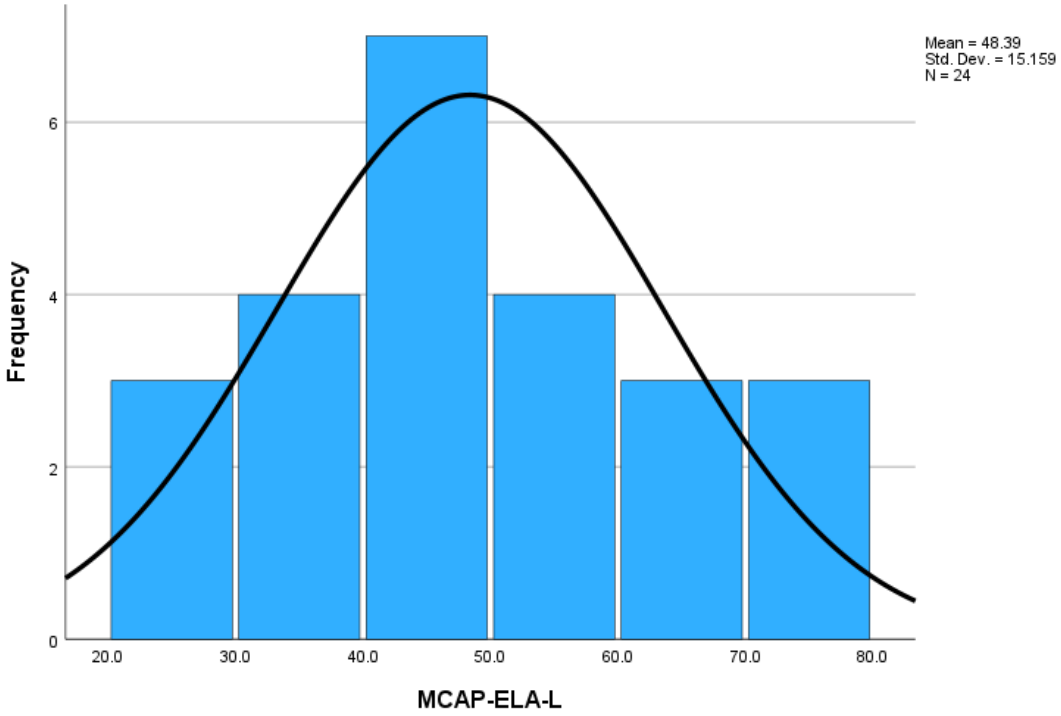

Figure 3. Histogram of MCAP-ELA-L frequencies

Skewness and kurtosis metrics were calculated for all three measures discussed. In examining these results, it is not the skewness and kurtosis themselves that need to be examined. However, the ratio of these measures to their respective standard errors determines whether substantial skewness or kurtosis is present. These results are summarized in Table 1. A common rule of thumb is that measures between -2 and +2 suggest normality, while measures below -2 or above +2 indicate substantially low or high skewness or kurtosis, respectively. As shown in Table 1, all three measures had skewness ratios ranging between -.5 and +1. Additionally, all three measures had kurtosis ratios ranging between -1 and -.5. This indicates that, in all cases, neither substantially low nor high skewness or kurtosis were present, which supports the conclusions made through the examination of the histograms, further indicating normality with respect to these three measures.

Table 1 Skewness and Kurtosis associated with KRA Percent, MCAP-M, and MCAP-ELA-L

Measure	KRA Percent	MCAP-M	MCAP-ELA-L

Skewness	-.193	.065	.351
Standard Error of Skewness	.472	.472	.472
Skewness Ratio	-.409	.138	.744
Kurtosis	-.519	-.543	-.751
Standard Error of Kurtosis	.918	.918	.918
Kurtosis Ratio	-.565	-.592	-.818

Figures 4 through 6 present the scatterplots constructed between each pair of measures to ascertain the extent to which their associations are linear or non-linear. First, Figure 4 presents a scatterplot of KRA percent and MCAP-M frequencies. Here, a positive and strong association is suggested as MCAP-M frequencies appear to increase as KRA percent increases. The relatively tight clustering of the plotted data points and the clear direction of the relationship suggests the strength of the association between the two. Figure 4 suggests a linear relationship between KRA percent and MCAP-M frequencies.

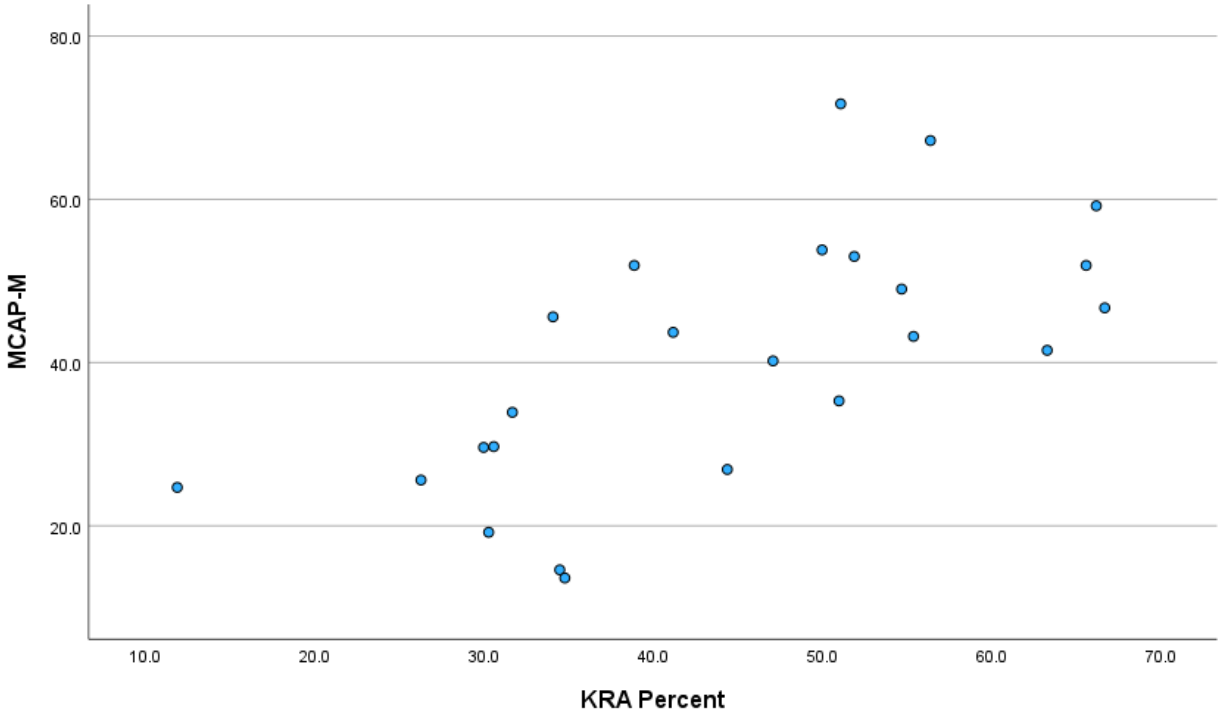

Figure 4. Scatterplot of KRA percent and MCAP-M frequencies.

Figure 5 presents the scatterplot constructed between KRA percent and MCAP-ELA-L frequencies. Overall, the conclusions for Figure 5 are similar to those for Figure 4. The plotted

data points presented in Figure 5 suggest a positive association between these two measures, as MCAP-ELA-L frequencies appear to increase as KRA percent increases, with a strong association suggested, again due to the tight clustering of plotted data points and the clear, positive direction of the association. Figure 5 also suggests linearity with regard to the association between these two measures.

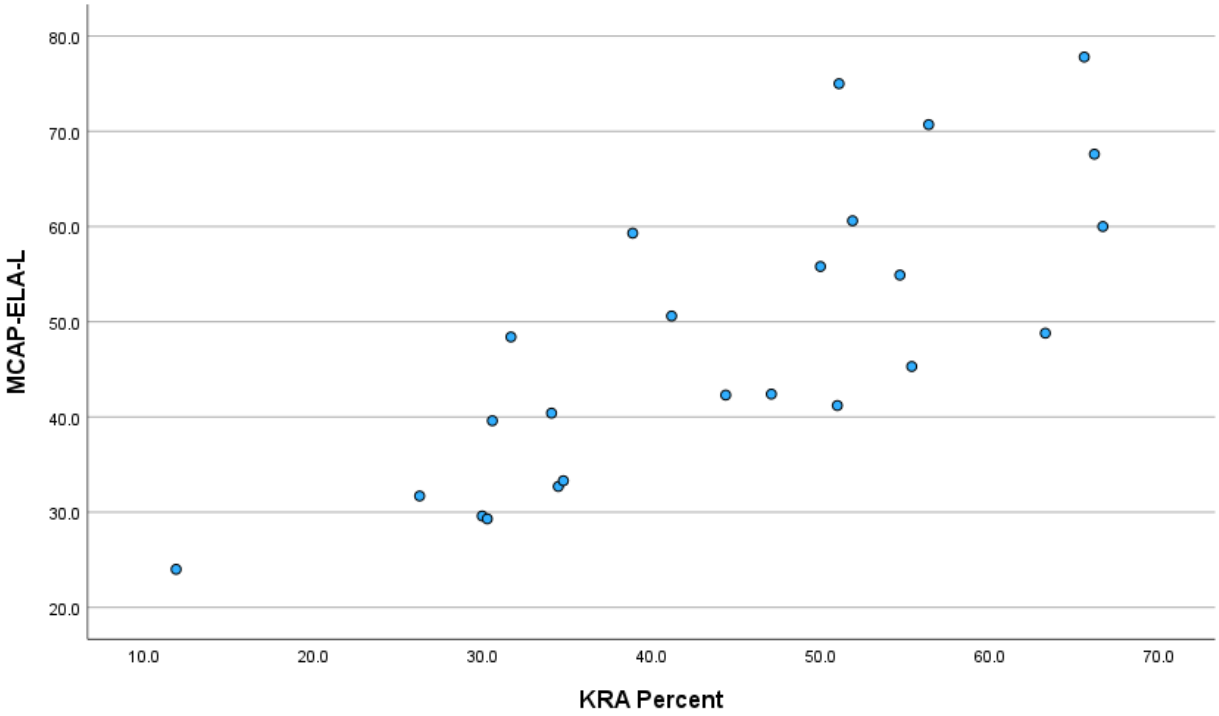

Figure 5. Scatterplot of KRA percent and MCAP-ELA-L frequencies.

Finally, Figure 6 presents a scatterplot between MCAP-M frequencies and MCAP-ELA-L frequencies. The main distinction between this scatterplot and those presented in Figures 4 and 5 is the clustering of the plotted data points. As in Figures 4 and 5, the results presented in Figure 6 indicate a positive association between these two measures, as MCAP-ELA-L frequencies appear to increase as MCAP-M frequencies increase. Regarding the clustering of the plotted data points, substantially tighter clustering is apparent in Figure 6, suggesting a stronger association between these two measures than their separate associations with KRA percent. Finally, Figure 6

indicates linearity regarding the association between MCAP-M frequencies and MCAP-ELA-L frequencies.

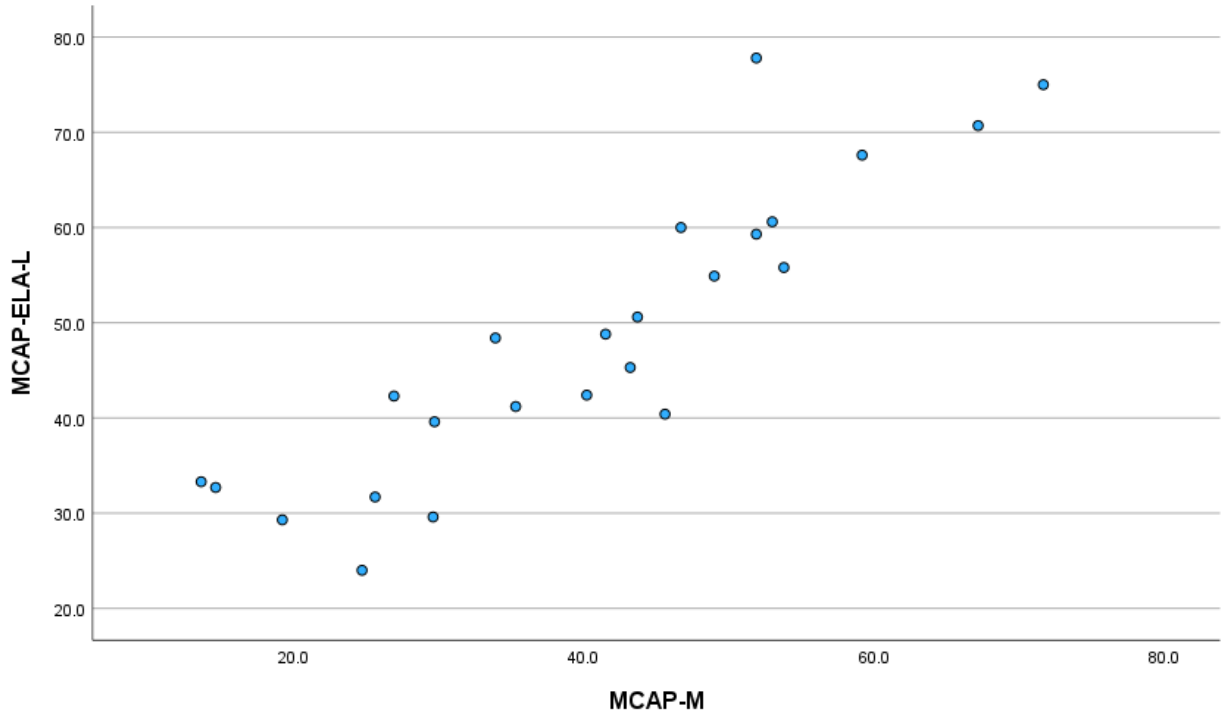

Figure 6. Scatterplot of MCAP-M and MCAP-ELA-L frequencies.

In summary, these diagnostics conducted indicated both normality with regard to each of these three measures, as well as linearity with respect to the association between all three pairs of measures. These results indicate that both the assumption of normality and the assumption of linearity with respect to Pearson's correlation coefficient were upheld, and based on these results, the Pearson's correlation coefficient was applied to these data as opposed to a non-parametric alternative, such as Spearman's rho.

Correlations

Pearson's correlations were conducted between the three measures of interest included in this study: KRA percent, MCAP-M frequencies, and MCAP-ELA-L frequencies. Initially, these correlations were conducted on the entire sample, with additional correlations conducted

separately on the basis of Title I status. With regard to the correlations conducted on the full data set, in all three cases, a correlation significant at the .001 alpha level was found, along with these correlations being positive and very strong. These results are as follows: KRA percent and MCAP-M frequencies: $r(22) = .665$, $p < .001$; KRA percent and MCAP-ELA-L frequencies: $r(22) = .779$, $p < .001$; MCAP-M frequencies and MCAP-ELA-L frequencies: $r(22) = .893$, $p < .001$. These results support the previous suggestion based on the scatterplots that all three correlations are positive and strong and that the correlation between MCAP-M frequencies and MCAP-ELA-L frequencies is stronger than the two remaining correlations. While these findings were suggested based on the scatterplots presented in Figures 4, 5, and 6, these results were also established definitively on the basis of these correlations conducted.

Next, these same correlations were conducted separately based on Title I status. In these analyses, a smaller percentage of these correlations were found to achieve statistical significance. However, this can be partially attributed to the smaller sample sizes of the separate analyses compared to the larger sample size of the full data set analysis. This reduces statistical power and likewise increases the difficulty of finding any specific correlation significant at the .05 alpha level.

First, the correlation conducted between KRA percent and MCAP-M frequencies was non-significant both with regard to Title I schools, $r(5) = -.282$, $p = .540$, and non-Title I schools, $r(15) = .387$, $p = .125$. Partially attributed to the smaller sample sizes, neither correlation was found to achieve statistical significance. It was also found that this correlation was negative with regard to Title I schools but positive with regard to non-Title I schools. While the probability level associated with the Title I school correlation was high at .540, this was trending toward significance at .125 with regard to non-Title I schools. Overall, these results suggest that the

correlation between KRA percent and MCAP-M frequencies may be negative or zero for Title I schools; it may be positive with regard to non-Title I schools.

The next correlation was conducted between KRA percent and MCAP-ELA-L frequencies. This correlation was found to be strong and positive, though not statistically significant with respect to Title I schools, $r(5) = .561$, $p = .190$. Additionally, this correlation was strong, positive, and statistically significant at the .01 alpha level with regard to non-Title I schools, $r(15) = .624$, $p < .01$. As in the first correlation discussed, the correlation associated with Title I schools could be considered as trending toward significance, with a probability value of .190, along with the strong, positive correlation coefficient of .561 found. Overall, these results are suggestive of a positive, strong, and likely statistically significant association between KRA percent and MCAP-ELA-L frequencies in both Title I and non-Title I schools.

The final correlation conducted consisted of that between MCAP-M frequencies and MCAL-ELA-L frequencies. This correlation was found to be strong and positive, though not statistically significant at the .05 alpha level with regard to Title I schools, $r(5) = .579$, $p = .173$, and was positive, very strong, and statistically significant at the .001 alpha level with regard to non-Title I schools, $r(15) = .859$, $p < .001$. Again, with regard to Title 1 schools, though not statistically significant, the calculated probability level of .173 suggests a trend toward significance, combined with the positive and strong correlation coefficient of .579. However, the correlation associated with non-Title I schools is substantially higher at .859, also achieving statistical significance, which suggests that this correlation, while positive in both cases, is stronger with regard to non-Title I schools.

Finally, a series of three *z*-tests were conducted to determine whether the pairs of correlations between Title I and non-Title I schools were significantly different in strength. The calculations required are as follows:

$$z = \frac{\ln\left(\left|\frac{r+1}{r-1}\right|\right)}{2}$$

$$SE = \sqrt{\frac{1}{n_1 - 3} + \frac{1}{n_2 - 3}}$$

This first equation allows for the conversion of Pearson's correlation coefficient to *z*-scores. Next, the standard error is calculated based on the sample sizes associated with each of the two correlation coefficients. Finally, the difference between the two *z*-scores calculated is divided by the standard error, and significance is achieved at the .05 alpha level if this calculated value is above 1.96 or below -1.96 (Blalock, 1972, pp. 406-407). These results are summarized in Table 2. As shown, significant differences between these pairs of correlations were not found in any case, as the final "*z*" column does not display values above 1.96 or below -1.96 in any case.

Table 2 z-Test Computations for the Comparison of Paired Pearson's Correlation Coefficients

Correlation	Title I			Non-Title I			*SE*	*z*
	r	*n*	*z*	*r*	*n*	*z*		
KRA and MCAP-M	-.282	7	-.290	.387	17	.408	.567	1.231
KRA and MCAP-ELA-L	.561	7	.634	.624	17	.732	.567	.172
Both MCAP Measures	.579	7	.661	.859	17	1.290	.567	1.109

Note. *p<.05, **p<.01, ***p<.001.

Independent-Samples *t*-Tests

Finally, a series of independent-sample *t*-tests were conducted on these data. These tests examined whether significant mean differences were present with regard to the three variables of interest included in this study based on Title I status. These analyses included Levene's tests of the equality of variances to determine whether the assumption of the equality of variances was violated with respect to these data, followed by the independent-sample *t*-tests themselves. Two versions of the independent-samples *t*-tests exist, one which assumes the equality of variances and one which does not. Which of these two options was selected was based upon the results of the associated Levene's tests, with a result achieving statistical significance at the .05 alpha level in these tests indicating the violation of this assumption.

First, Levene's tests conducted for the equality of variances failed to achieve statistical significance in any case, indicating that the assumption of the equality of variances was not violated in any of these three tests: KRA percent: $F(1,22) = 1.120$, $p = .301$; MCAP-M frequencies: $F(1,22) = .885$, $p = .357$; MCAP-ELA-L frequencies: $F(1,22) = 3.119$, $p = .091$. Based on these results, the independent-samples *t*-test assuming the equality of variances was selected in all three cases. The results found statistical significance at the .001 alpha level in all three cases (with the final test achieving a probability value of .001 exactly), indicating significant mean differences in all three measures based on Title I status. These results are as follows: KRA percent: $t(22) = 4.886$, $p < .001$; MCAP-M frequencies: $t(22) = 5.056$, $p < .001$; MCAP-ELA-L frequencies: $t(22) = 3.667$, $p = .001$. In all cases, the mean was found to be significantly higher for non-Title I schools compared to Title I schools, with these descriptive statistics reported in Table 3. The sample size was seven with regard to Title I schools and 17 with regard to non-Title I schools.

Table 3 Means and Standard Deviations of Study Variables by Title I Status

Measure	Title I		Non-Title I	
	Mean	*SD*	Mean	*SD*
KRA Percent	28.586	7.894	51.059	10.994
MCAP-M	23.043	7.602	47.671	11.835
MCAP-ELA-L	34.143	7.833	54.253	13.490

Additionally, Cohen's *d* was also calculated as a measure of effect size with respect to these analyses. This was found to be 2.194 with regard to the independent-samples *t*-test conducted on KRA percent, 2.271 with regard to the analysis conducted with MCAP-M frequencies, and 1.647 in the analysis conducted with MCAP-ELA-L frequencies. Being above .8, all three of these effect sizes would be considered large (Cohen, 1988).

Chapter Summary

The results of the analyses conducted for this study indicated significant, positive, and very strong correlations between the study measures of interest with respect to the entire sample. In contrast, these results differed when conducted separately based on Title I status. Indications were made due to the smaller sample sizes associated with the correlations conducted separately based on Title I status as to what these results show. Post-hoc *z*-tests comparing the strength of the correlations based on Title I status failed to indicate significant differences in these correlation strengths in any of the three cases. Independent-sample *t*-tests were found to achieve significance when comparing the means of these three measures between Title I and non-Title I schools in all three cases, with very substantial mean differences being found and very large effect sizes being indicated based on the Cohen's *d* measures calculated, also in all three cases. The following chapter will discuss these results in relation to previous literature and theory, the limitations of this study, possibilities for future research, and recommendations and conclusions.

CHAPTER V: Discussion

The purpose of chapter five is to report the findings and to provide recommendations for future practice. Furthermore, the information in this chapter will guide future researchers conducting similar research through recommendations. The purpose of this study was to determine how a school's Kindergarten Readiness Assessment (KRA) proficiency rates correlated to the school's Maryland Comprehensive Assessment Program English Language Arts and Literacy (MCAP- ELA/L) and Maryland Comprehensive Assessment Program Math (MCAP-M) proficiency rates. Further, this study examined if there was a difference in correlation between Title I and non-Title I schools. The study used historical data collected and stored by MSDE and is considered a public record. The data was collected from a singular school district in Maryland.

Summary

This study aimed to determine if there was a difference in correlation between KRA and MCAP-ELA/L and MCAP-M scores within Title I and non-Title I schools. Title I schools are known for their achievement gap (National Academic, 2019; Owens et al., 2016). Schools identified as Title I receive federal funding to decrease the disparity between low-income and affluent school communities (Borman & D'Agostino, 1996; Boyle & Lee, 2015; Wong & Meyer, 1998). High-quality academic resources and learning opportunities are often found in wealthier non-Title I school communities, providing unequal access for those students in a Title I school (National Academics, 2019; Owens et al., 2016). These educational disadvantages impact students' learning and education, resulting in an achievement gap between races and incomes (Owens et al., 2016; Sacks, 2016). Students in low-income areas are less likely to be

academically school-ready (Sacks, 2016) because there is a lack of quality pre-k programming in low-income and diverse communities (Bassok & Galdo, 2016).

The KRA is administered during the first 45 days of a kindergartener's school experience (U.S. Department of Education & Health Human Services, 2014). The KRA can help identify skill deficits in children and allow educators to begin intervention services to support the knowledge and development of the skills (Justice et al., 2019). With identifying skill deficits and academically at-risk kindergarten students, paired with federal Title I funds, schools can take a low school KRA proficiency rate and implement interventions and supports to boost their proficiency rates for the third grade MCAP assessments in both ELA/L and M (math). This study was designed to see if Title I schools could boost their scores to no longer have a correlation of scores because the school's proficiency rate was higher than the KRA proficiency rate.

Based on historical research and findings from Chapter 4, Table 3, non-Title I schools have a mean score of almost double Title I schools in each assessment area. Title I schools have more room to grow and improve scores, whereas non-Title I schools have a narrower growth window. Simply looking at the means of the assessment, both Title I and non-Title I schools had a worse proficiency rate on the MCAP-M than they did on the KRA. On the contrary, both variables had a higher proficiency percentage on the MCAP-ELA/L than their KRA. The Title I schools grew the mean score more than the non-Title I schools. When looking at their correlation scores conducted through Pearson's correlation, the KRA MCAP-ELA/L and MCAP-M all had a strong and positive correlation when they combined non-Title I and Title I schools. However, when separated, there were some differences.

Discussion of Findings

This chapter will discuss the findings and implications for the following research questions:

1. Overall, is there a statistical correlation between the Kindergarten Readiness Assessment (KRA) and schools' third-grade proficiency rates on the Maryland Comprehensive Assessment Program English Language Arts and Literacy (MCAP-ELA/L)?

The findings from Chapter Four used the Pearson correlations to determine if there was a correlation between the KRA and MCAP-ELA/L within the entire sample size, including Title I and non-Title I schools. Pearson's correlation found KRA percent and MCAP-ELA/L: $r(22) = .779$, $p < .001$, which indicated a positive and strong correlation between the two assessment results.

2. Is there a statistical correlation between the Kindergarten Readiness Assessment (KRA) proficiency rate and schools' third-grade proficiency rate on Maryland Comprehensive Assessment Program Mathematics (MCAP-M)?)

The findings from Chapter Four used the Pearson correlations to determine if there was a correlation between the KRA and MCAP-M within the entire sample size, including Title I and non-Title I schools. Pearson's correlation found KRA percent and MCAP-M: $r(22) = .665$, $p < .001$, which indicated a positive and strong correlation between the two assessment results.

3. Is there a difference in the correlational relationship between Title I schools' KRA and MCAP-ELA/L proficiency rates and non-Title I schools' KRA and MCAP-ELA/L proficiency rates?

The findings from chapter four used the Pearson correlations to determine if there was a correlation between the KRA and MCAP-ELA/L when separated by Title I status. The correlation between non-Title I schools was strong, positive, and statistically significant at the .01 alpha level for non-Title I schools, $r(15) = .624$, $p < .01$. The correlation between the KRA and MCAP-ELA/L in a Title I school to be strong and positive, though was not statistically significant for Title I schools, $r(5) = .561$, $p = .190$. However, the correlation should be considered to be trending towards significance.

4. Is there a difference in the correlational relationship between Title I schools' KRA and MCAP-M proficiency rates and non-Title I schools' KRA and MCAP-M proficiency rates?

The findings from chapter four used Pearson's correlations to determine if there was a correlation between the KRA and MCAP-M when separated by Title I status. The correlation between non-Title I schools was positive but was not determined to be statistically significant, but trending towards statistical significance, non-Title I schools, $r(15) = .387$, $p = .125$. The correlation between the KRA and MCAP-M in a Title I school was found to be negative; it was also not statistically significant for Title I schools, $r(5) = -.282$, $p = .540$, the correlation between KRA and MCAP-M within Title I schools may be negative or zero.

5. Is there a difference in the correlational relationship between MCAP-ELA/L and MCAP-M proficiency rates in Title I and non-Title I schools?

The findings from chapter four used Pearson's correlation to determine if there was a correlation between the MCAP-ELA/L and MCAP-M when separated by Title I status. The correlation between non-Title I schools was positive, very strong, and statistically significant at the .001 level $r(15) = .859$, $p < .001$. The correlation between Title I schools was strong and

positive but not statistically significant at the .05 level, $r(5) = .579$, $p = .173$, with a predicted trend toward significance.

It was found that there was a strong, positive correlation between KRA, MCAP-ELA/L, and MCAP-M when Title I schools and non-Title I schools were combined. Slight differences appeared once the assessment proficiency rates were separated into two variables (non-Title I and Title I). A positive, strong, and likely statistically significant association exists between KRA percent and MCAP-ELA/L in Title I and non-Title I schools. The KRA and MCAP-M showed different results between Title I and non-Title I schools. These results suggest that the correlation between KRA percent and MCAP-M in Title I schools may be negative or zero. At the same time, this association may be positive in non-Title I schools. Examining the correlation between the two MCAP assessments presented a positive correlation between Title I and non-Title I schools, and there was a stronger correlation between non-title I schools.

Overall, there is a correlation between schools' proficiency percentages on KRA and their proficiency percentages on MCAP-ELA/L and MCAP-M. However, there is a difference between Title I and non-Title I schools. Non-title I schools have a stronger positive correlation between KRA and MCAP proficiency rates. Title I schools have a positive correlation between KRA proficiency rates and MCAP-ELA/L, though it is not as strong. KRA proficiency and MCAP-M rates were believed to have a negative correlation within Title I schools but a positive correlation in non-Title I schools. To conclude, non-Title I schools have a stronger and more positive correlation between KRA MCAP-ELA/L and MCAP-M proficiency rates.

Limitations

Several limitations were recognized in this study. Data was collected from a singular district in Maryland and was compiled from the Maryland State Department of Education.

Therefore, no experimental manipulations were made. School districts selected participants and were not randomly selected. Also, this design lacked a control group because the research questions were answered with existing data.

Teachers who administer the KRA are annually trained (Choudhury, 2022). The KRA and MCAP were administered by certified staff who have been formally but have not cohesively trained. In other words, staff training could have varied by location, staff, and presentation, resulting in variations in testing administration. There is no standardized assessment practice for the KRA in this LEA. The KRA was administered to collect observable and student response data. A script was provided when administering the student response portion of the KRA to ensure the delivery was valid. Allowing each school to create its assessment expectations can lead to varied results. Factors of testing administration that could impact student results may include:

1. Testing administrator (not limited to classroom, specialist, interventionist, special education teacher, ELL teacher)
2. Student and teacher rapport before the assessment
3. Time of day the assessment is given
4. Length of testing block
5. Location of testing (homeroom classroom, unfamiliar room, loud, noisy, bright lights, dim lighting).

During MCAP administration, students are subject to similar testing environment variables. The MCAP administration schedule is determined by the LEA's testing coordinator, which could be a factor in student scores. For example, one student may score better when the MCAP is administered after lunch, whereas another may score better when the MCAP is

administered before physical education class. The time of the MCAP testing block is predetermined by the state department, allowing for conformity among the schools and LEAs. The MCAP is a scripted assessment that allows the teacher to administer the assessment to fidelity, but this entails reliance upon the administrating teacher to follow the script. MSDE claims that the MCAP is a reliable and valid measure of student performance (The Path, n.d.); however, the first administration of the MCAP was in the spring of 2022. This study used scores from the first MCAP administration.

The COVID-19 pandemic also limited and impacted this study. The third-grade student participants in the study were in first grade in March 2020 when the nationwide COVID-19 school closures occurred. It is unknown which student participants were actively engaged in virtual and distance learning offered by the LEA during the closures. In February 2021, schools reopened to students for smaller group sessions. It was not possible to determine which students participated in hybrid learning. Student learning status and approach during the COVID-19 pandemic may have altered student growth from first to third grade, impacting their MCAP scores. The author assumes that the COVID-19 pandemic also impacted the kindergarten student participants, although they were not enrolled in public schools then. The impact of the pandemic on the students, both educationally and developmentally, was undetermined.

Implications

These results have implications that go beyond the program participants. Research demonstrating the differences between Title I schools and non-Title I schools in early childhood education can directly impact state education leaders, school districts, school leaders, and teachers, impacting students and families. Having educational leaders review policy and

assessment tools and allow teachers to understand better why the assessments are administered and analyze data will directly impact the future success of the community they serve.

First, state leaders can benefit from this research, developing an awareness of discrepancies among the differences in assessment scores between socioeconomic groups. District leaders will be able to see that funding does not deem a growth in assessment results. Students within Title I buildings do not close the gap in assessments by third grade; the gaps remain, and the correlational scores remain. Title I schools are receiving money to boost student success and achievement (Boyle & Lee, 2015; McDonnell, 2005), but the money is not showing results, as there continues to be a significant discrepancy in proficiency percent scores in Title I and non-Title I schools. Title I funding, grant funding, and appropriate funding allocations in the early childhood education department may be investigated to ensure it is used appropriately to close the academic achievement gap.

State leaders can use this study to investigate the importance of the KRA. Research refuted that the first 45 days of school is an appropriate time to administer a tedious and time-consuming state assessment. Many researchers (Blessing, 2019; Snow, 2011; Schachter et al., 2019) believed that the KRA was not developmentally appropriate and may not be administered to fidelity. When administered within the first 45 days of school, it becomes difficult to see the growth in students when an additional benchmark is not administered. Adapting the KRA to meet the needs of the students and administering it before entering kindergarten may benefit and support the homogenous grouping of students to provide interventions as early as the first day of school. There are additional concerns about the KRA and its rigid requirements for ELL and special education students. There are few accommodations and modifications allowed to students; it is not always a test of their knowledge but rather a test of their English proficiency

(Blessing, 2019). Prior research also expressed that teachers would receive the data too late, which was no longer an accurate depiction of the students and their needs (Schachter et al., 2019). Developing a KRA administration that is effective in measuring the readiness skills of students and providing teachers with timely data is imperative to the success of the KRA. This research will allow state leaders in education to make systematic changes, ensure that school districts focus on students, and close the academic achievement gap at an early childhood education level.

Second, school leaders can use research and findings from this study to support teachers and the administration of KRA. Prior research found that teachers did not understand the importance of the KRA and how to interpret the data to guide instruction (Schachter et al., 2019). School leaders can teach teachers and parents the importance of the KRA and its future implications on the student's success on the third-grade assessments. School leaders should also be aware of the stark differences in correlation and scores within Title I and non-Title I buildings. Understanding the needs of a Title I school and developing a school plan to close the achievement gap within the early childhood education years may benefit the students when they take the third-grade assessment. School leaders should also know their school's mean differences between KRA and MCAP scores. Understanding the differences may be a way to determine if interventions and school initiatives within the early childhood education program are effective.

Recommendations for further research

This research leads to potential future research studies. Future research is needed to understand the differences between Title I and non-Title I schools at the early childhood education level. It is believed that overall Title I schools score lower on state assessments, but no actual study compares the difference within early childhood assessments. Understanding early

childhood education's impact on test scores may help support funding and reallocate funding to develop or restructure early childhood education programs.

Additional research is needed to determine if Title I funds in early childhood education are practical and efficient for supporting students and the communities and the ability to close the achievement gap Title I funds were intended to do (Boyle & Lee, 2015; McDonnell, 2005).

Research surrounding early childcare in Title I communities was conducted by Bassok and Galdo (2016), and they found that there was limited quality childcare available in these communities. Bassok and Galdo (2016) did not explore the funding the public school systems invested in their early childhood programming and the success of the early childhood programs. In 2012, the United States Department of Education released guidance on how to use Title I funding to provide public Pre-K in schools (Delisle, 2012). The guidance outlined how schools could use their Title I funding to support early childhood education, but it did not require schools to use their funding that way (Delisle, 2012). Then, in 2015, Obama created the RTT grant to create pre-kindergarten programs within states and improve school readiness (U.S. Department of Education, 2009). The RTT grant may have alleviated Title I funds to be used outside of early childhood education. Research in this area will develop an understanding of whether Title I funds are accurately being used to support early childhood students as intended or if the funds are being misused at school or school district levels.

Understanding if Title I funding is used to support early childhood education may allow a better understanding of how schools can allocate the funding to ensure the gap between early childhood education and third grade closes. Logan et al., 2014 and this current study found that the KRA and third-grade scores positively correlated when students and schools compiled data. Suggesting that the achievement gap is not closing between Title I and non-Title I peers; if it

were closing, there would not have been a correlation. Ultimately, these studies discovered that Title I funds were not working as intended to close the (income) achievement gap. Understanding how Title I funds are used and what they are used for would allow researchers to determine if Title I funding is sufficient. This data would provide legislators and stakeholders insight into the needs of the schools and districts to support grants and funding that might not be allocated and how to support schools to close the (income) achievement gap.

Future research should examine the fidelity of the KRA administration process. MSDE has regulations surrounding who can administer the KRA. Choudhury (2022) states that all teachers who administer the KRA are given support when administering and scoring the KRA. Teachers must be certified to administer the KRA assessment and score over 80%, and there is intensive training the first year a teacher administers the KRA and an annual refresher training subsequent years after (Choudhury, 2022). Over 50% of the KRA is observable, and there are supports and guides on correctly scoring the observable data (Choudhury, 2022). Future studies could investigate how teachers in different school settings score the same assessment pieces and if there is a difference between years of experience with the KRA, demographics of the school, or prior knowledge of the student. The fidelity of the KRA could impact the student scores, school scores, and the funding surrounding early childhood programs in the district.

Similar to the fidelity of the assessment, the assessment for subgroups can be a focus in future studies; special education students may have additional support as outlined in their IEP. Past research has found that teachers are often uncomfortable scoring and administering the KRA to special education students because they need clarification on the proper support and scores (Golan et al., 2016). There is a list of allowable supports when administering the KRA to special education students (Administration Guide, 2021). However, historically, special

education students still score lower than their typical peers (Choudhury, 2022). Research should be conducted to determine how accurately teachers can follow the allowable supports when administering and scoring the KRA surrounding special education students. In previous research, teachers claimed they needed to be more confident in the assessment practices surrounding the KRA and special education students (Golan et al., 2016). Special education students are just one subgroup of teachers who felt unconfident when administering the KRA. Teachers working with ELL students also felt the KRA needed to be changed so it was an adequate assessment for their students (Snow, 2011). Beginning in the fall 2024 school year, Maryland made adjustments to the KRA, adjusting the cultural responsiveness of the assessment to ELL students, specifically Spanish-speaking students. KRA 3.0 will be available in Spanish (Choudhury, 2022). Historically, ELL students score lower than English-speaking students on the KRA (Choudhury, 2022). A study to determine how the Spanish KRA impacts students' performance on KRA might benefit how school districts fund their ELL programs or establish additional supports to prepare the ELL students for kindergarten. Additional research on the success and effectiveness of the Spanish KRA would allow MSDE to consider the expansion of the KRA into additional languages if found successful.

Research following students' school assessment scores from kindergarten throughout their high school graduation would be telling the success of the assessments in predicting student scores in upcoming grades. The NCES began another Early Childhood Longitudinal Study (ECLS), following students from 2023 to 2029 through their early childhood experience and high school graduation (National Center for Educational Statistics, n.d.). The ECLS has developed its subtests and assessments of growth and does not use state assessments to measure student growth. Research is needed to follow student growth within states and the state assessments. A

study conducted in Ohio by Logan et al. (2014) investigated the connection KRA had to third-grade reading scores, finding that the KRA and third-grade scores had a positive correlation. Expanding on their research will allow researchers to determine if an assessment grade has a more significant impact on the educational scores of students. Allowing for a longitudinal study would account for significant world events, such as a pandemic or a natural disaster, which may impact scores and allow the participants to take the same state assessment rather than different versions. The outcome of a longitudinal study could also help schools determine if a grade is more impactful in predicting future success or find a grade that does not correlate to the other state assessment scores to determine if there is an outlier in the state assessment continuum. Research in this area would help to understand if a student scores low on the KRA, will they score low through their K-12 schooling, or are there other factors to consider. These questions could be considered if a longitudinal study following a group of students was conducted in the future.

Conclusion

This study found that there is a recent education initiative to support early childhood programming and to increase pre-k access to all students from the RTT that Obama funded to close the achievement gap (Carnock, 2018; Howell, 2015); (U.S. Department of Education, 2009). Maryland has taken this initiative and provided funding and purpose through their Blueprint for Maryland's Future Legislature (Blueprint, 2021). With the support and funding newly allotted to early childhood education, the KRA was created and implemented to identify skill deficits and at-risk students early on to close the achievement gap by third grade (Justice et al., 2019). The KRA is not a widely appreciated or honored assessment among early childhood educators. Many argue that it is not developmentally appropriate (Brown, 2017). It does not take

exceptional learners (special education students and English language learner students) needs into account (Harvey & Ohle, 2018, p. 18; U.S. Department of Education, 2016; Schachter et al., 2019), and the data comes back too late that the skills gaps and at-risk students are no longer identifiable (Ackerman, 2018). With the intended identification of students and federal funding, schools could take the KRA and ensure that the third-grade standardized assessment proficiency rates would increase, in other words, closing the achievement gap for these students.

This study found a stronger and more positive correlation between non-Title I schools and their KRA proficiency rate and MCAP-ELA/L and MCAP-M than Title I schools. Title I schools did have a strong correlation between KRA proficiency rates and the MCAP-ELA/L and MCAP-M, but not as strong as non-Title I schools. Overall, Title I schools scored lower than non-Title I schools on all assessments, without closing the gap between proficiency percent.

In conclusion, Title I schools still have an achievement gap, and it does not narrow just because the KRA can identify skill gaps and at-risk students when used for the correct intention. There continues to be an achievement gap between Title I and non-Title I schools, even with federal funding and early identification.

REFERENCES

Ackerman, D. J. (2018). Real world compromises: Policy and practice impacts of kindergarten entry assessment-related validity and reliability challenges. *E.T.S. Research Report Series*, 1-35. https://doi.org/10.1002/ets2.12201

Ackerman, D. J. (2020). The state kindergarten entry assessment digital technology landscape. *E.T.S. Research Report Series*, *2020*(1), 1-32. https://doi.org/10.1002/ets2.12296

Age for School Attendance, Md. Code Ann. Educ. § 13a.08.01.02 (April 6, 2021).

Aiken County Public Schools. (n.d.). *Family guide to the kindergarten readiness assessment (KRA)*. https://www.acpsd.net/cms/lib/SC02209457/Centricity/Domain/74/Kindergarten%20Readiness%20Assessment%20Overview%20FAQ.pdf

Aiona, S. (2005). Assessing school readiness. *Educational Perspectives*, *38*(1), 47-50.

Alaska Department of Education & Early Development. (2022, September 1). *Memo to school districts*. https://education.alaska.gov/tls/Assessments/DevelopmentalProfile/2022%20ADP%20Memo%20regarding%201st%20Graders.pdf

Bassok, D., & Galdo, E. (2016). Inequality in preschool quality? Community-level disparities in access to high-quality learning environments. *Early Education and Development*, *27*(1), 128-144.

Bassok, D., & Latham, S. (2017). Kids today: The rise in children's academic skills at kindergarten entry. *Educational Researcher*, *46*(1), 7-20. https://doi.org/10.3102/0013189x17694161

Bassok, D., Latham, S., & Rorem, A. (2016). Is kindergarten the new first grade? *AERA Open*, *1*(4), 1-31. https://doi.org/10.1177/2332858415616358

Berkman, E. T., & Reise, S. P. (2012). *A conceptual guide to statistics using SPSS*. SAGE.

Blalock, H. M. (1972). *Social statistics* (2nd ed.). McGraw-Hill.

Blessing, A. D. (2019). Assessment in kindergarten: Meeting children where they are. *Young Children*, *74*(3), 6-12.

Blueprint for Maryland's Future – Implementation, H.D. 1372, 55th Gen. Assem. (Md. April 9, 2021).

Borman, G. D., & D'Agostino, J. V. (1996). Title I and student achievement: A meta-analysis of federal evaluation results. *Educational Evaluation and Policy Analysis*, *18*(4), 309-326. https://doi-org.org/10.3102

Bornfreund, L., & Sillers, A. (2017, April 3). *Don't use kindergarten readiness assessments for accountability*. New America. https://www.newamerica.org/education-policy/edcentral/dont-use-kindergarten-readiness-assessments-accountability/

Boser, U. (2012, March). *Race to the top: What have we learned from the states so far? A state-by-state evaluation of race to the top performance*. Center for American Progress.

Bowlby, P. (2016). *A case study of froebel education in practice* [Unpublished master's thesis]. Concordia University Montreal. https://core.ac.uk/download/pdf/211519283.pdf

Boyle, A., & Lee, K. (2015). *Title I at 50 a retrospective*. American Institutes for Research.

Bradbury, B., Waldfogel, J., & Washbrook, E. (2018). Income-Related gaps in early child cognitive development: Why are they larger in the united states than in the united kingdom, australia, and canada? *Demography*, *56*(1), 367-390. https://doi.org/10.1007/s13524-018-0738-8

Brehony, K. J. (2013). Play, work and education: Situating a froebelian debate. *Bordón. Revista De Pedagogía*, *65*(1), 59-77. https://doi.org/10.13042/brp.2013.65104

Brown, C. P. (2016, April 27). *Kindergartners get little time to play. why does it matter?* The Conversation. https://theconversation.com/kindergartners-get-little-time-to-play-why-does-it-matter-57093

Brown, C. P. (2017, September 27). *I've been in education for 20 years — here's what everyone gets wrong about kindergarten*. Business Insider. https://www.businessinsider.com/what-everyone-gets-wrong-about-kindergarten-2017-9

Cahan, E. (1989). *Past caring: A history of U.S. preschool care and education for the poor, 1820–1965*. National Center for Children in Poverty.

Cappelloni, N. (2017). Conceptualizing kindergarten readiness: What does it mean to be ready for kindergarten. In *Kindergarten readiness* (pp. 5-11). Corwin Press.

Carnock, J. T. (2018, April 30). *Assessing the kindergarten readiness of dual language learners*. New America. https://www.newamerica.org/education-policy/edcentral/dll-data-gaps-4/

Center on Standards and Assessments Implementation (CSAI). (2016, June). *Pre-Kindergarten and kindergarten assessments. CSAI update*. WestEd.

Child with a Disability, 34 C.F.R. § 300.8 (2017).

Choudhury, M. (2022, December 6). *Kindergarten Readiness Assessment 2023 results, Maryland Comprehensive Assessment Program preliminary 2022 data, NAEP 2022 results, and Maryland school survey results*. https://www.marylandpublicschools.org/stateboard/Documents/2022/1206/KRA2023ResultsMCAPPreliminary2022DataNAEP2022ResultsMDSchoolSurveyResults.pdf

Choudhury, M. (2023, June 23). *Maryland comprehensive assessment program update and reporting timeline, S.Y. 2022-2023*. https://marylandpublicschools.org/stateboard/Documents/2023/0627/Overview%20-Spring2023MarylandComprehensiveAssessmentProgram-MCAP-ResultsReportingTimeline.pdf

Chung, S., & Walsh, D. J. (2000). Unpacking child-centredness: A history of meanings. *Journal of Curriculum Studies*, *32*(2), 215-234. https://doi.org/10.1080/002202700182727

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge.

Colorado Department of Education. (2017). *Kindergarten school readiness initiative guidance*.

Colorado Department of Education. (2022, September 12). *Assessment choices and school readiness plans*. http://www.cde.state.co.us/schoolreadiness/assessment#srassessmentmenu

Colorado Department of Education Office of Early Learning and School Readiness. (2016, November). *Kindergarten school readiness data reporting*. https://www.cde.state.co.us/sites/default/files/docs/schoolreadiness/SR%20Data%20Reporting%20Fact%20Sheet%20FINAL%2011_2.pdf

Daily, S., Burkhauser, M., & Halle, T. (2010). A review of school readiness practices in the states: Early learning guidelines and assessments. *Child Trends*, *1*(3), 1-12.

Daily, S., & Maxwell, K. (2018, November). *Frequently asked questions about kindergarten entry assessment*. Alliance for Early Success and Child Trends. https://www.childtrends.org/wp-content/uploads/2018/11/FAQKEA_ChildTrends_November2018.pdf

Day in kindergarten has its ups and downs. (1953, January 12). *Los Angeles Times*, 3.

Dehmer, M., Shi, Y., & Emmert-Streib, F. (Eds.). (2016). *Computational network analysis with R: Applications in biology, medicine, and chemistry*. Wiley-VCH.

Delisle, D. (2012, October). *Serving preschool children through Title I Part A of the Elementary and Secondary Education act of 1965, as amended*. U. S. Department of Education. https://www2.ed.gov/policy/elsec/guid/preschoolguidance2012.pdf

Diffey, L., & Steffes, S. (2017, November). *Age requirements for free and compulsory education*. Education Commission of the States. https://www.ecs.org/wp-content/uploads/Age_Requirements_for_Free_and_Compulsory_Education-1.pdf

Dombkowski, K. (2001). Will the real kindergarten please stand up?: Defining and redefining the twentieth-century U.S. kindergarten. *History of Education*, *30*(6), 527-545. https://doi.org/10.1080/00467600110064762

Edley, C., Jr., Koenig, J., Nielsen, N., & Citro, C. (Eds.). (2019). *Monitoring educational equity*. National Academies Press. https://doi.org/10.17226/25389

Flannery, M. E. (2015, January 15). *Kindergarten readiness tests wasting valuable teaching time*. National Educators Association N.E.A. https://www.nea.org/advocating-for-change/new-from-nea/kindergarten-readiness-tests-wasting-valuable-teaching-time.

Flaws, D. W. (1985). *Administrative decision: Half-day everyday or all-day alternate day kindergarten programs* [Unpublished master's thesis]. University of Northern Iowa. https://scholarworks.uni.edu/cgi/viewcontent.cgi?article=3325&=&context=grp&=&sei-redir=1&referer=https%253A%252F%252Fscholar.google.com%252Fscholar%253Fstart%253D10%2526q%253DJohann%252BHeinrich%252BPestalozzi%252Bkindergarten%2526hl%253Den%2526as_sdt%253D0%252C47#search=%22Johann%20Heinrich%20Pestalozzi%20kindergarten%22

Forkner, C. B. (2013). Influence without fanfare - Pestalozzi's enduring contributions to education. *Global Education Journal*, 1-13.

Forry, N., & Wessel, J. (2012, November 1). *Defining school readiness in Maryland: A multi-dimensional perspective*. Child Trends. https://www.childtrends.org/publications/defining-school-readiness-in-maryland-a-multi-dimensional-perspective

Frederick County Public Schools. (2023). *EEK process 2023-2024* [Video]. https://screenpal.com/watch/c0nOI7Vyknh

Fromberg, D. P. (2006). Kindergarten education and early childhood teacher education in the united states: Status at the start of the 21 century. *Journal of Early Childhood Teacher Education*, *27*(1), 65-85. https://doi.org/10.1080/10901020500527145

Georgia Early Education Alliance for Ready Students. (2017). *Perceptions of school readiness in Georgia 2017 BUILD evaluation*. GEEARS. http://geears.org/wp-content/uploads/BUILD-Companion-Report-Formatted-Final.pdf

Golan, S., Ph.D, Woodbridge, M., Ph.D, Davies-Mercer, B., Ph.D, & Pistorino, C., Ph.D. (2016, August). *Case studies of the early implementation of kindergarten entry assessments final report* (Policy and Program Studies Service). Policy and Program Studies Service U.S. Department of Education.

Goldstein, L. S. (2007). Embracing pedagogical multiplicity: Examining two teachers' instructional responses to the changing expectations for kindergarten in U.S. public schools. *Journal of Research in Childhood Education*, *21*(4), 378-399.

Goldstein, J., & Flake, J. K. (2015). Towards a framework for the validation of early childhood assessment systems. *Educational Assessment, Evaluation and Accountability*, *28*(3), 273-293. https://doi.org/10.1007/s11092-015-9231-8

Hair, E., Halle, T., Terry-humen, E., Lavelle, B., & Calkins, J. (2006). Children's school readiness in the ecls-k: Predictions to academic, health, and social outcomes in first grade. *Early Childhood Research Quarterly*, *21*(4), 431-454. https://doi.org/10.1016/j.ecresq.2006.09.005

Hardy, E., & Huber, R. (2020, January 15). *Neighborhood preschool enrollment patterns by race/ethnicity*. Child Trends. https://www.diversitydatakids.org/research-library/data-visualization/neighborhood-preschool-enrollment-patterns-raceethnicity

Hardy, E., Joshi, P., Geronimo, K., Huber, R., & Acevedo-Garcia, D. (2020, January). *Data-for-Equity research brief unequal availability of head start: How neighborhood matters*. Diversitydatakids.org. https://www.diversitydatakids.org/sites/default/files/2020-01/ddk_unequal-availability-of-head-start_2020_4.pdf

Harris, A., & Chrispeels, J. H. (2010). *Improving schools and educational systems: International perspectives*. Routledge.

Harvey, H., & Ohle, K. (2018). What's the purpose? Educators' perceptions and use of a state-mandated kindergarten entry assessment. *Education Policy Analysis Archives*, *26*(142), 1-34. http://doi.org/10.14507/epaa.26.3877

Hatfield, B. E., Lower, J. K., Cassidy, D. J., & Faldowski, R. A. (2015). Inequities in access to quality early care and education: Associations with funding and community context. *Early Childhood Research Quarterly*, *30*, 316-326. https://doi.org/10.1016/j.ecresq.2014.01.001

Hewes, D. W., Ph.D. (1992). Pestalozzi: Foster father of early childhood education. *NAEYC History Seminar*, 1-25.

Hopkins, R. L. (2022). *Coming back stronger: Resilience and opportunity. 2021-2022 kindergarten readiness assessment report*. Maryland State Department of Education.

Howell, W. G. (2015). Results of president Obama's race to the top. *Education Next*, *15*(4), 58-66. https://www.educationnext.org/results-president-obama-race-to-the-top-reform/

Improving the Academic Achievement of the Disadvantaged— Academic Assessments, 81 F.R. 88886 (December 8, 2016) (to be codified at 34 C.F.R. pt. 200). https://www.govinfo.gov/content/pkg/FR-2016-12-08/pdf/2016-29128.pdf

Jennings, J. F. (2000). Title I: Its legislative history and its promise. *Phi Delta Kappan*, *81*(7), 516-522.

Joy, J. M. (2016). Evaluating positive social competence in preschool populations. *School Community Journal*, *26*(2), 263-289.

Justice, L., Ph.D, Koury, A., Ph.D, & Logan, J., Ph.D. (2019, May). *Ohio's kindergarten readiness assessment: Does it forecast third-grade reading success?* [White paper]. Crane Center for Early Childhood Research and Policy, the Ohio State University. https://crane.osu.edu/files/2020/01/Kindergarten-Readiness-Whitepaper_051619_SINGLES_WEB.pdf

Justice, L. M., Jiang, H., Purtell, K. M., Lin, T.-J., & Ansari, A. (2021). Academics of the early primary grades: Investigating the alignment of instructional practices from pre-k to third grade. *Early Education and Development*, *33*(7), 1-19. https://doi.org/10.1080/10409289.2021.1946762

Kagen, S. L. (1990). Readiness 2000: Rethinking rhetoric and responsibility. *Phi Delta Kappan*, 272-279.

Kelley, B., Weyer, M., McCann, M., Broom, S., & Keily, T. (2020, September 28). *50-State comparison: State k-3 policies*. Education Commission of the States. https://www.ecs.org/kindergarten-policies

Kindergarten readiness and later achievement: A longitudinal study in Alameda county. (2018). Applied Survey Research (A.S.R.). http://www.first5alameda.org/files/Alameda%20Longitudinal%20KRA%20Study%20Final.pdf

King, C., Perkins, V., Nugent, C., & Jordan, E. (2018, September 25). *2018 state of state early childhood data systems*. Child Trends. https://www.childtrends.org/wp-content/uploads/2018/09/ECDC-50-state-survey-9.25.pdf

Klein, A. (2015, April 10). *No Child Left Behind: An Overview*. Education Weekly. https://www.edweek.org/policy-politics/no-child-left-behind-an-overview/2015/04#:~:text=Title%20I%3A%20The%20section%20of,recent%20reauthorization%20of%20that%20law.

Kostelnik, M. J., & Grady, M. L. (2009). *Getting it right from the start: The principal's guide to early childhood education*. Corwin.

Kuhfeld, M., Soland, J., Pitts, C., & Burchinal, M. (2020). Trends in children's academic skills at school entry: 2010 to 2017. *Educational Researcher*, *49*(6), 403-414.

Lee, V. E., Burkam, D. T., Ready, D. D., Honigman, J., & Meisels, S. J. (2006). Full day versus half-day kindergarten: In which program do children learn more? *American Journal of Education*, *112*(2), 163-208. https://doi.org/10.1086/498994

Logan, J., Ph.D, Justice, L., Ph.D, Davies O'Leary, J., & Purtell, K., Ph.D. (2019). *Has Ohio's third-grade reading guarantee led to reading improvements?* Crane Center for Early Childhood Research and Policy & The Ohio State University. https://earlychildhood.ehe.osu.edu/files/2019/03/Third-Grade-Reading-Whitepaper_032019_WEB2-1.pdf

Logan, J., Ph.D, Justice, L. M., Ph.D, & Pentimonti, J., Ph.D. (2014). *Ready to read and school success: Kindergarten readiness and the "third grade reading guarantee."* Crane Center for Early Childhood Research and Policy, The Ohio State University. https://earlychildhood.ehe.osu.edu/files/2016/04/CCEC-White-Paper-Winter-2014-PDF.pdf

Malik, R., Hamm, K., Schochet, L., Novoa, C., Workman, S., & Jessen-Howard, S. (2018, December). *America's child care deserts in 2018*. Center for Americas Progress.

Maryland State Bar Association. (2018, March 31). *School law in Maryland: Educational rights of children with special needs*. https://www.msba.org/school-law-in-maryland-educational-rights-of-children-with-special-needs/#:~:text=A%20child%20is%20considered%20eligible,physical%20and%2For%20emotional%20disabilities.

Maryland State Board of Education. (2015). *Readiness matters The 2014-2015 kindergarten readiness assessment report*. https://earlychildhood.marylandpublicschools.org/system/files/filedepot/4/readinessmatters2014-2015.pdf

Maryland State Department of Education. (n.d.). https://www.marylandpublicschools.org/Pages/Default.aspx

Maryland State Department of Education Division of Early Intervention/Special Education Services. (2019, August 1). *Maryland statewide individualized education program (I.E.P.) process guide*. https://marylandpublicschools.org/programs/Documents/Special-Ed/IEP/MarylandIEPProcessGuide.pdf

Maryland State Department of Education. (n.d.). *English learners: Eligibility, guidance, and laws*. https://www.marylandpublicschools.org/programs/Pages/English-Learners/Eligibility-Guidance-Laws.aspx

Maryland State Department of Education. (n.d.). *Maryland comprehensive assessment program (MCAP) english language arts and literacy*. https://www.marylandpublicschools.org/about/Pages/DAAIT/Assessment/MCAP/ELAL.aspx

Maryland State Department of Education. (n.d.). *The path to reporting spring 2022 Maryland comprehensive assessment results*. https://marylandpublicschools.org/about/Documents/DAAIT/Assessment/MCAP/MCAPPathtoReportingSpring2022Results.pdf

Maryland State Department of Education. (2016, June). *Commission to review Maryland's use of assessments and testing in public schools*. https://marylandpublicschools.org/Documents/commissiononassessments/AssessmentsCommissionFinalReport072016.pdf

Maryland State Department of Education. (2021). *Kindergarten readiness assessment 2.0 administration guide form A*.

Maryland State Department of Education. (2021). *MCAP 2021-2022 E.L.A. math score report interpretation guide*.

https://support.mdassessments.com/resources/reporting/MCAP%202021-2022%20ELA%20Math%20Score%20Interpretation%20Guide_FINAL%20(1).pdf

Maryland State Department of Education (MSDE). (2023). *MCAP test administrator manual 2022 spring*. https://support.mdassessments.com/resources/manuals/MCAP%20Spring%202022%20Science%20TAM.pdf

Maryland State Department of Education Office of School and Community Nutrition Programs. (2022, March 22). *Free and reduced-price meals and eligibility data school year 2021-2022*. https://marylandpublicschools.org/programs/SchoolandCommunityNutrition/Documents/Free%20and%20Reduced%20Data/FARMSSY2021-2022.pdf

Maryland State Education Association. (n.d.). *Who we are*. https://marylandeducators.org/about-msea/

Maryland State Education Association. (2014, December 16). *MSEA report and recommendations on the kindergarten readiness assessment*. https://marylandeducators.org/sites/default/files/kra_combined_report_v2.pdf

Maxwell, K. L., & Clifford, R. M. (2004). School readiness assessment. *Young Children*, *59*(1), 42-46.

McDonnell, L. M. (2005). No child left behind and the federal role in education: Evolution or revolution? *Peabody Journal of Education*, *80*(2), 19-38. https://www.jstor.org/stable/3497058

Meisels, S. J., & Shonkoff, J. P. (2000). *Early childhood intervention: A continuing evolution* (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511529320.003

Michigan Department of Education. (2016). *Kindergarten entry assessment (KEA) – Everything you need to know*. https://www.michigan.gov/-/media/Project/Websites/mde/Year/2016/09/06/Everything_You_Need_To_Know_About_KEA.pdf?rev=af46f0bb0b1245f5ba4e34827189daa8

Michigan Department of Education. (2018). *Kindergarten Readiness Assessment (KRA) Frequently Asked Questions (5/1/2018)*. https://www.michigan.gov/-/media/Project/Websites/mde/2018/05/03/KRA_FAQ.pdf?rev=861566e62ea547008fc948a60294adf7

Miller, E., & Almon, J. (2009). *Crisis in the kindergarten: Why children need to play in school*. Alliance For Childhood.

Murphey, D., Guzman, L., & Torres, A. (2014, September 24). *America's Hispanic children: Gaining ground, looking forward*. Child Trends. https://cms.childtrends.org/wp-content/uploads/2014/09/2014-38AmericaHispanicChildren.pdf

Murphy, J. (1971). Title I of esea: The politics of implementing federal education reform. *Harvard Educational Review*, *41*(1), 35-63. https://doi.org/10.17763/haer.41.1.gv0n223076667l75

Murray, S. D., Hurley, J., & Ahmed, S. (2015). Supporting the whole child through coordinated policies, processes, and practices. *Journal of School Health*, 795-801.

Nair, J. (n.d.). *Johann Heinrich Pestalozzi and education*. PestalozziWorld. https://jhpestalozzi.org/wp-content/uploads/2021/11/Pestalozzi-and-Education.pdf

National Association for the Education of Young Children. (2009). *Where we stand on assessing young English language learners*. https://www.naeyc.org/sites/default/files/globally-

shared/downloads/PDFs/resources/position-statements/WWSEnglishLanguageLearnersWeb%20%282%29.pdf

National Center for Educational Statistics. (2020). *Preschool and kindergarten enrollment* (The Condition of Education). https://nces.ed.gov/programs/coe/pdf/coe_cfa.pdf

National Center for Education Statistics. (n.d.). *Early Childhood Longitudinal Study (ECLS) program*. https://nces.ed.gov/ecls/index.asp

Ohio Department of Education. (n.d.). *KRA-R kindergarten readiness assessment revised*. https://education.ohio.gov/getattachment/Topics/Early-Learning/Kindergarten/Ohios-Kindergarten-Readiness-Assessment/Kindergarten-Readiness-Assessment-Revised-Fact-Sheet.pdf.aspx?lang=en-US

Owens, A., Reardon, S. F., & Jencks, C. (2016). Income segregation between schools and school districts. *American Educational Research Journal*, *53*(4), 1159-1197. https://doi.org/10.3102/0002831216652722

Park, Y. J., & Yang, Y. (2016). The continuing influence of Froebel's kindergarten system in current early childhood education in the U.S.A. and South Korea. *Pacific Early Childhood Education Research Association*, *10*(3), 125-140. http://doi.org/10.17206/apjrece.2016.10.3.125

Passe, A. S. (2010). *Is everybody ready for kindergarten?: A tool kit for preparing children and families*. Redleaf Press.

Pianta, R. C., & Walsh, D. J. (1998). Applying the construct of resilience in schools: Cautions from a developmental systems perspective. *School Psychology Review*, *27*(3).

Pierson, A. (2018, January 29). Exploring state-by-state definitions of kindergarten readiness to support informed policymaking. *R.E.L. Northwest*. https://ies.ed.gov/ncee/edlabs/regions/northwest/blog/kindergarten-readiness.asp

Reardon, S. F. (2018). *The widening academic achievement gap between the rich and the poor*. Routledge. https://doi.org/10.4324/9780429499821-33

Reardon, S. F., & Portilla, X. A. (2016). Recent trends in income, racial, and ethnic school readiness gaps at kindergarten entry. *AERA Open*, *2*(3), 1-18. https://doi.org/10.1177/2332858416657343

Regenstein, E., Connors, M., Romero-Jurado, R., & Weiner, J. (2017, February 22). *Uses and misuses of kindergarten readiness assessment results*. The Ounce. https://www.startearly.org/app/uploads/2020/09/PUBLICATION_Uses-and-Misuses-of-Kindergarten-Readiness-Assessment-Results.pdf

Reinhold, S., Downton, A., & Livy, S. (2017). Revisiting Friedrich Froebel and his gifts for kindergarten: What are the benefits for primary mathematics education? *40 Years On: We Are Still Learning! Proceedings of the 40th Annual Conference of the Mathematics Education Research Group of Australasia*, 434-441.

Repko-Erwin, M. E. (2017). Was kindergarten left behind? Examining U.S. kindergarten as the new first grade in the wake of No Child Left Behind. *Global Education Review*, *4*(2), 58-74.

Rimm-Kaufman, S. E., Pianta, R. C., & Cox, M. J. (2000). Teachers' judgments of problems in the transition to kndergarten. *Early Childhood Research Quarterly*, *15*(2), 147-166.

Russell, J. L. (2011). From child's garden to academic press: Their Role of shifting institutional logics in redefining kindergarten education. *American Educational Research Journal*, *48*(2), 236-267.

Sabol, T. J., & Pianta, R. C. (2017, February 3). *The state of young children in the United States*. Wiley. https://doi.org/10.1002/9781118937334.ch1

Sacks, V. (2016, August 22). *The other achievement gap: Poverty and academic success*. Child Trends. https://www.childtrends.org/blog/the-other-achievement-gap-poverty-and-academic-success

Salmon, K. B. (2021, March 23). *COMAR 13A.06.02 Prekindergarten Programs and COMAR 13A.08.01 General Regulations.* Maryland State Department of Education.

Sanders, A. (2008). Left behind: Low-income students under the No Child Left Behind Act (NCLB). *Journal of Law & Education*, *37*(4), 589-596.

Schachter, R. E., Flynn, E. E., Napoli, A. R., & Piasta, S. B. (2019). Teachers' perspectives on year two implementation of a kindergarten readiness assessment. *Early Education and Development*, *31*(5), 778-795. https://doi.org/10.1080/10409289.2019.1679606

Schachter, R. E., Strang, T. M., & Piasta, S. B. (2017). Teachers' experiences with a state-mandated kindergarten readiness assessment. *Early Years*, 1-17. https://doi.org/10.1080/09575146.2017.1297777

Shapiro, M. S. (1983). *Child's garden: The kindergarten movement from Froebel to Dewey*. Pennsylvania State University Press.

Shields, K. A., Cook, K. D., & Greller, S. (2016, October). *How kindergarten entry assessments are used in public schools and how they correlate with spring assessments*. U.S. Department of Education, Institute of Education Sciences, National Center for Education

Evaluation and Regional Assistance, Regional Educational Laboratory Northeast & Islands.

Snow, K. (2011). Developing kindergarten readiness and other large-scale assessment systems: Necessary considerations in the assessment of young children. *National Association for the Education of Young Children*.

Snow, K. L. (2006). "Measuring school readiness: Conceptual and practical considerations. *Early Education and Development*, *17*(1), 7-41.

Strunk, K. K., & Mwavita, M. (2020). *Design and analysis in educational research: Anova designs in spss*. Taylor & Francis.

Swick, K. J., & Williams, R. D. (2006). An analysis of bronfenbrenner's bio-ecological perspective for early childhood educators: Implications for working with families experiencing stress. *Early Childhood Education Journal*, *33*(5), 371-378. https://doi.org/10.1007/s10643-006-0078-y

Temple, J. A., Ou, S.-R., & Reynolds, A. J. (2022). Closing achievement gaps through preschool-to-third-grade programs. *Frontiers in Education*, *7*. https://doi.org/10.3389/feduc.2022.871973

Tennessee Department of Education. (2021, November). *ParaPro assessment*. https://www.tn.gov/content/dam/tn/education/ccte/eps/credentials/cte_sic_ParaProAssessment.pdf

Thompson, J., Bredeson, M., & Boddicker-Young, P. (2022, December 15). *Pre-K data on children, families, and workforce members from focal populations can help decision makers create more equitable systems*. https://www.childtrends.org/publications/pre-k-

data-on-children-families-and-workforce-members-from-focal-populations-can-help-decision-makers-create-more-equitable-systems

Title I, part A. (2023). Maryland State Department of Education. https://marylandpublicschools.org/about/Pages/DSFSS/TitleI/index.aspx

U.S. Department of Education. (n.d.). *Every Student Succeeds Act (ESSA)*. https://www.ed.gov/essa?src=rn

U.S. Department of Education. (2009, November). *Race to the top program executive summary*. https://files.eric.ed.gov/fulltext/ED557422.pdf

U.S. Department of Education. (2016, August). *2015: Progress update: Race to the top early learning challenge*. https://www.acf.hhs.gov/sites/default/files/documents/ecd/2015_progress_update_final_2016_07_27_accessible.pdf

U.S. Department of Education. (2018, October 24). *Improving basic programs operated by local educational agencies (Title I, Part A)*. https://www2.ed.gov/programs/titleiparta/index.html

U.S. Department of Education. (2020, January 16). *Developing programs for english language learners: Glossary*. https://www2.ed.gov/about/offices/list/ocr/ell/glossary.html

U.S. Department of Education, & U.S. Department of Health and Human Services. (2014). *The race to the top- early learning challenge year two progress report*. https://www.acf.hhs.gov/sites/default/files/documents/ecd/rtt_elc_yr_two_progress_report.pdf

Weaver, K. F., Morales, V. C., Dunn, S. L., Godde, K., & Weaver, P. F. (2017). *An introduction to statistical analysis in research: With applications in the biological and life sciences*. John Wiley & Sons.

Weckstein, P. (2003). Accountability and student mobility under title I of the no child left behind act. *The Journal of Negro Education*, *72*(1), 117-125.

Weisenfeld, G. (2017). *Implementing a kindergarten entry (KEA) system* (CEELO FastFact). Center on Enhancing Early Learning Outcomes.

Weisenfeld, G. G., Garver, K., & Hodges, K. (2020). Federal and state efforts in the implementation of kindergarten entry assessments (2011-2018). *Early Education and Development*, *31*(5), 632-652. https://doi.org/10.1080/10409289.2020.1720481

West, J., Germino Hausken, E., & Collins, M. (1993, September). *Readiness of kindergarten: Parent and teacher beliefs*. National Center for Educational Statistics. https://nces.ed.gov/pubs93/93257.pdf

What educators need to know about ESSA. (2016). *Educational Leadership*, *73*(9). https://www.ascd.org/el/articles/what-educators-need-to-know-about-essa

The White House. (2013, February 13). *Fact sheet President Obama's plan for early education for all Americans*. https://obamawhitehouse.archives.gov/the-press-office/2013/02/13/fact-sheet-president-obama-s-plan-early-education-all-americans

Wong, K. K., & Meyer, S. J. (1998). Title I schoolwide programs: A synthesis of findings from recent evaluation. *Educational Evaluation and Policy Analysis*, *20*(2), 115-136.

The Wooster City School District. (2011, June). *Response to intervention (RtI) handbook*. http://www.woostercityschools.org/sites/woostercityschools.org/files/files/RTI_Handbook_June_2011.pdf

Yoon, H. S. (2014). Assessing children in kindergarten: The narrowing of language, culture and identity in the testing era. *Journal of Early Childhood Literacy*, *15*(3), 364-393. https://doi.org/10.1177/1468798414548778

Yun, C., Melnick, H., & Wechsler, M. (2021, August 5). *High-Quality early childhood assessment: Learning from states' use of kindergarten entry assessments*. Learning Policy Institute. https://learningpolicyinstitute.org/product/high-quality-kindergarten-entry-assessments-report

Zernike, K. (2000, October 23). *No time for napping in today's kindergarten*. New York Times. https://www.nytimes.com/2000/10/23/nyregion/no-time-for-napping-in-today-s-kindergarten.html