

The Effect of Preschool on the
Readiness and Success of Kindergarten Students

by

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Abstract

The purpose of this study was to determine whether the pre-kindergarten experiences of kindergarten children affected a set of outcomes measuring kindergarten readiness and success. This was a causal comparative study that examined the results of 15 different measures. Data was collected in the beginning of the year, fall, and winter. There were no significant differences in the results. Research should continue to determine the effect of different preschool experiences on kindergarten success and readiness.

CHAPTER I

INTRODUCTION

Overview

The skills learned in kindergarten help create a foundation for learning. According to Gallant (2009), national and state research confirms the importance of early academic success and affirms that learning to read in kindergarten has a positive correlation with future success. By the end of kindergarten, children are expected to read, write, and solve math problems in order to be prepared for first grade.

Kindergarten used to prepare students for school, but the expectations have changed. Today's kindergarten programs have shifted from an emphasis on play-oriented learning and social-emotional skills to more core academics. These changes can be attributed to No Child Left Behind and a need to close the achievement gap. The increase in academic expectations has changed what it means to be ready for kindergarten. "Children who enter kindergarten with poorer academic skills (such as knowing few letters of the alphabet and having difficulty recognizing or writing their first name) are particularly at risk for problems adjusting to kindergarten" (Robinson & Diamond, 2014, p. 78).

The prior school experience of children is becoming more important for the transition to kindergarten. Whether children attend a public pre-kindergarten, a private preschool, daycare, or were cared for solely at home helps determine how ready they are to enter kindergarten and their success in school. Students entering kindergarten should be able to identify some if not all letters and letter sounds and read some sight words. They should be able to count and recognize numbers to 20 and should be able to write their name. Children who receive high-quality

preschool experiences have more developed cognitive outcomes in comparison to children who do not attend any type of preschool. These effects can last into elementary school and beyond (Chambers, Cheung, & Slavin, 2016). Furthermore, the transition to kindergarten is smoother for students who have developed social-emotional skills. The development of these skills prior to kindergarten is important due the decreased emphasis of these skills in the kindergarten program.

The topic of this study was chosen due to the researcher's experience as a kindergarten teacher. The researcher has noticed a change in the academic and social-emotional readiness of kindergarten students. The topic of research in this study is significant because, if found that preschool experience has an impact on kindergarten academic and social-emotional success, then further studies should be conducted and greater importance must be placed on universal pre-kindergarten.

Statement of Problem

Many early childhood educators believe that attending pre-kindergarten has a positive impact on success in kindergarten. This study was designed to determine whether children who attended a pre-kindergarten program differ in kindergarten readiness and academic success from those children who did not attend a pre-kindergarten program. Students' letter and sound recognition and Fountas and Pinnell reading, sight word recognition, Dynamic Indicator of Basic Early Literacy Skills (DIBELS), and Measures of Academic Progress (MAP) test scores will be analyzed to determine results.

Hypothesis

The null hypothesis in this study is that the pre-kindergarten experiences of kindergarten children will not affect a set of outcomes measuring kindergarten readiness and success.

Operational Definitions

Measures of Academic Progress(MAP) is an adaptive computer-based achievement assessment in math and reading. The difficulty of the is based on how well the student answered the previous question making each test unique.

Fountas and Pinnell Benchmark Assessment System is used to determine a student's independent and instructional reading levels. The assessment is given in a one-on-one setting allowing the teacher to see a student's reading patterns and comprehension.

Prior school experience refers to the academic experience of students entering kindergarten. It can include public or private pre-kindergarten, preschool, daycare, or primarily staying at home.

Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Next Edition which has recently transitioned to the name *Acadience Reading* is designed to measure early literacy skills critical to reading success and is used to identify and monitor progress of students in kindergarten through sixth grade. Students identified as "at risk" are progress monitored throughout the year. It should be noted that at the time the test was administered, the assessment was referred to as DIBELS Next. According to publishers, Acadience Reading and DIBELS Next use the same reading assessments and materials.

The Dolch sight word list is the most commonly used set of sight words. It was created by educator Dr. Edward William Dolch after determining the most frequently used words in children's books of the 1930's-40's. The lists used in kindergarten are the pre-primer and primer words. Students are expected to master 80% of each list before entering first grade.

The letter names and sounds assessment is a teacher made assessment that assesses the student's ability to identify upper and lowercase letters as well as produce all 21 consonant sounds and the short vowel sounds for the five major vowels. For this study, only the uppercase letter identification was used for each student.

CHAPTER II

A REVIEW OF THE LITERATURE

This literature review seeks to explore the impact of preschool experiences on the academic and social-emotional achievement of kindergarten students. Section one outlines the changing expectations of kindergarten. Section two defines kindergarten readiness, and section three explores the impact that preschool attendance has on the transition to kindergarten and the short- and long-term effects on academic and social-emotional performance.

Kindergarten Expectations

Over the past two decades, kindergarten has changed significantly. Kindergarten classrooms have moved away from developmentally appropriate learning that is focused on play, exploration, and building of social skills and is now focused on test preparation, curriculum, and academics. A common concern is that a push for academic content will cause a decrease in other important learning experiences that will help develop students' social emotional skills or physical and mental health, all of which predict long-term outcomes (Bassok, Latham, & Rorem, 2016).

Kindergarten programs are now full day instead of half day to meet the increasing academic demands. By the end of kindergarten, students are expected to be reading and writing. Gallant (2009) describes her half-day kindergarten classroom in the late 1980's and early 1990's as having "goals such as socializing in a diverse community, caring about ourselves and the environment, developing oral language, and loving to learn" (p. 202). She also states that "I did not plan guided reading groups or formal writing workshops yet all children made progress in literacy and some learned to read and write as a natural outcome of literacy activities embedded

within a playful, inquiry-based context” (p. 202). Today’s kindergarten classrooms have similar goals and responsibilities to the first-grade classrooms two decades ago.

These changes can be attributed to No Child Left Behind and curriculum created to meet the Common Core State Standards. Federal policy created largely based on the legislation of No Child Left Behind has higher expectations for literacy achievement and defines success in the primary grades as the ability to read independently by the end of third grade. Reading is defined as the ability to fluently decode text with comprehension. Under the Common Core State Standards, competency in reading and writing now includes gathering and analyzing information from multiple sources, being able to cite evidence in responses to text, and the ability to write fiction and nonfiction text that draws on a variety of related texts (Casbergue, 2017). Although students are not tested until third grade, primary teachers are feeling pressure to help students be prepared for standardized tests. Because of these higher standards, kindergarten is becoming a target for educational change and is seen as a way to help narrow the achievement gap (Gallant, 2009).

The shift from play and exploration to academics in kindergarten is affecting teachers, parents, and children and is changing the kindergarten experience. In a study by Gallant (2009), 229 kindergarten teachers in Michigan completed a survey of open-ended questions designed to gather information about issues they are facing and professional development opportunities that would be most beneficial. After analysis, Gallant found that most kindergarten teachers expressed concerns about the amount of time for play, increasing class sizes, and lack of additional support. There were also concerns relating to the developmental appropriateness of the curriculum and grade-level expectations and that these do not allow for developmental differences. An overwhelming theme found in the teachers’ answers was concern over the

amount of background knowledge, language and behavior concerns, and range of skills and readiness levels students are entering kindergarten with. This range of skills and readiness levels is dependent upon many different factors including socioeconomic status, parental involvement, and prior care experience.

Kindergarten Readiness

There are several definitions and ideas of what it means to be ready for school. Puccioni (2018) states that “conceptions of school readiness are shaped by social and cultural contexts defined within families, schools, and communities. According to this view, there is no absolute definition of readiness” (p. 251). However, most definitions include academic and intellectual skills such as general knowledge, language and literacy, and cognitive skills as well as social-emotional skills, physical and motor development, and communication skills that are needed for a successful transition to school and for school performance.

Researchers agree that the transition to kindergarten is important. Children who experience a successful transition to kindergarten will have more positive outcomes in academic and social-emotional skills. These improved outcomes can lead to a decrease in academic, social, and economic inequalities (Puccioni, 2018). According to Miller (2015), the transition to kindergarten “is a dynamic process experienced by children, family, teachers, and communities rather than an event that happens independently to a child” (p. 214). With the increasing academic demands, the transition to kindergarten may not be as smooth without prior experience. Success in kindergarten can be a strong predictor of how well students will do in later grades (Nelson, 2005). Specifically, success with beginning reading, math, and receptive and expressive language skills has a strong correlation with later achievement in reading and math (Goldstein, Warde, & Peluso, 2013).

Social-interpersonal skills are also important when discussing the adjustment to kindergarten. Evidence shows that the ability to successfully solve social problems is related to observations of prosocial engagement and behavior regulation. Research shows that a child's interpersonal skills are related to success in the first months of kindergarten. Social-emotional and academic learning develop together and are an important component of school readiness (Robinson & Diamond, 2014). With a decreased focus of social-interpersonal skills in kindergarten, it is important that children develop these skills prior to the transition. There are many elements to school readiness, and, without prior experience in academic and social-interpersonal skills, there is an increased chance that children will have a difficult transition to kindergarten.

Robinson and Diamond (2014) examined the association between preschool children's social-interpersonal skills and how well they transitioned to school. Teachers reported that being able to listen and follow directions, comply with requests, work cooperatively in a group, and respond to various situations appropriately are important skills for kindergarten success. These skills, however, are skills teachers reported as most difficult for students. Teachers reported that about one-third of their students had moderate difficulties adjusting to kindergarten and about one of every six children had significant difficulties transitioning to kindergarten.

In Puccioni's (2018) study, teachers expressed concerns that children transitioning to kindergarten who exhibited fewer foundational literacy skills would have a harder time meeting the demands of the current kindergarten curriculum that is aligned to the standards. Teachers in this study also believed that children who had strong pre-academic and social-emotional skills were able to transition to kindergarten successfully. Skills such as phonological awareness, knowledge of letters and letter sounds, knowledge of concepts of print, and the ability to write

their name were skills that teachers expressed as important in the transition to kindergarten. Teachers in the study stated that when children do not attend preschool, they are more likely to not have fully developed these skills. This was a concern since teachers would have to teach those skills as well as the kindergarten standards which makes the job of a kindergarten teacher more difficult and stressful.

Prior school experience is not the only important factor in successfully transitioning to kindergarten. A ready home environment is an important indicator of a successful transition. According to Nelson (2005), learning happens at home when children are exposed to formal and informal learning experiences such as culture-related activities, visiting the library, activities involving play, and rich literacy activities. These experiences can have a significant impact on school success. She also states that the partnership between home and school is important and the two working together to create enriched environments can have a positive impact on academic performance.

Miller (2015) studied how families understand and experience the transition to kindergarten. The results showed that many parents said the adjustment was still in progress at the end of kindergarten and that inexperienced parents encountered the most difficulties. Parents stated that working with a teacher who encouraged ongoing communication helped the transition. Results showed that early center-based experiences helped with the transition. Parents play an important role in determining school readiness by working with their children at home and by deciding where and when to send their child to school. Parents may view preschool as a way of enhancing their efforts to prepare their child for school, or they may see it as a substitute for their efforts so they can focus on other things. Parents who work may have more means of developing readiness skills or may have less time and energy to work with their children.

Preschool programs can either compliment or provide a substitute for parents' efforts to develop readiness skills (Belfield & Garcia, 2014). When parents are informed about the increasing expectations of kindergarten, they are able to create ready home environments and are able to make decisions about their child's schooling. This helps create a smooth and successful transition to school.

Children living in poverty and children from lower-income households have a harder time successfully transitioning to school. Children from low-income households make up 45% of the early childhood population. Research shows that children in poverty have a harder time with school readiness because families are focused on basic survival needs and have less time and resources to create a ready home environment. Children benefit when their parents are able to provide resources; therefore, effective interventions and social supports should focus on helping families find ways to improve their economic status and provide resources to create a ready environment (Nelson, 2005).

The transition process can be more difficult for low-income families due to misconceptions and stereotypes. In Miller's (2015) study, families from lower-income backgrounds felt that schools were not prepared for their children's cultural backgrounds and specific needs. Some families expressed that they felt judged by the schools for their parenting skills and efforts at home. It is important that these families are encouraged to send their children to preschool and are given resources to help create a ready environment at home.

Children who grow up in poverty may have limited connections to resources and experiences. The disparity between low-income and middle-class families and communities can create an achievement gap, reduce cognitive development, predict lower achievement in later grades, and increase delinquency and crime in later years. Preschool and interventions have a

significant impact on these consequences (Haslip, 2018). Quality, publicly funded programs and preschool opportunities with highly qualified teachers can provide resources to low-income families and help create a successful transition to school.

Impact of Preschool

In 2007, 1.4 million children were enrolled in preschool, but due to the financial crisis in 2008, growth in enrollment stopped and remained at 1.4 million in 2015. More children are enrolled in state-funded preschools run by school districts than in private or federally funded programs (Haslip, 2018). There are many different types of preschool programs available. The literature explores mainly publicly funded programs such as Head Start, subsidized community child care, and state funded pre-K programs. All publicly funded programs are not the same and have different regulations depending on the funding source (Goldstein et al., 2013).

In a study of state pre-kindergarten effects on kindergarten performance, Barnett et al. (2018) state that there are now state funded pre-kindergarten programs in 43 states and the District of Columbia. The primary goal of these programs is to enhance learning and social-emotional and cognitive development and to successfully prepare children for school. Because the different programs vary from state to state, it is difficult to evaluate their effectiveness. The researchers found that most publicly funded preschools have a positive short-term effect on academic performance but there is not much evidence on long-term effects. The researchers suggest that state pre-kindergarten programs should provide curriculum and professional development that enrich preschool education, specifically in language development but that there is the need to be careful to not neglect social and emotional development.

Research shows that preschool is more effective when the quality of the curriculum and teachers is high. One of the most important indicators of preschool quality is teacher quality.

When teachers receive training in developmentally appropriate and evidence-based practices, there is a positive impact on short- and long-term academic performance. Quality interactions between the teacher and child correlate with overall academic readiness (Swaminathan, Byrd, Humphrey, Heinsch, & Mitchell, 2014).

In Maryland, the Department of Education division of early childhood care and education (ECCE) requires that all early childhood professionals have a minimum of a bachelor's degree and early childhood certification. This is, in part, because research shows that teachers who are able to support children's strengths, understand factors that impact development, differentiate instruction to meet the needs of all students, and create positive interactions will have the most influence on learning and growth (Klein et al., 2016). Preschool has the most impact on kindergarten readiness when high quality education by highly qualified professionals is offered.

There is not much research on the impact of universal pre-K programs. Haslip (2018) studied the effect of public, universal pre-kindergarten on literacy achievement in first grade and found that the students who attended the universal pre-K program started first grade reading one level higher than those students who did not attend preschool. This suggests that universal pre-K can positively impact literacy well into first grade. Haslip indicates that since longer-term effects of universal pre-K are relatively unknown, policy makers are reluctant to invest in these programs. Haslip also outlines several reasons universal pre-K is needed, the first being that families from lower income households may not participate in publicly funded preschool programs associated with helping students in poverty because of an attached stigma. Family income margins change and therefore can create instability in access to programs. Secondly, when preschool classrooms are heterogeneous, students are able to learn from each other and teacher expectations may be higher. Lastly, when more higher income families are enrolled in

pre-kindergarten programs, political support may increase, resulting in more funding and higher quality pre-K education. Overall, this study found that universal pre-K can have positive long-term effects on academic success. In Maryland, policy makers called for universal pre-K in 2007, but due to budget constraints after the 2008 recession, this has yet to happen (Klein et al., 2016).

Summary

With the increasing demands of the kindergarten curriculum due to No Child Left Behind and Common Core State Standards, the transition to kindergarten is becoming more difficult. The focus is now more on academics than the development of social-emotional skills. Students who enter kindergarten with lower academic skills have an increased risk for adjustment issues (Robinson & Diamond, 2014). Many children from a lower socioeconomic status do not have the exposure to academic and social skills needed to be successful in the transition to kindergarten (Goldstein et al., 2013). The need for preschool is becoming more apparent. Highly qualified preschool teachers can help children become ready for the new challenges in kindergarten by providing developmentally appropriate activities around shared reading and writing in a highly qualified pre-K classroom (Casbergue, 2017). Attending preschool is positively linked to success in kindergarten transition, academics, and social skills (Swaminathan et al., 2014). Research shows the overall impact of preschool attendance on kindergarten readiness and achievement is positive.

CHAPTER III

METHODS

Design

This was a causal comparative study. The study compared kindergarten readiness and academic success of children who attended pre-kindergarten, childcare, and those who were cared for solely at home. The pre-kindergarten group was made of students who attended Baltimore County Public pre-kindergarten, private preschool, or a Head Start program. The childcare group was made of students who attended a child care center or family childcare. Students' letter names and letter sounds were assessed in August, November, and February. The Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Next edition was given in September. The Fountas and Pinnell Benchmark Assessment System (F&P) was used to determine student reading levels in the beginning and middle of kindergarten. The Measures of Academic Progress (MAP) assessment was used to determine math and reading achievement in the middle of the year.

Participants

The participants used for this study were 39 students from two kindergarten classes during the 2018-2019 school year. The school is a kindergarten through fifth grade school in Baltimore County, Maryland. There are currently 373 students enrolled in the school.

There are two kindergarten classes with 22 and 25 students. Eight students were excluded from the study. Five of those students were excluded due to retention, and three were excluded because they were not enrolled in the beginning of the year. The participants consisted of 16 girls and 23 boys ages five and six. Of the 39 participants, 34 are Black/African American, three are

Hispanic, one is Asian, and one is two or more races. Two of the students have an Individualized Education Program (IEP). Of these two students, one entered kindergarten with an IEP and one received an IEP in January. Four of the participants receive ESOL services.

The students came to kindergarten with different preschool experiences. Of the 39 students, 15 attended public pre-K, five attended a Head Start program, four attended a private pre-K, nine attended a daycare or a child care center, and six were cared for solely at home.

Instrument

There were six instruments used in this study. The Fountas and Pinnell Benchmark Assessment system is used to determine a student's independent and instructional reading levels. The assessment is given in a one-on-one setting three times a year, allowing the teacher to see a student's reading patterns and comprehension. There is no national norm; therefore, grade level standards are determined by the school district. Educators use the Benchmark Assessment system (BAS) to observe and analyze student reading behavior. The teacher marks an assessment form as the students read orally and then asks comprehension questions. The oral reading fluency, accuracy, and comprehension is then scored and used to determine the student's overall reading level scaled AA to Z (Klingbeil, McComas, Burns, & Helman, 2015). In Baltimore County, the grade level expectation for kindergarten is instructional level E by the end of kindergarten.

Test-retest reliability between fiction and nonfiction texts was found to be .97, and convergent validity with Reading Recovery texts was .94. When compared with the Degrees of Reading Power assessment and the Slosson Oral Reading Test-Revised, a moderate correlation was found with $r=.44$ and $r=.69$ respectively. A study showed a reliability of .86 from fall to spring (Klingbeil et al., 2015). No other published data on reliability and validity was found.

The Measurement of Academic Progress (MAP) assessment was another instrument used in this study. The Northwest Evaluation Association (NWEA) publishes this assessment. The purpose of the MAP test is to help educators gain the information needed to improve student learning in reading, language usage, math, and science. MAP is an adaptive computer-based achievement assessment in math and reading. The difficulty of the questions is based on how well the student answered the previous question, making each test unique. The scores are reported as a RIT or Rasch unit score. The RIT scale is a transformation of the one-parameter IRT (Rasch) testing model. There are about 40-50 multiple choice questions on each MAP assessment. The reading MAP is broken into four subareas including word meaning, literal comprehension, interpretive comprehension, and evaluative comprehension. The MAP assessment for mathematics has five subareas comprised of Number/Numeration Systems, Operations/Computation, Equations/Numerals, Geometry, Measurement, Problem Solving, Statistics/Probability, and Applications. There are many different score reports available such as individual and class reports and norm referenced percentile ranks and standard scores.

MAP scores were found to be reliable by reviewers. Data collected in 1999 found marginal reliability coefficients ranged from .92 in second grade mathematics and Grade 9 language usage to .96 in grades eighth and ninth mathematics. Data in 2002 showed reliability that ranged from .77 in second grade mathematics to .97 in seventh grade mathematics. No information was presented to support the reliability of MAP testing below second grade or of science tests. Information for the validity of MAP assessments is limited because it focuses on concurrent validity studies in which correlational data across grade levels and subject areas are reported between other NWEA and academic achievement assessments. The average correlational validity found for reading was .85. Language and language usage was .81, and

mathematics was .85. There was not any information available for the validity of the MAP science assessment or for grades below second grade (Cizek & Gierl, 2010).

The Dynamic Indicators of Early Literacy Skills (DIBELS) Next Edition or Acadience Reading was the last formal assessment used in this study. This assessment is designed to measure the early critical reading and literacy skills of students in kindergarten through sixth grade. The purpose is to identify and monitor students at risk of reading difficulties and identify targeted areas for instructional support. The only measure that is not designed to be an indicator of early literacy skills is Letter Naming Fluency which is only used to identify students who need extra support. The early literacy skills assessed are phonemic awareness, phonics, accurate and fluent reading of connected text, vocabulary and language, and reading comprehension. Students are given a benchmark assessment three times a year. Students who are “at risk” are then progress monitored throughout the year. The benchmark assessments include Letter Naming Fluency (LNF), First Sound Fluency (FSF), Phoneme Segmentation Fluency (PSF), Nonsense Word Fluency (NWF), Oral Reading Fluency (ORF), and Maze. All of the assessments are administered in a one-to-one setting. Each benchmark assessment is given in a one-minute time frame. All test administrators must be trained before giving the assessments (Good et al., 2019).

Four frames of reference are used to determine meaning of scores on each measure: criterion-referenced benchmark goals and cut points for risk, individually referenced interpretations, local norm-referenced interpretations, and system wide norm-referenced interpretations. The authors view the criterion referenced benchmark goals and cut points as the most important. “Acadience Reading benchmark goals are empirically derived, criterion-referenced target scores that represent adequate reading progress. A benchmark goal indicates a level of skill where the student is likely to achieve the next Acadience Reading benchmark goal

or reading outcome” (Good et al., 2019, p. 9). If a student achieves benchmark, they are more likely to achieve reading goals with only the core curriculum. The cut points for risk indicate that a student is not likely to achieve reading goals without intensive, targeted instruction. Student scores can also be in the strategic range indicating they are between the benchmark and intensive range. These students’ future progress is harder to predict, and it is recommended that they receive more support but not necessarily targeted instruction. The two assessments used in this study were First Sound Fluency (FSF) and Letter Naming Fluency (LNF). The FSF assessment measures a students’ ability to fluently identify the first sound in a word. The administrator says one word at a time and the student orally isolates the beginning sound. The LNF assessment requires students to name as many letters as they can in a minute. The students are given a page with upper and lowercase letters in a random order. The administrator marks any incorrect letter identification.

The reliability for all Acadience Reading measures was gathered from five different studies using three different forms of reliability: alternate-form, test-retest, and inter-rater reliability. Overall, across all forms of reliability, the reliability coefficients were consistently high. Data for the validity was gathered from four separate studies using three different types. The types of validity included were content, criterion-related, and discriminant. The design specifications for each measure was directly related to their content validity. Overall, the criterion-related validity for each measure showed high correlation coefficients with The Group Reading Assessment and Diagnostic Evaluation. The criterion-related validity for FSF falls in the moderate range while LNF is in the moderate-strong range. Discriminant validity was examined with only the reading composite score and yielded significant results (Good et al., 2019).

The final three measures were informal assessments that are given throughout the year to determine student progress. The first two are part of a teacher created assessment that assesses basic reading and math skills. The letter name and letter sound portion of this assessment is given in the beginning of the year, in the fall, and in the winter. For students who have not mastered these skills by winter, the assessment is given until those skills are mastered. The student receives a page of uppercase letters in random order, then a page of lowercase letters in random order. Then the student is shown a page of consonants in random order and asked to identify the letter sound. If students are not able to recognize the letter, the teacher tells the student the name of the letter. Then students are shown five short vowel words and asked to identify the sound of each short vowel. If appropriate, students are asked to blend the sounds together to read the word. Scores for each assessment are out of 26. The last informal assessment is the Dolch sight word list. Students are first given the pre-primer list and scored based on how many sight words they know out of 40. When students are able to identify 80% of that list, they are then given the primer list which consists of 52 words. The sight word lists go up to third grade. When 80% of the list is mastered, students move to the next list. For this study, the amount of sight words known on each list were combined for a composite score.

Procedures

When students are enrolled in kindergarten, parents/guardians complete a Prior Care form. On this form, they are asked to indicate their child's primary preschool experience. Parents/Guardians are able to choose from child care center, family child care, Head Start, home/informal, kindergarten, non-public nursery, or public pre-K. For this study, students who attended a child care center or family child care were grouped in the same category, labeled childcare. Children who attended public pre-K, Head Start, or private pre-K were grouped in the

same category labeled pre-K. Overall, there were nine students in the childcare category, six in the home category, and 24 students in the pre-K category.

In the beginning of kindergarten, many informal and formal assessments are given to determine students' academic abilities and to form differentiated groups. These assessments include letter name and sound identification, sight word identification, number recognition, shape and color recognition, and counting. Based on success in these assessments, students' reading levels are determined using Fountas and Pinnell. All students' reading levels are determined in November using the same assessment. The assessment is then given again in January/February to determine growth in reading levels. In the beginning of the year students are given the LNF and FSF subtests on DIBELS. In the middle of the year, all kindergarten students take the MAP assessment in math and reading. This test is not available for kindergarten students in the fall. Letter name and sound identification as well as sight word recognition is assessed in August, November, and January. The researcher used data collected from these assessments to determine whether there was a difference in scores based on prior experience.

Analysis Plan

Each dependent variable (e.g., F&P, MAP) will be tested for significant differences among the independent variable pre-kindergarten experience (e.g., childcare, home, and formal pre-K program.) The Analysis of Variance (ANOVA) statistical tool will be used to assess the statistical significance of the differences. ANOVA is essentially a *t*-test extended beyond two categories of the independent variable.

CHAPTER IV

RESULTS

This study was designed to determine whether the pre-kindergarten experiences of kindergarten children affected a set of outcomes measuring kindergarten readiness and success. Children who participated in Baltimore County Public pre-K, Headstart, or private pre-K were grouped into a pre-K group, children who attended a child care center or a family child care were in the childcare group, and students who did not attend any program were labeled home. Research results will be used to determine whether prior care experiences help prepare children differentially for kindergarten.

There were a total of 15 dependent variables. Knowledge of letter names, letter sounds, and sight words were assessed in the beginning of the year, fall (2018), and winter (2018-2019). DIBELS letter naming fluency and first sound fluency was assessed in the beginning of the year. The Fountas and Pinnell Benchmark System (F&P) was administered in the fall and winter. The Measures of Academic Progress (MAP) test was administered in the winter for math and reading. Each dependent variable was tested for statistically significant mean differences among the three pre-kindergarten experiences. The Analysis of Variance (ANOVA), which is an extension of the *t*-test for mean differences between two groups, was used to analyze the results of each dependent variable. Summaries of the 15 ANOVAs are presented below in Table 1, while detailed ANOVA tables are displayed at the end of the chapter.

Table 1

Results of ANOVAs on Means of the Dependent Variables

Dependent Variable	Childcare	Home	Pre-K	F-Test	p-Value
August Letter Name	21.8	15.2	17.0	1.28	0.29
August Letter Sound	9.4	5.7	10.0	0.55	0.58
August Sight Word	2.4	0.5	7.7	1.08	0.35
Fall Letter Name	24.0	19.7	20.2	0.96	0.39
Fall Letter Sound	15.0	12.7	16.1	0.48	0.62
Fall Sight Word	7.3	6.6	14.2	1.02	0.37
Winter Letter Name	25.6	23.1	22.4	1.55	0.22
Winter Letter Sound	22.9	18.9	20.4	1.06	0.36
Winter Sight Word	20.6	26.0	33.9	0.44	0.65
Fall F&P	1.3	1.0	1.4	0.51	0.60
Winter F&P	1.9	1.9	2.5	1.02	0.37
Winter MAP Read	145.4	142.0	145.7	0.23	0.79
Winter MAP Math	144.8	143.1	144.8	0.06	0.94
DIBELS LNF	28.1	19.0	27.9	0.66	0.52
DIBELS FSF	18.2	10.0	19.1	1.00	0.38

Note: F&P Levels were recoded into numerical equivalents 1 through 6 for A-F

None of the 15 ANOVAs yielded statistically significant differences in the population means of the pre-kindergarten experiences of the 39 kindergarten students in this study. For nine of the 15 dependent variables, however, a formal pre-kindergarten program had the highest sample mean; in five of the dependent variables, childcare had the highest sample mean; and for Winter MAP, pre-K and child care were tied. Although differences in the population means were not significant, it should be noted that students who were mainly at home did not have the highest sample mean for any of the measures. For 12 of the measures, students who stayed mainly at home had the lowest sample mean. Students who stayed home had a slightly higher mean than those that attended a formal pre-kindergarten experience for the Winter Letter Name assessment and a slightly higher mean than the childcare group on the Winter Sight Word assessment. For the Winter F&P, the means of the childcare and home group were the same.

The following detailed ANOVA tables for each of the 15 measures show the variance in the dependent variables between the three prior care groups and associated with being an individual, regardless of the group, or within groups. The F-ratio is obtained by dividing the group variance by the individual variance. In order to be statistically significant, the p value would need to be at or below 5%, meaning the group variance is significantly larger than the individual variance. As shown in the following detailed tables, the *p* value is greater than 5% for each measure. Therefore, there is insufficient evidence to reject the null hypothesis for any of the outcome variables.

Table 2

ANOVA for August Letter Name by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	199.354701	2	99.6773504	1.28	0.2917
Within groups	2814.38889	36	78.1774691		
Total	3013.74359	38	79.3090418		

Table 3

ANOVA for August Letter Sound by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	90.8034188	2	45.4017094	0.55	0.5825
Within groups	2979.55556	36	82.7654321		
Total	3070.35897	38	80.7989204		

Table 4

ANOVA for August Sight Word by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	345.918803	2	172.959402	1.08	0.3497
Within groups	5755.05556	36	159.862654		
Total	6100.97436	38	160.551957		

Table 5

ANOVA for Fall Letter Name by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	108.473868	2	54.2369338	0.96	0.3904
Within groups	2137.42857	38	56.2481203		
Total	2245.90244	40	56.147561		

Table 6

ANOVA for Fall Letter Sound by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	64.4192334	2	32.2096167	0.48	0.6248
Within groups	2570.06857	38	67.6333835		
Total	2634.4878	40	65.8621951		

Table 7

ANOVA for Fall Sight Word by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	502.437909	2	251.218955	1.02	0.3707
Within groups	9371.07429	38	246.607218		
Total	9873.5122	40	246.837805		

Table 8

ANOVA for Winter Letter Name by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	73.3142857	2	36.6571429	1.55	0.2247
Within groups	921.257143	39	23.621978		
Total	994.571429	41	24.2578397		

Table 9

ANOVA for Winter Letter Sound by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	75.0542857	2	37.5271429	1.06	0.3564
Within groups	1381.51714	39	35.4235165		
Total	1456.57143	41	35.5261324		

Bartlett's test for equal variances: $\chi^2(2) = 2.4160$ Prob> $\chi^2 = 0.299$

Table 10

ANOVA for Winter Sight Word by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	1366.04571	2	683.022857	0.44	0.6465
Within groups	60400.24	39	1548.7241		
Total	61766.2857	41	1506.49477		

Table 11

ANOVA for Fall F&P Reading Levels A=1 through F=6 by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	.47008547	2	.235042735	0.51	0.6034
Within groups	16.5138889	36	.458719136		
Total	16.9839744	38	.446946694		

Table 12

ANOVA for Winter F&P Reading Levels A=1 through F=6 by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	3.34065476	2	1.67032738	1.02	0.3716
Within groups	64.1533929	39	1.64495879		
Total	67.4940476	41	1.64619628		

Table 13

ANOVA for Winter MAP Reading by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	77.5361905	2	38.7680952	0.23	0.7925
Within groups	6461.44	39	165.677949		
Total	6538.97619	41	159.487224		

Table 14

ANOVA for Winter MAP Mathematics by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	16.587619	2	8.29380952	0.06	0.9376
Within groups	5011.81714	39	128.508132		
Total	5028.40476	41	122.644019		

Table 15

ANOVA for DIBELS LNF by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	408.713675	2	204.356838	0.66	0.5225
Within groups	11128.7222	36	309.131173		
Total	11537.4359	38	303.616734		

Table 16

ANOVA for DIBELS FSF by Pre-K Experience

Source	Analysis of Variance			F	Prob > F
	SS	df	MS		
Between groups	405.563034	2	202.781517	1.00	0.3788
Within groups	7320.18056	36	203.338349		
Total	7725.74359	38	203.309042		

The results indicate that there is no clear pre-kindergarten experience that contributes to kindergarten readiness and success that would likely generalize to similar classrooms. Nevertheless, for the study classrooms, a formal pre-K experience has as good or better outcomes as childcare in nine of the measures and a pre-kindergarten experience in a setting

other than home had better outcomes in all of the measures. In conclusion, the null hypothesis that the pre-kindergarten experiences of kindergarten children will not affect a set of outcomes measuring kindergarten readiness and success was supported.

CHAPTER V

DISCUSSION

The null hypothesis that the pre-kindergarten experiences of kindergarten children will not affect a set of outcomes measuring kindergarten readiness and success was supported. Even though the null hypothesis was supported, there are still findings worth mentioning. Although there were no significant differences in the mean scores, children in the home group had lower sample means than those who did not stay at home on every measure.

Implications of the Results

The results of this study show that the prior care experience of kindergarten students does not significantly affect kindergarten readiness or success. Though it was not significant, children whose experience was mainly home care had lower sample means than those children who did not stay at home and attended either daycare or a pre-kindergarten program. On two of the measures, children in the home group did have a higher sample mean than the pre-K or childcare groups. However, the home group did not have a sample mean higher than both childcare and pre-K on any of the measures. In fact, on 12 of the measures, the home group sample means were the lowest. Although there were no significant differences in the sample means between groups, these results could imply that some prior care experience is beneficial to students entering kindergarten.

It is important for children entering kindergarten to have some foundational academic and social skills such as writing their names, being able to share, cutting, holding a pencil, and identifying some letters, numbers, and shapes, to name a few. Students who do not have any prior experience with these skills will need to learn those skills before being able to learn other skills and content. Some of the larger differences in sample means between home, on the

measures where it was the lowest, and the group with the highest mean were on the tests given near the beginning of the year. These assessments include DIBELS, August Letter Name, and August and Fall sight words. Although these differences were not significant, it could indicate that many children entering kindergarten without prior experience do not perform as well due to lack of exposure. With the exposure to skills and learning that kindergarten provides, these students are able to perform as well as their peers who had prior experience.

Threats to Validity

There are several variables that could have been threats to the validity of this study. The first threat was the sample size. There were only 39 kindergarten students from one school in this study. Most of the students come from the same socioeconomic background. Two of the students have an IEP, and four receive ESOL services, potentially impacting their performance on the assessments. The number of students in each pre-kindergarten experience was too small, so the groups ended up being combined into three main categories: home, childcare, and pre-K. In order for the study to be more valid, there should be a larger sample size from different schools.

Another threat to the validity of this study is the quality of education that the students received prior to entering kindergarten. The childcare group consisted of children who attended a daycare program and those that were in a family daycare setting. Children could have been exposed to different learning opportunities depending on the daycare or family child care center. The pre-K group consisted of children who attended a public preschool, Head Start, and non-public pre-kindergarten. The quality of these programs could be a threat to the validity of this study. If the children were not all taught the same curriculum, then their exposure to academic and social skills would be different.

Parental involvement is an important part of student learning. Students who have parents who work with them at home are more likely to succeed in school. The students in the home group could have differed in what they were taught before entering kindergarten. Some children may have worked on academic skills with their parents and attended play groups to work on social skills. Some children may not have had exposure to academic or social skills due to parents not knowing the expectations for kindergarten.

Connections to Literature

The literature states that the transition to kindergarten is smoother when children have social-interpersonal skills and have certain academic skills such as naming letters, numbers, and writing their names. Many research studies found that children who have prior experience with these skills have an easier transition to kindergarten. In a study by Barnett et al. (2018), public pre-kindergarten programs across several states and years were studied to see the impact on literacy, language, and math in kindergarten. The results showed that public pre-K can improve learning for students of all socioeconomic backgrounds at least for the short term.

Many studies have only focused on the short-term effects of public preschool attendance. Haslip (2018) sought to determine the impact of public pre-K beyond kindergarten readiness in his study on the effect of pre-K on first grade literacy. This study found that children who attended the district public pre-K program entered first grade reading one level higher than those students who did not attend.

Overall, there have been many studies researching the effects of different preschool experiences across many different populations, and most have yielded positive results. The results of this action research study showed that students who had prior experience and did not stay mainly at home had higher means on each measure. These results were not statistically

significant. If this study was completed with a larger sample, the results may have supported the literature.

Implications for Future Research

There is not as much research on the long-term effects of preschool experience or on the benefits of universal pre-K. Future studies should focus on the long-term effects and importance of pre-kindergarten. There is research to show the impact of pre-kindergarten on academic skills but not as much on the impact of social emotional skills and the importance of these skills on the readiness and success of kindergarten students. These studies should be conducted over several years and follow students from preschool through elementary. The population of students should include all socioeconomic backgrounds, races, ethnicities, and areas.

Future research should be conducted on the most effective type of preschool experience. The sample in this study was not large enough to produce significant results in this area. There are many different preschool experiences that students can attend and knowing the most effective can allow for states to adopt meaningful practices for all students entering kindergarten.

Conclusions

The expectations of kindergarten are changing and becoming more demanding for students academically. Kindergarten is becoming the new first grade, yet pre-kindergarten still is not mandatory. Studies show that the transition to kindergarten is easier for all involved when students enter with some prior knowledge and social-emotional skills. Overall, the results of this study were not significant and thus could not reject the null hypothesis. However, the results did indicate that some form of prior experience could positively impact kindergarten readiness and success. Further studies should be conducted with larger sample sizes to determine whether pre-

kindergarten affects kindergarten readiness and success and if so, which is the most beneficial program.

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