

How Student Enrollment in Kindergarten Readiness Classes Affects Future Academic Achievement

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Abstract

Data from a large suburban school district in Tennessee ($N = 910$) were used to examine the effects of the Kindergarten Readiness program as measured by third grade End of Year (EOY) benchmark performance assessments in reading and math. The groups of students studied included kindergarteners with summer birthdays (*SK*), kindergarteners with fall and spring birthdays (*K*), students who participated in Kindergarten Readiness Classes (*KR*), and *redshirted* students (*RS*). The *KR* group had a statistically significant higher mean of reading and math scores when compared to the *SK* group and a statistically significant higher mean of math scores when compared to the *K* group. When there are concerns that young children with summer birthdays may not be ready to begin school, this research study supports the need to allow parents to make the decision to redshirt their children, enroll them in Kindergarten Readiness Classes, or enroll them in regular kindergarten classes.

Keywords: early childhood education, redshirting, kindergarten entrance age, summer birthdays, school readiness

Various educational initiatives, such as the Goals 2000: Educate America Act, No Child Left Behind Act, Race to the Top program, and the addition of Common Core State Standards, have laid the foundation for more rigorous curriculum standards and standardized testing for students of all ages. With the addition of Common Core State Standards, kindergarten students must be able to count to 100 by ones and tens; identify the front cover of a book and title page; and use a combination of drawing, verbal cues, and writing to narrate an event in sequence and give a reaction to what happened (Hubbard, 2012). Despite the high-stakes performance learning environments in the public school systems, parents, teachers, and school administrators want children to be successful. When the Carnegie Foundation (1992) surveyed 7,000 kindergarten teachers, the teachers identified 35% of their students as neither socially nor cognitively prepared for kindergarten. In addition, the National Institute for Early Education Research reported that one third of the nation's children were unprepared for kindergarten (Hubbard, 2012). Many families lack the ability to prepare their children for kindergarten through appropriate preschool programs. The Institute further reported that only 21% of 4-year-olds in Tennessee were enrolled in state-funded prekindergarten programs that provided children with the skills necessary for them to be successful in kindergarten (Hubbard, 2012).

In response to the implementation of higher standards, the states have set earlier eligibility dates for kindergarten entry, thus increasing the average age that students begin kindergarten. The change in kindergarten enrollment dates is due in part to older students

achieving more academic success than their younger peers in the same grade level (Elder & Lubotsky, 2009). Table 1 displays the various eligibility dates that the states have set for kindergarten entry. Students must be five years of age on or before the specified eligibility dates for them to be permitted to enroll in kindergarten during a given school year.

The problem in this study focused on the achievement gap between younger and older school age children that often widens when the younger children with summer birthdays enter kindergarten unprepared. Furthermore, when children enter school unprepared and are pushed to achieve beyond their level of development, additional problems, such as school failure, emerge (Elkind, 2001). Parents of children with birthdays near the eligibility date for school entry (June, July, August, and September) often worry about whether their children are ready for kindergarten. More affluent parents often postpone enrolling their children in kindergarten, because they do not want them to be the youngest in their class (Marshall, 2003). The decision by parents, teachers, and school administrators to delay kindergarten entrance for children is often swayed by the demands of high-stakes testing and accountability. Higher educational demands are placed on kindergarteners today, because they are often expected to demonstrate various abilities in reading and math before enrolling in kindergarten (Hubbard, 2012; Tyre, 2006). Upon kindergarten entry, young children with summer birthdays are often already at a disadvantage when compared to their older peers with fall and spring birthdays (Elder & Lubotsky, 2009; Oshima & Domaleski, 2006). Parents who do not think their young children are ready to begin kindergarten may choose to homeschool their children, *redshirt* their children for a year (delaying enrollment in kindergarten even though they meet the kindergarten entrance eligibility date), enroll them in a private preschool, or enroll them in a free kindergarten readiness program before kindergarten. The Tennessee school district in this study offers a class for “bright, young 5 year olds” who meet the kindergarten age requirement by being five years old by August 15th, but may need more time to grow and mature. This Kindergarten Readiness Class provides an opportunity for these children to be in an environment where they can participate in situations that allow for active movement during the lessons, shorter sitting times, more outside times, more hands on activities, and smaller student to teacher ratios. Many opportunities are given for learning through play, music, art, and self expression. The class was designed with their brain, physical, social, and emotional development in mind (Prichard, *n.d.*, para. 1).

In 2008, a child had to be 5 years old on or before September 30 and have a birth date between June 1 and September 30 to enroll in a Kindergarten Readiness Class in the local school district. As of 2015, a child must be 5 years old on or before August 15 and have a birth date between June 1 and August 15 to enroll in a Kindergarten Readiness Class in the local school district. The child’s maturity, fine motor skills, recommendations by parents and preschool teachers, and the Phelps Kindergarten Readiness screening results help determine placement. Individual Education Plans (IEPs) for speech are accepted; however, other IEPs for special education are not permitted. The child in the Kindergarten Readiness Class will attend a regular kindergarten class the following school year. Parents who are interested in enrolling their child in a Kindergarten Readiness Class must register their child through the regular kindergarten pre-registration process and inquire about the Kindergarten Readiness Class (Prichard, *n.d.*). It is important to know when a child is ready to start school, because a child’s success in kindergarten is a predictor of his or her future academic success in school (Connor & Morrison, 2006). High quality early childhood programs set the foundation for future learning by strengthening skills,

such as letter and sound recognition, phonological awareness, basic math, and emergent reading and writing (Connor & Morrison, 2006).

The purpose of the study was to examine the effects of the Kindergarten Readiness program in a large suburban school district in Tennessee as measured by third grade End of Year (EOY) benchmark performance assessments in reading and math. The significance of the study focused on analyzing the third grade reading and math EOY benchmark performance test scores of students who were enrolled in the Kindergarten Readiness program in the local school district and the scores of their peers who did not participate in the program to make decisions regarding the best options for preparing children for school. This research study sought to determine what is required to strengthen a young child's academic and social skills before kindergarten. Given the many options that parents have to make about how to prepare their child for kindergarten and when to enroll their child in kindergarten, this study sought to provide support to the parents of young children as they determine what is best for the child. This study also provides teachers and school administrators with research to aid in advising and guiding parents when deciding if their child is ready to enroll in a regular kindergarten class or whether he or she should be redshirted, enrolled in a private preschool, or enrolled in a Kindergarten Readiness Class.

Research Question and Null Hypothesis

Are there statistically significant differences in the third grade reading and math End of the Year (EOY) benchmark performance test scores between the *KR* students who were born between June 1 and September 30 and were enrolled in Kindergarten Readiness Classes in the local school district during the 2008-2009 school year ($n = 99$), the *SK* students who were born between June 1 and September 30 and were enrolled in regular kindergarten classes during the 2008-2009 school year ($n = 206$), the *RS* students who were born between June 1 and September 30 and were redshirted during the 2008-2009 school year ($n = 22$), and the *K* students who were born between October 1 and May 31 and were enrolled in regular kindergarten classes during the 2008-2009 school year ($n = 583$)?

Null hypothesis: $H_0: \mu_{KR} = \mu_{SK} = \mu_{RS} = \mu_K$

There are no statistically significant differences in third grade reading and math EOY benchmark performance test scores between students in the *KR*, *SK*, *RS*, and *K* groups.

Literature Review

Many individuals disagree regarding the optimum age for beginning kindergarten. This conflict is reflected through the variety of eligibility dates that the states have set for enrollment in kindergarten (U.S. Department of Education, National Center for Education Statistics, 2014). Elder and Lubotsky (2009) asserted that the older children are when they begin kindergarten, the more academic progress they achieve. In addition, Oshima and Domaleski (2006) reported large differences between the younger and older kindergarten students in reading, math, and general knowledge as well as the height of the children. Various studies describe an academic achievement gap between younger and older school age children with the older students consistently scoring higher on academic achievement tests than the younger students; however, researchers often disagree when attempting to identify the grade level that the academic achievement gap begins to fade (Cameron & Wilson, 1990; Crosser, 1991; Elder & Lubotsky,

2009; Graue & DiPerna, 2000; Huang & Invernizzi, 2012; Kurdek & Sinclair, 2001; Morrison, Griffith, & Alberts, 1997; National Institute of Child Health and Human Development, 2007; Oshima & Domaleski, 2006; Shepard & Smith, 1986). Huang and Invernizzi (2012) found that the academic achievement gap between younger and older students decreased as the students progressed from kindergarten to second grade; however, there was still a statistically significant difference in the achievement scores by the end of the second grade. Cameron and Wilson (1990), Graue and DiPerna (2000), Morrison et al. (1997), and Shepard and Smith (1986) reported that the academic achievement gap between younger and older students faded by the end of third grade; however, the National Institute of Child Health and Human Development (2007) ascertained that the children who started school at older ages showed higher gains in performance by the third grade on the Woodcock-Johnson Applied Problems subtests ($b = 5.16$, $p < .01$) and Picture Vocabulary subtests ($b = 4.40$, $p < .001$) as well as the teacher-rated Language and Literacy Scales ($b = .18$, $p < .10$) and Mathematical Thinking Scales ($b = 21$, $p < .05$). In addition, Crosser (1991) reported that students who entered kindergarten at 6-years-old scored significantly higher on reading achievement tests in fifth and sixth grades when compared to the students who entered kindergarten at 5-years-old.

Age differences, a lack of maturity, and the fear of future retentions are some of the reasons that parents may choose to redshirt their children or hold them out of school for a year (Tyre, 2006). Oshima and Domaleski (2006) suggested that educators disagree regarding the academic and behavioral effects of redshirting. In the 1990s and earlier, the practice of redshirting was more popular with younger boys and wealthier families (Graue & DiPerna, 2000). Many of the concerns regarding redshirting students were mainly focused on social aspects due to parents wanting their children to be good workers and classroom leaders (Graue, 1993a, 1993b; Lareau, 1994). In a study conducted by the U.S. Department of Education, National Center for Education Statistics (2013) kindergartners who delayed school entry for a year outperformed kindergartners who started school on time and kindergartners who repeated kindergarten on reading, math, and science assessments during the 2010-2011 school year; however, Spitzer, Cupp, and Parke (1995) reported that the youngest and oldest students in kindergarten and first grade had similar social outcomes including self-concept, peer acceptance, and teacher ratings of behavior.

When researching the long-term effects of redshirting, Uphoff and Gilmore (1985) found that students who began school at a younger age were not well-adjusted, lacked leadership skills when they reached high school, and were more likely to suffer from socioemotional problems, depression, and suicide. Byrd, Weitzman, and Auinger (1997), however, used cross-sectional analyses to determine that children from ages 7 to 17 who were redshirted and began school at an older age experienced more behavior problems than their peers. In addition, Lincove and Painter (2006) suggested that the practice of redshirting children was not an effective way to improve student outcomes, and age did not determine academic or social success in high school and young adulthood. When comparing the wages of the students who were redshirted to the wages of the rest of the student population, the students who were redshirted did not have an advantage in the job market (Lincove & Painter, 2006).

As an alternative to redshirting, many parents enroll their children in school readiness programs before enrolling them in kindergarten. When students who attended school readiness programs were compared to their peers who did not have preschool experience, Pelletier and Corter (2005) found that the students who attended school readiness programs had higher mean scores on a battery of readiness tests and activities. In another study, kindergarten teachers rated

the younger children who attended Head Start ($M = 52.6$) as more prepared to begin school than their older peers without preschool experience ($M = 47.6$) (Furlong & Quirk, 2011). When Williams, Landry, Anthony, Swank, and Crawford (2012) compared children from higher-income families to children from lower-income families, the children from low-income families who participated in prekindergarten programs achieved reading and social scores that were similar to the scores of their peers. In addition, when children participate in prekindergarten programs, there are often long-term social effects. For example, the students who participated in the Perry Preschool program had higher earnings and lower levels of criminal behavior in their late 20s when compared to other random children from the group (Heckman, 2000).

Kindergarten teachers can develop a more advanced curriculum for the redshirted students whose parents were able to provide them with early educational experiences before school (Graue, 1993a, 1993b). Children from low-income families, however, often lack financial support and cognitive stimulation prior to enrolling in school; therefore, these at-risk children do not make academic gains when they stay out of school an extra year before entering kindergarten (Elder & Lubotsky, 2009). In an attempt to rectify this problem, some school districts, like the one in this study, provide free Kindergarten Readiness Classes for children with summer birthdays. Students who were enrolled in Kindergarten Readiness Classes are essentially redshirted students with the advantage of acquiring additional early educational instruction through the Kindergarten Readiness program; therefore, kindergarten teachers can also provide a more advanced curriculum to the former Kindergarten Readiness students (E. Burton, L. Davis, & S. Gillaspie, personal communication, July 10, 2015).

Theoretical Framework

This research was guided by Piaget's belief (1970) that children need early opportunities to learn on their own and through the guidance of developmentally appropriate early childhood educational practices. Piaget asserted that a developmental foundation should be formed before learning can take place (Ilg & Ames, 1972). According to Piaget, development is the natural and spontaneous acquisition of general cognitive structures, and learning is the artificial and induced acquisition of specific information (Packer & Goicoechea, 2000). Piaget (1970) believed that children should not be pushed beyond what they are developmentally ready to handle. As Elkind (1989) argued, educational practice is often based on a psychometric educational philosophy that should be replaced with a developmentally appropriate philosophy with educators who match curricula to the level of a child's emerging mental abilities. Furthermore, the National Association for the Education of Young Children (*n.d.*) stated that the curriculum of an early childhood educational program should "address all aspects of child development" (Standard 2: Curriculum section, para. 4).

Methodology

Research data for this causal-comparative quantitative educational research study included third grade End of the Year (EOY) benchmark performance test scores in reading and math. The Tennessee Comprehensive Assessment Program (TCAP) Achievement Test is a state-wide criterion-referenced test that is administered each spring in the Tennessee public schools to measure students' skills and progress (Tennessee Department of Education, 2015). When determining the reliability of the third grade TCAP Achievement Test scores, T. Plunkett

(personal communication, September 20, 2013) from the Department of Assessment Design at the Tennessee Department of Education reported a KR-20 of 0.93 for the 2012 Reading TCAP ($SEM = 3.37$), a KR-20 of 0.93 for the 2013 Reading TCAP ($SEM = 3.32$), a KR-20 of 0.94 for the 2012 Mathematics TCAP ($SEM = 2.94$), and a KR-20 of 0.92 for the 2013 Mathematics TCAP ($SEM = 2.62$). Furthermore, the email from T. Plunkett (personal communication, September 20, 2013) reported that the construct and content validity measures were accurate measures for the academic achievement of third graders.

The participants in this study included a total of 910 students who were eligible to attend kindergarten in a local school district in Tennessee during the 2008-2009 school year. These students took the third grade EOY benchmark performance assessments (TCAP) during the spring of 2012 or the spring of 2013, were continuously enrolled in one of the 13 schools that offered Kindergarten Readiness Classes within the local school district from the beginning of school until the third grade, and were not retained in any grade level. Student birth dates and school enrollment dates were used to categorize each student's data into one of the student groups (*KR*, *SK*, *K*, and *RS*) for analysis (Table 2). Each of the four student groups represent the decisions made by parents, teachers, and school administrators regarding the most effective ways to support the development of the young child. It is presumed that each parent chose the method that was believed to be developmentally in the best interest of the child. Before the 2008-2009 school year, the parents of each child, who met the state requirements for kindergarten enrollment, made one of the following decisions: to enroll their child in a regular kindergarten class during the 2008-2009 school year (*K*: fall and spring birthdays and *SK*: summer birthdays), to redshirt their child during the 2008-2009 school year and enroll him or her in a regular kindergarten class during the 2009-2010 school year (*RS*: summer birthdays), or to enroll their child in a Kindergarten Readiness Class during the 2008-2009 school year and a regular kindergarten class during the 2009-2010 school year (*KR*: summer birthdays). In 2008, students who were eligible to enroll in Kindergarten Readiness Classes had birth dates between June 1 and September 30. Third grade student EOY benchmark performance test scores in reading and math were obtained from the spring of 2012 and the spring of 2013 to accurately represent the enrollment decisions that parents made before the 2008-2009 school year. Table 2 displays the demographics of each student group. Socioeconomic status (SES) was defined by student enrollment in the National School Lunch Program (NSLP) that provides low-cost or free lunches to children in need.

Preliminary assumption testing included descriptive statistics (mean, standard deviation, range of scores, skewness, and kurtosis), Mahalanobis distances to check for multivariate normality, matrices of scatterplots between pairs of variables to test linearity, a separate univariate analysis of variance for each of the dependent variables to assess multicollinearity, Box's M Test of Equality of Covariance Matrices, Levene's Test of Equality of Error Variances, and Levene's Test for Homogeneity of Variances. No serious violations of the assumptions were noted; therefore, a mixed-design multivariate analysis of variance (MANOVA) was performed to investigate differences in the third grade reading and math EOY benchmark performance test scores (dependent variables) of students in the *KR*, *SK*, *RS*, and *K* groups (independent variable). Then, between-groups analyses of variance (ANOVAs) and Tukey's HSD post-hoc tests were used to identify the student groups that had statistically significant differences in reading and math scores. The first analysis of variance was conducted with the student groups (*KR*, *SK*, *RS*, and *K*) as the independent variable and the reading scores as a dependent variable. The second analysis of variance was conducted with the math scores as a dependent variable. An alpha level

of $p \leq .05$ was established for all of the statistical tests. The null hypothesis was retained or rejected based on the results of the MANOVA and ANOVA analyses. Eta squared (η^2) effect size values were used to determine practical significance. Tukey's HSD post-hoc tests were used to protect against Type I errors.

Analysis of Data

The MANOVA revealed statistically significant differences between the *KR*, *SK*, *RS*, and *K* student groups on the combined third grade reading and math EOY benchmark performance test scores, $F(6, 1810) = 3.21, p = .004$; Wilks' Lambda = .98; partial $\eta^2 = .01$. When the results of the reading and math scores were considered separately, both differences reached statistical significance, Reading: $F(3, 906) = 3.36, p = .018$; partial $\eta^2 = .01$; Math: $F(3, 906) = 5.11, p = .002$; partial $\eta^2 = .02$. Table 3 displays the statistical descriptives of the reading and math scores of the *KR*, *SK*, *RS*, and *K* student groups, and Table 4 displays the results of the MANOVA.

The between-groups ANOVAs revealed statistically significant differences at the $p < .05$ level in the third grade reading, $F(3, 906) = 3.36, p = .03$, and math, $F(3, 906) = 5.11, p = .003$, EOY benchmark performance test scores of the *KR* and *SK* student groups; therefore, the null hypothesis was rejected (Table 5). Despite reaching statistically significant differences, the actual differences in the means of the reading and math scores between the *KR* and *SK* student groups were small. The effect size, calculated using eta squared (η^2), was .01 for the reading scores and .02 for the math scores; therefore, only 1% of the variance in reading scores and 2% of the variance in math scores can be explained by the student groups. Post-hoc comparisons using Tukey's HSD tests, however, indicated that the students in the *KR* group (Reading: $M = 88.84, SD = 5.59$; Math: $M = 90.78, SD = 5.99$) had statistically significant higher means of reading and math scores when compared to the students in the *SK* group (Reading: $M = 86.57, SD = 6.73$; Math: $M = 87.78, SD = 6.93$).

In addition, there was a statistically significant difference at the $p < .05$ level in the third grade math EOY benchmark performance test scores for the *KR* and *K* student groups, $F(3, 906) = 5.11, p < .001$; therefore, the null hypothesis was rejected (Table 5). Despite reaching statistical significance, the actual difference in the mean of the math scores between the *KR* and *K* student groups was small. The effect size, calculated using eta squared (η^2), was .02. As a result, only 2% of the variance in math scores can be explained by the student groups. Post-hoc comparisons using the Tukey's HSD test indicated that the students in the *KR* group ($M = 90.78, SD = 5.99$) had a statistically significant higher mean of math scores when compared to the students in the *K* student group ($M = 87.88, SD = 7.29$).

Although the null hypothesis was rejected because there were statistically significant differences in the third grade reading and math EOY benchmark performance test scores of the students in the *KR* and *SK* groups and the math scores of the students in the *KR* and *K* groups, the comparisons of the reading and math scores of the other student groups did not result in statistically significant differences. The ANOVA of the reading scores between the students in the *KR* and *K* groups ($p = .074$), *RS* and *K* groups ($p = .414$), *SK* and *K* groups ($p = .797$), *RS* and *KR* groups ($p = .99$), and *SK* and *RS* groups ($p = .264$) did not result in statistically significant differences. In addition, the ANOVA of the math scores between the students in the *RS* and *K* groups ($p = .928$), *SK* and *K* groups ($p = .998$), *RS* and *KR* groups ($p = .641$), and *SK* and *RS* groups ($p = .913$) did not result in statistically significant differences. The sample sizes, means, and standard deviations for each student group are displayed in Table 3.

Discussion and Conclusions

There are numerous reasons, such as physical growth, academic abilities, and social functioning, that parents decide that their young children with summer birthdays are not ready to begin regular kindergarten classes (Graue, 1993a, 1993b; Lareau, 1994). When parents choose to wait before enrolling their young children in regular kindergarten classes, some of the options that they select for their children include: redshirting their children and keeping them at home for a year, enrolling them in a private preschool, or enrolling them in Kindergarten Readiness Classes in the local school district. Parents must decide what is best for their children.

The students with summer birthdays who enrolled in Kindergarten Readiness Classes during the 2008-2009 school year (*KR*) had a statistically significant higher mean of third grade reading and math EOY benchmark performance test scores when compared to their equally likely peers (*SK*) with summer birthdays who enrolled in regular kindergarten classes despite their young age. In addition, the students in the *KR* group had a statistically significant higher mean of math scores when compared to their peers (*K*) with fall and spring birthdays who enrolled in regular kindergarten classes during the 2008-2009 school year. However, comparisons of the reading scores between students in the *KR* and *K* student groups did not result in statistically significant findings. Given the findings, the Kindergarten Readiness program that was provided by the local school district during the 2008-2009 school year appears to have had a positive effect on some of the program participants in the *KR* group (Reading scores of *KR* and *SK*: $p = .03$, $\eta^2 = .01$; Math scores of *KR* and *SK*: $p = .003$, $\eta^2 = .02$; Math scores of *KR* and *K*: $p < .001$, $\eta^2 = .02$). As Elkind (2001) argued, children who are pushed to achieve beyond their adaptive abilities may experience problems including school failure, school burnout, or behavioral symptoms, such as aggression or withdrawal, chronic physical and psychological illnesses, drug and alcohol abuse, suicide, depression, and anxiety. Perhaps the Kindergarten Readiness program gave the younger students with summer birthdays (*KR*) extra time to grow and mature without pressuring them to achieve beyond their developmental abilities. As corroborated by Kurdek and Sinclair (2001), the educational experiences that children encounter before kindergarten predict their future success in school. Some parents do not have the financial means to stay at home with their children or send their children to private preschools (Elder & Lubotsky, 2009); therefore, free early childhood education interventions, such as the Kindergarten Readiness program, may give parents the tools they need to prepare their children for kindergarten, thus narrowing the achievement gap that often exists between younger and older school age children.

The students who were redshirted before kindergarten (*RS*) performed as well as the students who were enrolled in Kindergarten Readiness Classes before kindergarten (*KR*) on the third grade reading and math EOY benchmark performance assessments. Given the findings, parents should have the freedom to redshirt their children and select alternative forms of early childhood education that are not provided by the local school district before enrolling them in kindergarten. The unexpected low number of only 22 students in the *RS* group was due to the fact that an extremely small portion of the parent population decided to redshirt their children during the 2008-2009 school year. The parents of young children with summer birthdays who were opposed to redshirting their children may have decided to enroll their children in Kindergarten Readiness Classes instead of keeping them at home or enrolling them in private preschools. As Elder and Lubotsky (2009) reported, children from low-income families often lack financial support and cognitive stimulation prior to enrolling in school; therefore, they do

not make academic gains when they stay out of school an extra year before entering kindergarten. Furthermore, a positive relationship between student achievement and kindergarten entry age was mostly due to the skills that the older children gained before kindergarten (Elder & Lubotsky, 2009). In the current study, perhaps more parents enrolled their children in the Kindergarten Readiness program during the 2008-2009 school year, because the program was offered as a no cost means of providing their children with cognitive stimulation before kindergarten.

The redshirted students and students with summer birthdays who went to kindergarten during the 2008-2009 school year (*RS* and *SK*) performed as well as the older students with fall and spring birthdays who did not qualify for Kindergarten Readiness Classes (*K*) on the third grade EOY benchmark performance assessments in reading and math. In addition, the students with summer birthdays who went to kindergarten during the 2008-2009 school year (*SK*) performed as well as the redshirted students (*RS*) on the third grade EOY benchmark performance assessments in reading and math. If there were academic achievement gaps in reading and math between the students in the *K*, *RS*, and *SK* groups during kindergarten through the second grade, the academic differences faded by the end of the students' third grade year. Although it was important to compare the reading and math scores of students in the *K*, *RS*, and *SK* groups, the findings indicated that parents and guardians should have the freedom to make final school enrollment decisions for their children. Some parents may choose to redshirt their children and select alternative forms of early childhood education that are not provided by the local school district before enrolling them in kindergarten (*RS*). Other parents may decide that their young children with summer birthdays are developmentally ready to begin regular kindergarten classes (*SK*); therefore, these children are not redshirted and do not enroll in Kindergarten Readiness Classes. Educational professionals can guide parents by informing them of the qualifications, guidelines, philosophy, and potential benefits of the Kindergarten Readiness Class. Children deserve the opportunity to succeed, and their placement should be based on their developmental needs.

Implications for Practice

When there are concerns that young children with summer birthdays may not be ready to begin school, this research study supports the need to allow parents to make the decision to redshirt their children, enroll them in Kindergarten Readiness Classes, or enroll them in regular kindergarten classes. When parents enroll their children in early childhood education programs, such as the Kindergarten Readiness program, however, they may be reducing the number of young children who will be pushed to achieve beyond what they are developmentally ready to handle and are preventing retentions, academic deficiencies, and behavioral problems in the future (Elkind, 2001). The Kindergarten Readiness teachers and regular kindergarten teachers in the local school district attested that the students who were enrolled in Kindergarten Readiness Classes were often more prepared for kindergarten, because they were older and more mature; had longer attention spans; and were more familiar with school and classroom rules, routines and procedures. As a result, when the students who were enrolled in the Kindergarten Readiness Classes were ready to progress to regular kindergarten classes, the kindergarten teachers were able to master a larger number of curriculum standards (E. Burton, L. Davis, & S. Gillaspie, personal communication, July 10, 2015). Teachers should educate parents about the benefits of enrolling their children in developmentally appropriate programs that provide cognitive

stimulation to young students while giving them an extra year to grow and develop before kindergarten. School systems have the responsibility to provide young children with effective early childhood educational programs that prepare them for their future educational endeavors. Various programs such as Response to Instruction and Intervention (RTI²) help students who struggle with academic deficiencies (Tennessee Department of Education, 2013); however, early childhood education programs such as the Kindergarten Readiness program can help prevent the academic deficiencies and behavior problems that arise as students progress through school by identifying and correcting these problems early. The demands of high-stakes testing and the addition of Common Core State Standards promote the need for early childhood education; however, many families lack the ability to prepare their children for kindergarten through appropriate preschool programs (Elder & Lubotsky, 2009). The funding and implementation of effective early childhood education programs, therefore, would help parents prepare their children for school.

Limitations and Need for Future Research

This study was limited to the schools in the local district that participated in the Kindergarten Readiness program during the 2008-2009 school year. In addition, the study was limited to the third grade Reading and Mathematics TCAP Achievement Test scores of the students in the local school district during the spring of 2012 and the spring of 2013 as well as the reliability and validity of these EOY benchmark performance test scores. In the current study, students were classified into groups that represented the enrollment decisions that parents made before the 2008-2009 school year; however, future research studies can be used to investigate the means of the student groups as classified by gender, ethnicity, and socioeconomic status. This study was limited by any decision made or life event that may have occurred in a student's home prior to the student's kindergarten enrollment date, such as curriculum choice (e.g., through a stay-at-home parent, other prekindergarten programs, private preschools, or daycare), deaths, births, the relocation of home, or the transferring of schools. Future research studies can identify the early childhood educational programs that were not provided by the local school district and how these programs affected the future academic achievement of students. In addition, the study was limited by any decision made by a student's parents to provide tutoring or other academic services outside of the regular school day. This study was limited by the level of the teachers' effectiveness as a student progressed from kindergarten to the third grade. The conditions that drove a local school district to implement the Kindergarten Readiness program were also limitations of the study; therefore, Kindergarten Readiness teachers and kindergarten teachers could complete interviews and surveys that would provide additional information about how school readiness and chronological age at kindergarten entry affected the academic achievement of students as they progressed through school. In the current study, the students' scores from the Phelps Kindergarten Readiness Scale and teacher behavior ratings were not provided by the school district; however, these scores and ratings can be compared with the students' EOY benchmark performance test scores to further study how kindergarten readiness affected the future academic achievement of students.

References

- Byrd, R. S., Weitzman, M., & Auinger, P. (1997). Increased behavioral problems associated with delayed school entry and delayed school progress. *Pediatrics*, *100*(4), 654–661.
- Cameron, M. B., & Wilson, B. J. (1990). The effects of chronological age, gender, and delay of entry on academic achievement and retention: Implications for academic redshirting. *Psychology in the Schools*, *27*(3), 260-263.
- Carnegie Foundation. (1992). *Ready to learn: A mandate for the nation*. New York: Carnegie.
- Connor, C. M., Morrison, F. J. (2006). Services or programs that influence young children's academic success and school completion. Rev ed. In R. E. Tremblay, R. G. Barr, R. Peters (Ed.s), *Encyclopedia on Early Childhood Development*. Retrieved from http://www.child-encyclopedia.com/documents/Connor-MorrisonANGxp_rev.pdf
- Crosser, S. L. (1991). Summer birth date children: Kindergarten entrance age and academic achievement. *Journal of Educational Research*, *84*(3), 140-146.
- Elder, T. E., Lubotsky, D. H. (2009). Kindergarten entrance age and children's achievement: Impacts of state policies, family background, and peers. *The Journal of Human Resources*, *44*(3), 641-683.
- Elkind, D. (1989, October). Developmentally appropriate practice: Philosophical and practical implications. *Phi Delta Kappan*, *71*(2), 113-117.
- Elkind, D. (2001). *The hurried child: Growing up too fast too soon*. Cambridge, MA: Da Capo.
- Furlong, M., & Quirk, M. (2011, January 1). The relative effects of chronological age on Hispanic students' school readiness and grade 2 academic achievement. *Contemporary School Psychology*, *15*, 81-92.
- Graue, M. E. (1993a). Expectations and ideas coming to school. *Early Childhood Research Quarterly*, *8*(1), 53-75.
- Graue, M. E. (1993b). *Ready for what? Constructing meanings of readiness for kindergarten*. Albany: State University of New York Press.
- Graue, M. E., & DiPerna, J. (2000). Redshirting and early retention: Who gets the "gift of time" and what are its outcomes? *American Educational Research Journal*, *37*(2), 509-534.
- Heckman, J. (2000). Policies to foster human capital. *Research in Economics*, *54*(1), 3–56.
- Huang, F. L., Invernizzi, M. A. (2012). The association of kindergarten entry age with early literacy outcomes. *The Journal of Educational Research*, *105*(6), 431-441.
- Hubbard, J. (2012, April 10). Tennessee kids lack skills for kindergarten. *The Tennessean*. Retrieved from <http://blackstarjournal.org/?p=759>
- Ilg, F. L., & Ames, L. B. (1972). *School readiness. Behavior tests used at the Gesell Institute* (Rev. ed.). New York: Harper & Row.
- Kurdek, L. A. & Sinclair, R. J. (2001). Predicting reading and mathematics achievement in fourth-grade children from kindergarten readiness scores. *Journal of Educational Psychology*, *93*(3), 451-455.
- Lareau, A. (1994). *Delayed kindergarten entrance: Social class, parent involvement, and redshirting*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.
- Lincove, J. A., & Painter, G. (2006). Does the age that children start kindergarten matter? Evidence of long-term educational and social outcomes. *Educational Evaluation and Policy Analysis*, *28*(2), 153-179.

- Marshall, H. H. (2003). Opportunity deferred or opportunity taken? An updated look at delaying kindergarten entry. *Young Children*, 58(5), 84-93.
- Morrison, F. J., Griffith, F. M., & Alberts, D. M. (1997). Nature-nurture in the classroom: Entrance age, school readiness, and learning in children. *Developmental Psychology*, 33(2), 254-262.
- National Association for the Education of Young Children. (n.d.). *The 10 NAEYC program standards*. Retrieved from <http://families.naeyc.org/accredited-article/10-naeyc-program-standards>
- National Institute of Child Health and Human Development, Early Child Care Research Network. (2007). Age of entry to kindergarten and children's academic achievement and socioemotional development. *Early Education and Development*, 18(2), 337-368.
- Oshima, T. C., & Domaleski, C. S. (2006). Academic performance gap between summer-birthday and fall-birthday children in grades k-8. *The Journal of Educational Research*, 99(4), 212-217.
- Packer, M. J., & Goicoechea, J. (2000). Sociocultural and constructivist theories of learning: Ontology, not just epistemology. *Educational Psychologist*, 35(4), 227-241.
- Pelletier, J., & Corter, C. (2005). Design, implementation, and outcomes of a school readiness program for diverse families. *School Community Journal*, 15(1), 89-116.
- Piaget, J. (1970). *Science of education and the psychology of the child*. New York: Orion Press.
- Prichard, L. (2015). *Kindergarten readiness*. Retrieved from [Anonymous]
- Shepard, L. A., & Smith, M. L. (1986, November). Synthesis of research on school readiness and kindergarten retention. *Educational Leadership*, 44, 78-86.
- Spitzer, S., Cupp, R., & Parke, R. D. (1995). School entrance age, social acceptance, and self-perceptions in kindergarten and first grade. *Early Childhood Research Quarterly*, 10(4), 433-450.
- Tennessee Department of Education. (2013, August). *RTI² framework 2013 implementation guide*. Retrieved from [http://www.tncore.org/sites/www/Uploads/RTI²%20Implementation%20Guide-FINAL-08.22.13.pdf](http://www.tncore.org/sites/www/Uploads/RTI2%20Implementation%20Guide-FINAL-08.22.13.pdf)
- Tennessee Department of Education. (2015). *Understanding the individual profile report (IPR)*. Retrieved from http://tn.gov/assets/entities/education/attachments/tst_ach_2015_parent_IPR_guide.pdf
- Tyre, P. (2006, September 11). The new first grade: Too much too soon? *Newsweek*, 34-44.
- Uphoff, J. K., & Gilmore, J. (1985). Pupil age at school entrance: How many are ready for success? *Educational Leadership*, 43(1), 86-90.
- U.S. Department of Education, National Center for Education Statistics. (2013). *The Condition of Education*. Retrieved from http://nces.ed.gov/programs/coe/indicator_tea.asp
- U.S. Department of Education, National Center for Education Statistics (2014). *Types of state and district requirements for kindergarten entrance and attendance, by state: 2014*. Retrieved from http://nces.ed.gov/programs/statereform/tab5_3.asp
- Williams, J. M., Landry, S. H., Anthony, J. L., Swank, P. R., & Crawford, A. D. (2012). An empirically-based statewide system for identifying quality pre-kindergarten programs. *Education Policy Analysis Archives*, 20(17), 36.

Table 1
Eligibility Dates to Begin Kindergarten as of 2014

Eligibility Date (5 on or before this date)	State(s)
Local Education Agencies choose eligibility dates	Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, & Vermont
July 31	Hawaii & Nebraska
August 1	Arkansas, Indiana, Missouri, & North Dakota
August 15	Tennessee
August 31	Delaware, Kansas, North Carolina, & Washington
September 1	Alabama, Alaska, Arizona, California, Florida, Georgia, Idaho, Illinois, Maryland, Minnesota, Mississippi, New Mexico, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Texas, West Virginia, & Wisconsin
September 2	Utah
September 10	Montana
September 15	Iowa & Wyoming
September 30	The District of Columbia, Louisiana, Nevada, & Virginia
October 1	Colorado, Kentucky, & Michigan
October 15	Maine
January 1	Connecticut

Note. Adapted from “Types of State and District Requirements for Kindergarten Entrance and Attendance, by State: 2014,” by U.S. Department of Education, National Center for Education Statistics, 2014.

Table 2
Demographics of the Student Groups

Code	<i>n</i>	%	Group description	Range of birthdates	Gender	<i>n</i>	%	Ethnicity	<i>n</i>	%	SES	<i>n</i>	%
<i>KR</i>	99	11%	Enrolled in Kindergarten Readiness Classes in 2008, enrolled in regular kindergarten classes in 2009, EOY testing in 2013.	June 1-September 30	Male	53	54%	White	78	79%	NSLP	32	32%
					Female	46	46%	Black	8	8%	Non-NSLP	67	68%
								Asian	5	5%			
								Hispanic	8	8%			
<i>SK</i>	206	23%	Enrolled in regular kindergarten classes in 2008 despite their young age, EOY testing in 2012.	June 1-September 30	Male	85	41%	White	139	67%	NSLP	64	31%
					Female	121	59%	Black	30	15%	Non-NSLP	142	69%
								Asian	16	8%			
								Hispanic	21	10%			
<i>RS</i>	22	2%			Male	10	45%	White	21	95%	NSLP	4	18%

			Redshirted in 2008, enrolled in regular kindergarten classes in 2009, EOY testing in 2013.	June 1-September 30	Female	12	55%	Black	0		Non-NSLP	18	82%
								Asian	1	5%			
								Hispanic	0				
<i>K</i>	583	64%	Did not qualify for Kindergarten Readiness Classes, enrolled in regular kindergarten in 2008, EOY testing in 2012.	October 1-May 31	Male	282	48%	White	424	73%	NSLP	181	31%
					Female	301	52%	Black	63	11%	Non-NSLP	402	69%
								Asian	37	6%			
								Hispanic	55	9%			
								Indian	4	1%			

Table 3
Descriptives of Reading and Math Scores of the KR, SK, RS, and K Student Groups

Variable	<i>n</i>	<i>M</i>	<i>sd</i>
Reading scores			
<i>KR</i>	99	88.84	5.59
<i>SK</i>	206	86.57	6.73
<i>RS</i>	22	89.32	5.40
<i>K</i>	583	87.07	6.95
Total	910	87.2	6.76
Math scores			
<i>KR</i>	99	90.78	5.99
<i>SK</i>	206	87.78	6.93
<i>RS</i>	22	88.82	6.22
<i>K</i>	583	87.88	7.29
Total	910	88.19	7.11

Table 4
MANOVA of Reading and Math Scores between KR, SK, RS, and K Student Groups

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	Partial η^2
Reading scores	3	457	152	3.36	.018*	.01
Residuals	906	41035	45			
Total	909	41492				
Math scores	3	764	255	5.11	.002**	.02
Residuals	906	45179	50			
Total	909	45943				

p* < .05. *p* < .01.

Table 5
ANOVAs of Reading and Math Scores between KR, SK, RS, and K Student Groups

Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
Reading scores of <i>KR</i> and <i>SK</i>						
Between-Group	3	457	152	3.36	.03*	.01
Within-Group	906	41035	45			
Total	909	41492				
Math scores of <i>KR</i> and <i>SK</i>						
Between-Group	3	764	255	5.11	.003**	.02

	Within-Group	906	45179	50			
	Total	909	45943				
Math scores of <i>KR</i> and <i>K</i>							
	Between-Group	3	764	255	5.11	< .001***	.02
	Within-Group	906	45179	50			
	Total	909	45943				

* $p < .05$. ** $p < .01$. *** $p < .001$.