The Impact of Birthdate on Kindergarten Student Communication, Social-Emotional, and Early Reading School Readiness in Rural Title I Elementary Schools

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Abstract

The purpose of this quantitative causal-comparative and regression analysis study was to assess whether students with summer birthdays enrolling in kindergarten enter school at a disadvantage compared to their peers in academic, communication, and social-emotional school readiness. Assessing a student's readiness for kindergarten is complex and requires an understanding of a student's cognitive development, as well as the growth of their communication and social-emotional skills. Archived data from a rural Kansas school district with three Title I elementary schools was utilized in the study. Six research questions guided the study. Four of these research questions focused on determining whether differences existed in communication school readiness, social-emotional school readiness, early reading gains, and early social-emotional gains between students with summer birthdays and students with earlier birthdays. The remaining two research questions were incorporated to determine whether a student's communication school readiness could be used to predict their early reading gains and whether a student's social-emotional school readiness could be used to predict their early social-emotional gains. Findings indicated no significant differences in communication school readiness, social-emotional school readiness, early reading gains, or social-emotional gains between students with summer birthdays and students with earlier birthdays. Furthermore, communication school readiness did not statistically predict reading gains, nor did social-emotional school readiness predict social-emotional gains. Future research could replicate the current study with an expanded participant group, including students from suburban and urban school districts, as well as incorporating participants from a variety of ethnic backgrounds. Examining the impact of other variables such as gender

and early childhood opportunities accessed by a student would strengthen the findings and allow educators to better understand the effect of birthdate on school readiness.

Dedication

I dedicate this dissertation to my daughter, Chloe. While I wish you were here to celebrate the completion of this work with me, your ability to persevere through the most challenging situations challenged me to do the same throughout this process. Thank you for teaching me to ask the question, “Why come?” and use my imagination. You approached everything with such energy and love for others. Your example has led to a work that I hope will impact others in a manner that would make you proud.

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To my daughters, Caroline and Jacqueline, everything I do is for you. I am proud of each of you and hope that someday you will see this as an example of setting big goals and working to achieve them. You are going to do great things!

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Chapter 1

Introduction

Since the inception of kindergarten in 1837, early childhood programming has shifted to meet societal needs. The philosophies of its founder, Friedrich Froebel, led to an initial kindergarten curriculum designed around "music, nature study, stories, and dramatic play" (Passe, 2010, p. 42). The kindergarten movement in the United States incorporated German kindergarten theories with an American focus on developing the whole child. An emphasis on a child's cognitive skill development and play-based social-emotional skills began to emerge (Passe, 2010). However, late into the cold-war, concerns that the United States was falling behind other world powers initiated a shift that would continue into the beginning of the 21st century. Kindergarten curriculum began to emphasize a more rigorous program of study that moved away from these foundational skills and focused on reading, math, and abilities identified for future school success (Shapiro, 1983; Mindess & Mindess, 1972).

Just as the curriculum has changed, access to kindergarten has expanded. The first American kindergartens were predominantly private schools for factory workers with enrollment open to three to six-year-olds (Passe, 2010). The first public kindergartens were implemented in St. Louis, Missouri, in 1873, with most school systems having "publicly funded kindergartens that were open for five-year-olds" by 1914 (Passe, 2010, p. 43). As of 2018, all 50 states offered, and 17 states mandated that children enroll in kindergarten, with every state providing kindergarten in their public

schools (Education Commission of the States, 2018). However, entrance age requirements for kindergarten varied across the nation.

The utilization of a September cutoff date, requiring students to reach the age of five for enrollment has increased over time. In 1975, nine states with a cutoff date required students entering kindergarten to have reached the age of five by a specific date in September (Education Commission of States, 2011). By 1990, that number had increased to twenty-eight states (Education Commission of States, 2011). In 2018, 45 states established a precise cutoff date for kindergarten enrollment, and 42 states required that a student reach the age of five by a specific date in September (Education Commission of States, 2018).

Educator concerns and political issues have created questions about an established enrollment date for kindergarten students based on age. An Education Commission of States report Full-Day Kindergarten: A Study of State Policy in the United States (2018) cited three assumptions that legislators have considered in previous decisions to move the kindergarten entrance date. First, "from a policy perspective, raising the kindergarten entrance age will increase student achievement because they (lawmakers) believe older children are better prepared for success" (Education Commission of States, 2018, p. 1). Legislators and educators agreed that students entering school at an older age would be more prepared for the school environment's academic demands. Next, "from a fiscal perspective, raising the kindergarten entrance age creates a one-time decrease in the education budget as it reduces the number of children who enroll when the age change takes effect" (Education Commission of States, 2018, p. 1). While the financial implications of enrollment requirement changes were not a part of the current study,

raising the entrance age would have significant ramifications for state and local school district budgets. Finally, "from a child's perspective, raising the kindergarten age means that some children essentially miss out on an entire year of learning" (Education Commission of States, 2018, p. 1). According to the Society for Research in Childhood Development (Stipek, 2002), the "out-of-school time contributes to the racial and social class achievement gap more than does in-school time" (p. 12). Due to access issues and the costs associated with preschool and other childcare programs, policies that kept children from enrolling in kindergarten at a younger age placed individuals with lower financial resources at a considerable disadvantage. Delaying their entrance to school could directly impact all areas of their skill development. Similarly, a delay in starting school could affect schools' ability to identify and provide supports to students with special needs (Stipek, 2002).

Background

Kansas has followed the national trend with minimal changes to the entrance date for kindergarten students. In 1975, Kansas statutes required students to reach the age of five before September 1 (Education Commission of States, 2011, p. 3). However, in 2018, the entrance cutoff date moved a single day to August 31 (Education Commission of States, 2018, p. 1). While the entrance date has minimally changed, the Kansas Board of Education's focus on kindergarten readiness increased in October 2015. The Kansas Can Vision identified kindergarten readiness as one of five outcomes that the Kansas State Board of Education would assess (Kansas State Department of Education [KSDE], 2018). The State Board desired that "each student enter kindergarten at age five socially, emotionally and academically prepared for success" (KSDE, 2016, p. 2).

Similar to the assertion of the Society of Research in Childhood Education that delaying students' enrollment in schools creates challenges in services and student preparedness, the Kansas State Department of Education (2018) suggested that ensuring all students enter kindergarten ready to meet the expectations of school would require significant programming and policy changes. To support schools in measuring kindergarten readiness and to collect data to inform legislative decisions on policy and finance, KSDE partnered with Brookes Publishing Co. During the 2015-2016 school year, KSDE began requiring all school districts in Kansas to assess incoming kindergarten students between August 1 and September 20 utilizing the Ages and Stages Questionnaire [ASQ-3] and the Ages and Stages Questionnaire – Social-emotional [ASQ: SE-2] (KSDE, 2019). The established screening processes have included all students, those with summer birthdays, on or after June 1, and their peers with early birthdays on or before May 31.

In addition to the assessments required by KSDE, School District A, a mid-sized rural school district in Kansas, began assessing and monitoring kindergarten students' academic and social-emotional skill levels utilizing the Formative Assessment System for Teachers [FAST] during the 2019-2020 school year. This battery of assessments was administered three times during the school year. It included the earlyReading, earlyMath, and Social, Academic, Emotional Behavior Rating Scale [SAEBRS]. Similar to the ASQ-3 and ASQ: SE-2, all kindergarten students are assessed, including students with summer birthdays, on or after June 1, and their peers with birthdays on or before May 31.

Statement of the Problem

KSDE has defined kindergarten readiness as one of its board goals within the Kansas Can Vision (KSDE, 2016). KSDE (2016) noted in a report entitled, Kindergarten in Kansas, "parents worry their child may not be ready, but all children are ready to enter kindergarten when they meet the age requirement – five on or before August 31 of their kindergarten year" (p. 3). KSDE's statement intended to ease parents' concerns while simultaneously sending a clear message to Kansas schools concerning the expectation that their systems meet the needs of all students enrolling in kindergarten, no matter their level of readiness for school. However, increasing rigor in the kindergarten curriculum has created a primary focus of educators on a child's academic readiness for school. In contrast, communication readiness and social-emotional readiness may be even more impactful in ensuring all students' success in school.

Educational researchers have studied kindergarten students with summer birthdays but have focused heavily on academic readiness for school (Huang & Invernizzi, 2012; Bedard, & Dhuey, 2006; Crone & Whitehurst, 1999; Datar, 2006; Stipek & Byler, 2001). These studies have provided educators the knowledge about how enrolling in school at a younger age impacts academic readiness and the length of time it may take a student with a summer birthday to reach similar academic levels as their peers with earlier birthdays. However, research on the effect of a student having a summer birthday seems limited to literacy and mathematics. Other factors such as communication and social-emotional development should be examined more extensively to determine how these school readiness factors may be impacted by a student's birthday.

The gap in educational literature regarding communication readiness and social-emotional readiness directly impacts the structure of kindergarten programs and the core curriculum's effectiveness. Strengthening educators' understanding of the impact that a student's birthdate may have on their level of communication readiness and social-emotional readiness upon entering kindergarten, and the relationship of those school readiness factors to a student's academic growth in kindergarten literacy skills could provide a new lens through which to analyze programming at this level. To ensure the success of all students, knowledge resulting from the current study could allow kindergarten teachers to develop classroom interventions that intentionally incorporate communication and social-emotional development skills. Addressing language and social-emotional skills in a systematic way throughout the kindergarten curriculum may reduce the need for more extensive interventions from Title I programs or special education programs at later grades and could contribute to students' long-term academic success. In summary, additional knowledge related to these foundational areas would allow educators to be proactive rather than reactive.

Purpose of the Study

The first purpose of this quantitative causal-comparative and regression analysis study was to investigate whether kindergarten students with birthdays on or after June 1 enter school at a disadvantage relative to their peers with birthdays on or before May 31, pertaining to their communication and social-emotional school readiness levels. The second purpose of the current study was to ascertain whether communication or social-emotional school readiness levels were predictive of related skill gains during the first semester of their kindergarten year. Parents or guardians completed the ASQ-3 and the

ASQ: SE-2 as a component of enrolling their child in kindergarten. The ASQ-3 was administered according to KSDE guidelines to examine students' academic and communication skills. The ASQ: SE-2 was utilized to assess students' social-emotional school readiness skills. Students with summer birthdays on or after June 1 were compared to a demographically matched sample of their peers with early birthdays on or before May 31. Matched peers with early birthdays were selected using stratified random sampling to ensure the subgroup was similar in size and demographic attributes to the subgroup with summer birthdays. The differences between the two subgroups' school readiness levels were examined using the mean communication scores on the ASQ-3 and the mean social-emotional scores on the ASQ: SE-2.

In addition to examining the impact a student's birthdate may have on their communication and social-emotional skills at the beginning of kindergarten, the current study also examined the relationship between communication readiness levels and social-emotional readiness levels and whether these measures were predictive of gains in literacy and social-emotional skills during their first semester of kindergarten. Data was collected for all kindergarten students' social-emotional skills utilizing teacher responses on the SAEBRS in the fall and the winter. The fall to winter SAEBRS gains score were regressed on the ASQ: SE-2 school readiness levels to examine whether there was a predictive relationship between school readiness and later development of social-emotional skills during the first semester of kindergarten.

The fall to winter FAST earlyReading gains score was regressed on the ASQ-3 school readiness level to examine whether there was a predictive relationship between school readiness communication levels and later development of literacy skills during the

first semester of kindergarten. The current study connected the kindergarten readiness levels of communication and social-emotional skills with a student's progress in learning early reading or literacy concepts and social-emotional growth, respectively. This analysis examined the extent to which indicators such as school readiness levels of communication and social-emotional skills could help identify those students most at risk of slow literacy or social-emotional growth. Therefore, the results of the regression analysis would provide educators an understanding as to whether it could be predicted that students with summer birthdays and lower kindergarten readiness skills could have lower gains in related areas.

Significance of the Study

The findings of the current study could support school officials and policymakers in several ways. First, the study may provide teachers and other instructional staff a greater understanding of the impact of a student's birthdate on their communication and social-emotional readiness for school. Knowledge of this impact could assist policymakers and district officials in decision-making about the establishment of kindergarten entry dates based on a student's birthdate, as well as prioritizing financial and personnel resources to meet students' needs. Additionally, this study could guide educators when making kindergarten curriculum decisions, emphasizing the explicit teaching of communication and social-emotional skills in kindergarten. Increased understanding of these school readiness factors and how they relate to academic growth could improve the structure of kindergarten and the development of classroom interventions that support student growth while reducing the need for more intensive

support in later grades. Finally, this study's findings may provide parents with additional information to help them decide when to enroll their child in kindergarten.

Delimitations

The researcher sets clear delimitations or confines to provide others with an understanding of the scope of a research study (Lunenburg & Irby, 2008). The current study established three delimitations to narrow the focus of this research. First, the study was limited to data collected during one semester of a single school year, the first semester of the 2019-2020 school year. Next, the study took place at three Title I public elementary schools in the same Kansas rural school district. Finally, the study focused only on kindergarten students; additional data to determine whether growth continues or accelerates in other grades was not collected. The measures employed for data collection in the current study were also delimitated to the social-emotional assessments of the ASQ: SE-2 and the SAEBRS, the communications instrument of ASQ-3, and the FAST earlyReading Assessment. Other measures were not considered.

Assumptions

Lunenberg and Irby (2008) described assumptions as factors that are "accepted as operational for the purpose of the research" (p. 135). Furthermore, assumptions provide the reader with a strengthened understanding of the extent of the current research. Three assumptions must be considered when interpreting the results of this study. The first assumption was that rating scales completed by a parent or guardian accurately reflected the student's skills at the time provided. The ASQ-3 and ASQ: SE-2 were both completed by a parent or guardian. The current study made this assumption based on

studies conducted by Brookes Publishing Co., where the classification of students by parents or guardians was determined to be valid (Squires et al., 2009).

Similarly, the Social, Academic, and Emotional Behavior Rating Scale [SAEBRS] relied on teachers to score each student in their classroom. Therefore, another assumption was teachers provided unbiased scores that accurately reflected a student's social-emotional development. The current study made this assumption based on Christ and Colleagues' (2018) test-retest analysis that determined a teacher's rating of students' social-emotional skills within the SAEBRS assessment tool to accurately reflect a child's skills.

The final assumption of this study was data collected by administering the FAST earlyReading Assessment accurately reflected a student's literacy skills. The FAST earlyReading Assessments include a series of subtests administered one-on-one between a child and their teacher. Scripted directions for administration and explicit instructions guide teachers on how to score these assessments. School District A trained a team of specialists to administer these assessments to all students; therefore, this study assumed these educators followed the protocols for administration and scoring to provide valid assessment scores.

Research Questions

As school districts incorporate kindergarten readiness screenings into their kindergarten enrollment procedures, there is a need to further examine all kindergarten readiness areas. Six research questions guided the investigation to determine the extent to which a kindergarten student's birthdate can impact their levels of communication readiness, social-emotional readiness, academic growth, or social-emotional growth.

RQ1. To what extent is there a difference in the school readiness mean communication skills as measured by the ASQ-3 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020?

RQ2. To what extent is there a difference in the progress made for literacy skills as measured by the mean fall to winter gains score on the FAST earlyReading Assessment between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020?

RQ3. To what extent is there a predictive relationship between school readiness mean communication skills as measured by the ASQ-3 and mean fall to winter gains score on the FAST earlyReading Assessment of literacy skills for all kindergarten students at three rural Title I schools during 2019-2020?

RQ4. To what extent is there a difference in the school readiness mean social-emotional skills as measured by ASQ: SE-2 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020?

RQ5. To what extent is there a difference in the progress made for social-emotional skills as measured by the mean fall to winter gains score on the SAEBRS between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020?

RQ6. To what extent is there a predictive relationship between school readiness mean social-emotional skills as measured by the ASQ: SE-2 and mean fall to winter gains score on the SAEBRS assessment for all kindergarten students at three rural Title I schools during 2019-2020?

Definition of Terms

Key terms have been defined to increase understanding of this study and its findings. The current study analyzes two subgroups, summer birthdays and earlier birthdays. These terms were explained further to assist individuals in utilizing the current study to apply findings appropriately. Additionally, terms related to a student's growth and development are broad. Establishing definitions for the reader ensures that the understanding of each term aligns with the intended use within the research study (Lunenburg & Irby, 2008).

Academic Achievement. Education Evolving (2016) defines academic achievement as a student obtaining the "knowledge, skills, and attitudes that will prepare them to lead happy and successful lives" (p. 1). Reading, math, science, and social studies often define academic achievement; however, academic achievement also incorporates three dimensions of a student: personal, social, and economic (Education Evolving, 2016). Personally, a child is achieving as their skills develop a sense of contentment and a belief that they can accomplish their goals in school and life after school. Socially, a child is achieving when they can contribute to society and interact positively with others in which they come in contact. Economically, a child is achieving when they obtain the skills required to support themselves financially upon graduation (Education Evolving, 2016).

Communication Skills. Communication skills include a child's ability to express themselves. Additionally, it addresses receptive skills that allow a child to "say what they think, to question, to reflect on their thinking and to form new ideas," as well as to understand "the values and attitudes that are a part of how language is used" (KSDE, 2014, p. 28).

Earlier Birthdays. The term earlier birthdays refers to students with birthdays on or before May 31 of their kindergarten year.

Summer Birthday. Summer birthdays refer to students with birthdays on or after June 1 of their kindergarten year.

Literacy Skill Development. Literacy skill development incorporates elements of a child's ability to "build their understanding of the purpose of a book or a story, develop an awareness of the alphabet and the ability to write a few letters and expand their use of language to communicate their needs, thoughts, and wishes" (KSDE, 2014, p. 28). These skills enable a child to "be successful in learning to read and write" (p. 28).

Social and Emotional Development. Social and emotional development of a child is their ability to develop skills to "form close and secure adult and peer relationships," to "experience, regulate, and express emotions in socially and culturally appropriate ways," and to "explore the environment and learn" (Yates et al., 2008, p. 2).

Organization of the Study

The current research study is presented in five chapters. Chapter 1 introduced the purpose and significance of the study, as well as the background related to the problem being studied. Additionally, the study's research questions, delimitations, assumptions, and definitions of terms were detailed. The literature related to the research questions

within this study will be reviewed in Chapter 2. The study's design, including the selection of participants, measurement tools, data collection procedures, data analysis, hypothesis testing, and limitations will be outlined in Chapter 3. The study's results, including descriptive statistics, hypothesis testing, and additional analyses conducted will be presented in Chapter 4. The research through a review of the problem, methodology, major findings, and connections to the literature reviewed in Chapter 2 will be summarized in Chapter 5. Chapter 5 also contains implications for future action and recommendations for future research.

Chapter 2

Review of the Literature

The purpose of the current study was to examine whether students with summer birthdays, birthdates on or after June 1, enter school at a disadvantage to peers with earlier birthdays, birthdates on or before May 31. The study extends previous research by analyzing the impact a student's birthdate has on their communication and social-emotional skills in kindergarten and the correlation between these factors and a student's early reading skill development. The literature review provides a historical perspective for the current study and an understanding of the need for the research about which the study centers.

The literature review focused on the development of kindergarten globally, the transition of kindergarten to the United States, the impact of federal legislation on kindergarten, the funding of kindergarten, and the requirements for students enrolling in kindergarten. Additionally, the literature review examined the growing emphasis on kindergarten readiness, focusing on defining kindergarten readiness, and reviewing the links between school readiness with a student's language and communication skills. Finally, the Kansas Can initiative and its impact on kindergarten readiness in the current study's school districts is outlined within the chapter.

Creation of Kindergarten

At its inception in Blankenburg, Germany, Friedrich Froebel's creation of kindergarten challenged many political and societal beliefs (Allen, 2006). Intending to develop individuals who could participate effectively in society, kindergartens in Germany incorporated ideas from educators such as Jean-Jacques Rousseau and Johann

Heinrich, suggesting that children were inherently good and would learn more readily through exploration and play (Passe, 2010). Learning in Froebel's kindergarten was designed around elements still visible in today's American kindergartens such as music, imaginative play, reading or telling stories, and the study of science (Passe, 2010). Singing was a primary tool for furthering students' social development, as songs encouraged cooperation within the group (Allen, 2006).

Froebel developed kindergarten as a transition for children from their families to the school environment (Allen, 2006). Children were to enter kindergarten, the "garden of children" where they were to grow "like flowers and plants, nurtured by a positive environment with good soil, rain, and sun, as well as attentive gardener" (Passe, 2010, p. 42). As gardeners or teachers, Froebel's original design built around nurturing, faced challenges with a male-dominated teaching profession. However, as his ideas for instruction and learning were developed, it was evident to Froebel that societal norms more commonly attributed the characteristics associated with his approach to women rather than men (Allen, 2006).

Supporters of the kindergarten movement challenged German ideology by hiring female teachers, as well as through the enrollment of students with varying religious backgrounds and from all social classes (Allen, 2006). Embraced by the feminist movement in Europe, kindergarten teaching provided women with a profession outside of the home. However, the Prussian government viewed the encouragement of other religions, the momentum of feminism, and Froebel's element of "spirituality motherhood" negatively, pushing supporters of kindergarten to find a new home to advance their ideas (Allen, 2006). In 1848, Prussian leadership decreed that Froebel’s kindergarten

maintained elements of socialism in an effort to “convert young people to atheism" (Allen, 2000, p. 24). The reduction of government support led to the closure of German kindergartens in 1851 and the transition of the kindergarten movement to Kensington, a borough of London, in 1892 (Passe, 2010; Roehampton University, 2020). The closure challenged Froebel kindergartens' supporters to seek locations outside of Europe (Roehampton University, 2020).

Kindergarten in the United States

While educators continued the progress of kindergarten in Europe, Margarethe Schurz, a Jewish merchant's daughter, relocated to the United States. Schurz and her sister studied with Froebel in Hamburg, Germany (Fleming, 2020). She opened the first kindergarten in the United States out of her living room for the children of German immigrants in Wisconsin in 1855 (Allen, 2006, Fleming, 2020). In addition to opening the first kindergarten, Margarethe Schurz taught Froebel beliefs to Elizabeth Peabody, who in 1860 created the first English speaking kindergarten in Boston, Massachusetts (Allen, 2006). While her sister, Mary Mann, managed the kindergarten in Boston, Elizabeth Peabody recruited Froebel-trained kindergarten teachers from Europe to the United States (Eschner, 2017; Allen, 2006). Together they trained teachers and significantly impacted the focus of early childhood education in America.

> In an age when schools relied heavily on memorization and drill, Peabody encouraged children to bring in their favorite texts to read aloud, taught math using manipulatives, created spelling and grammar games, engaged children in physical activity and conversed with them about philosophical questions. (Eschner, 2017, p. 2)

In 1873, the St. Louis Public Schools and Susan E. Blow advanced Froebel's kindergarten ideals with the first public school kindergarten (Mackenzie, 1886). Recognized as the start of the "free kindergarten movement," Blow trained one teacher in 1873 and two additional teachers in 1874 (Mackenzie, 1886, p. 48). By 1879 the St. Louis Public Schools maintained at least two kindergarten teachers in each first-grade public school (Mackenzie, 1886).

Advancements in St. Louis transitioned kindergarten from something accessible to only a few to an opportunity available to the masses. Quincy A. Shaw funded kindergartens in Boston and Cambridge, Massachusetts, between 1877 and 1879 (Mackenzie, 1886). Free kindergarten continued to expand with Professor Felix Adler and the Public Kindergarten Society in San Francisco, E. M. Blatchford and the Chicago Froebel Association in Chicago, and Anna Hallowell in Philadelphia (Mackenzie, 1886). By the beginning of the twentieth century, most major cities in the United States provided public-funded kindergartens (Passe, 2010).

As kindergarten expanded to the masses, political and educational leaders challenged the ideas on which Froebel founded kindergarten. The Committee of Fifteen, which became the Committee of Nineteen, was established to debate the merits of Froebel's approach and the scientific approach of John Dewey (Ross, 1976; Shapiro, 1983). Susan Blow's support for Froebel's work centered on seven educational values: religion, ethics, language, industries, fine arts, mathematics, and science (Wheelock, 1907). She argued that these seven educational values prepared children to be productive citizens in the society in which they lived (Wheelock, 1907; Ross, 1976; Shapiro, 1983).

The views of Blow were contradicted by Patty Smith Hill, who argued that the kindergarten curriculum should allow teachers "the opportunity of selecting and organizing those native activities, interests, and experiences common to all children together with the subject matter which feeds them" (Wheelock, 1907, p. 234). Smith Hill's theories began the kindergarten curriculum progression away from social development to a content-driven curriculum that introduced new topics such as nature study, home and community life, literature, music, and art (Weber, 1969). Smith Hill's approach eventually gave way to a kindergarten that emphasized behavior and the standardization of kindergarten, emphasizing the transition from the home into school life and preparing children for academic content in the grades to follow (Weber, 1969, Shapiro, 1983).

Criticism of the public school system amplified, as the race between the United States and Russia to place a man on the moon accelerated in the late 1950s. Increasing the rigor of academic content in kindergarten was viewed as the solution (Shapiro, 1983). The result was the modern kindergarten curriculum that prioritized reading, writing, math, science, social studies, art, music, and physical education (Mindess & Mindess, 1972).

The accelerated kindergarten curriculum was boosted in 1983 when the publication "A Nation at Risk" suggested that "our once unchallenged preeminence in commerce, industry, science, and technological innovation was being overtaken by competitors throughout the world" (U.S. Department of Education, 1983, p. 1). Educators responded to this report by increasing kindergarten expectations to align with those typically expected of first-grade students. The Goals 2000: Educate America Act

pushed educational reform forward (Morrison, 1998). The primary goal was to ensure that all students entered school prepared to learn. With this act came high stakes testing, increased retention, and parental decisions to hold students out of kindergarten (Morrison, 1998). Kindergarten had fully transitioned. The social movement that incorporated social-emotional learning and communication skill development gave way to a cognitive-based approach driven by content and grade-level outcomes. Preparing well-rounded citizens was replaced with the preparation for future schooling.

Funding of Kindergarten

While kindergarten curriculum, programming, and student access have been shaped politically in the United States, kindergarten funding has also contributed to this transformation. The United States funded early schools primarily through land grants from George Washington's Land Ordinance of 1785 (Usher, 2011). However, present-day public schools in the United States rely on three primary revenue sources: federal, state, and local revenue. For the 2016-2017 school year, approximately "8 percent, or $60 billion, were from federal sources; 47 percent, or $346 billion, were from state sources; and 45 percent, or $330 billion, were from local sources" (National Center for Educational Statistics, 2020, p. 1). Variations in funding were significant nation-wide, with states such as Kansas receiving approximately 19 percent from federal funding, 64 percent from state funding, and 17 percent from local revenue sources (National Center for Educational Statistics, 2020). Variations in revenue from state-to-state indirectly impacted kindergarten programming by contributing to discrepancies in kindergarten funding and families' options.

Elementary and Secondary Education Act. The Elementary and Secondary Education Act [ESEA] was first signed into law in April 1965 (Paul, 2016). As Americans worked to close the innovation gap worldwide, President Lyndon Johnson utilized ESEA to close the poverty gap (Paul, 2016). In its original form, Title I, a provision of ESEA, was dedicated to reducing the academic deficit of students living in poverty by targeting schools with a high percentage of economically disadvantaged students (Paul, 2016). Accounting for approximately 80% of funds authorized for schools under ESEA, Title I continued to be the most recognizable provision within the legislation (Paul, 2016).

In 1994, Congress reauthorized ESEA under the Improving America's Schools Act [IASA] (Riley, 1995). This iteration of ESEA impacted Title I in multiple ways. It raised expectations for economically disadvantaged students and students identified as bilingual or migrants (Riley, 1995). IASA recognized that all students could learn at high levels and expected students served with Title I funds to master skills at the same rate as their peers (Riley, 1995). To support all students' learning, IASA required school districts to provide professional development that targeted teaching core academic subjects to students in low-income families (Riley, 1995).

Additionally, IASA allowed school districts to utilize Title I funding to integrate services with other instructional approaches (Riley, 1995). Before IASA's authorization by Congress, most Title I services required students to leave their classrooms (Paul, 2016). However, IASA required schools to integrate services and "reform comprehensively the entire instructional plan for all children in the school" (Riley, 1995, p. 1). The other significant change to Title I involved the relationship between schools

and families. IASA required schools to develop school compacts that outlined the expectations for involving and communicating with parents, thus sharing the responsibility of educating a child (Riley, 1995).

Greater accountability and state assessments that compared students' academic progress in Title I to that of their peers supported the reforms within IASA (Riley, 1995). The accountability expectations for schools receiving Title I funding were raised in 2001 with an additional reauthorization of ESEA through President George W. Bush's No Child Left Behind Act [NCLB] (Paul, 2016). NCLB mandated annual high stakes assessments, as schools now faced disciplinary action for not demonstrating academic improvement or hiring staff without the appropriate licensure with Title I funds (Paul, 2016). "The law created incentives for states to lower their standards, emphasized punishing failure over rewarding success, focused on scores instead of growth and progress, and prescribed a pass-fail, one-size-fits-all series of interventions for schools that miss their state-established goals" (Brenchley, 2015, p. 1). The increased accountability in schools furthered the expectation that kindergarten would prepare students for the academic demands of later grades through a rigorous academic curriculum rather than teaching social-emotional and communication skills that were not directly assessed.

In 2015, Congress reauthorized ESEA with the passing of the Every Student Succeeds Act [ESSA] (Paul, 2016). The act reversed many of the requirements upheld under NCLB by providing options to states that chose to implement college and career-ready standards (Paul, 2016). This reauthorization targeted the lowest-performing

schools and refocused schools on Title I legislation's original intent, closing the achievement gap for low-income students and other identifiable subgroups (Paul, 2016). Finally, ESSA also required school districts to implement evaluation systems that addressed the practices of teachers and principals (Paul, 2016).

Types of Title I schools. Federal guidelines categorized schools requesting Title I funding into two categories: Targeted Assistance Schools and School-Wide Programs (KSDE, 2020). The difference between the two types of Title I programs is demonstrated in how each program type can utilize Title I funds. Targeted Assistance Schools utilize established criteria to identify students who can be served under Title I funding. Targeted Assistance Schools must expend all Title I funds to provide services to identified students. In 2019-2020, "approximately two-thirds of Kansas Title I schools" were Targeted Assistance Schools (KSDE, 2020, p. 1).

School-Wide programs may use Title I funds to address instruction and intervention for all students. Instructional strategies implemented and supported with Title I dollars should ensure that all children make academic progress and address the lowest-achieving students in the school (KSDE, 2020). KSDE (2020b) has identified all three schools within the current study as School-Wide Title I programs. To become a School-Wide Program, school districts in Kansas must have a poverty level, determined by the percentage of students receiving free or reduced lunch assistance, greater than 40 percent (KSDE, 2018b). In addition to the district's poverty level, the school district must identify that it wants to be recognized as a School-Wide program and designate support to improve instruction for all students (KSDE, 2018b).

Expanding kindergarten through Title I. The Elementary and Secondary Education Act [ESSA] and its subsequent reauthorizations provided funding for teacher professional development, parent involvement, and programming that supported at-risk populations such as special education, English language learners, and students from poverty (Paul, 2016). Title I, an ESSA element, makes up approximately 83 percent of federal funding provided to schools (Paul, 2016). State education departments distribute federal funds from ESSA and Title I to school districts, where local school boards retain the authority to expend funds as they deem necessary. There are many ways at the local level to utilize federal funds. At the start of the twenty-first century, many school districts allocated these funds to improve or expand kindergarten programming within their school district (Kaurez, 2005).

However, the diversity in funding levels for kindergarten due to local control of funding decisions contributes to a nation-wide discrepancy in kindergarten opportunities for students. As some districts have applied ESSA funds to allow for the expansion of kindergarten from a half-day program to a full-day program, one significant discrepancy that has resulted is in the amount of instructional time provided to students. Funds from ESSA are often targeted for students with specific at-risk criteria. Limitations in how Title I funds can be used reduced Title I funds' application to expand kindergarten to a larger population (Paul, 2016; & Kaurez, 2005). However, full-day kindergarten provides "teachers more time for both formal and informal instruction that provides meaningful learning opportunities and encourage not only cognitive development but also physical and social-emotional development" while providing families care for their child in "safe, stable, nurturing, high-quality settings" (Kaurez, 2005, p. 2). Even with

limitations on federal funds, increases in full-day kindergarten options have grown significantly. Table 1 illustrates the increase in full-day kindergarten enrollment.

Table 1

Percentage of U.S. kindergarten students enrolled in full-day kindergarten

Year	Percent of Kindergarten Students Enrolled in Full-Day Kindergarten
2018	81
2000	63
1999	60
1989	40
1979	25

Adapted from "Full day kindergarten: A study of state policies in the United States" by Kaurez, 2005, and "Preschool and kindergarten enrollment" by the National Center for Educational Statistics, 2020b.

Incentives for Full-Day Kindergarten.

States have influenced local school district decisions to increase full-day kindergarten opportunities for students in two ways: Incentives for implementing full-day kindergarten and categorical funding programs (Kaurez, 2005). In 2005, seven states provided strong incentives, defined as increases in funding for full-day kindergarten programs as compared to funding for half-day programs and weighting for students in a full-day kindergarten program that was equal to or greater than weighting provided for first-grade students (Kaurez, 2005). An additional twenty-one states offered an incentive

that provided student weighting for full-day programs equal to or greater than the weighting provided for first-grade students, but the funding level provided for half-day and full-day programs was comparable (Kaurez, 2005). Nineteen states provided a disincentive for school districts where funding provided for half-day or full-day kindergarten programs were the same or less than the funding provided for first-grade students (Kaurez, 2005).

Similarly, eleven states utilized a categorical funding approach for full-day kindergarten (Kaurez, 2005). This approach is more typical for groups with special needs, where school districts are provided an established amount of money for creating programming that meets the needs of a specific group of students. Of the eleven states that used a categorical funding strategy, three states offered additional funding to school districts implementing full-day kindergarten for the first time, seven states provided additional funds for full-day kindergarten provided to at-risk students, and Rhode Island focused on full-day programs designed to improve the academic performance of students (Kaurez, 2005).

The result of state decisions related to kindergarten funding was five distinct strategies for providing kindergarten funding. The first three approaches provide a permissive half-day kindergarten, where states allow school districts to offer a full-day kindergarten option to families but do not require it. The variations come in funding as some states in this category do not provide additional funding or allow school districts to charge tuition to families. Other states offering a permissive half-day kindergarten option do not provide additional funding but enable school districts to charge tuition. Finally, some states in the permissive half-day category provide additional funding to school

districts that offer families a full-day option (Parker, Diffey, & Atchison, 2016). The other two approaches require full-day kindergarten; however, some states requiring full-day kindergarten allow for a half-day kindergarten option while others in this category do not allow a half-day option (Parker et al., 2016). Variations in the funding of kindergarten may impact students' readiness for future educational opportunities, as "children who attend full-day kindergarten make significantly stronger academic gains in reading and math over the course of the kindergarten year than their peers in half-day kindergarten" (Parker et al., 2016, p. 2). Additionally, limitations on instructional time may affect the opportunities for students to interact with their peers in the school environment, thus limiting students' ability to learn appropriate social-emotional and communication skills. Table 2 contains information related to state requirements for the length of the kindergarten school day and the collection of tuition.

Table 2

Kindergarten Requirements By State

State Requirement	Total Number of States	Number of States Allowing Tuition
Full-Day Kindergarten	16	5
Half-Day Kindergarten	28	9
Half-Day and Full-Day Kindergarten	2	1

Adapted from "Full day kindergarten: A look across the states" by Parker et al., 2016.

Kindergarten Enrollment Requirements

While kindergarten has become a foundational component of many education systems worldwide, the requirements to enroll in kindergarten continue to vary greatly.

Even countries with the highest literacy rates start students at different ages. For example, Slovenia, which boasts a 100% adult literacy rate, starts students at age six (World Bank Group, 2020, & World Bank Group, 2020b). While Latvia, also at a 100% adult literacy rate, holds students out of school until the age of seven (World Bank Group, 2020, & World Bank Group, 2020b). In comparison, the United States maintains an adult literacy rate of 79%. It requires students to attend school at the age of six, a full year after most students voluntarily enroll in kindergarten (National Center for Educational Statistics [NCES], 2019, & World Bank Group, 2020b).

Just as expectations throughout the world vary, compulsory attendance requirements are left to individual states to determine. Compulsory attendance, the age at which students are required by law to enroll in school, ranges from the age of five to the age of eight. The minimum age at which public schools are required to provide education to children ranges from the age of three to the age of six (NCES, 2017). The diversity in states' attendance and enrollment expectations creates a challenge in creating nation-wide kindergarten readiness expectations, as developmentally students are entering schools at varying ages and skill levels. The state expectations are presented in Table 3.

Table 3

United States Compulsory Attendance and Minimum Age Requirements

Age	States By Compulsory Attendance Age	States By Minimum Age Requirement
3	0	1
4	0	3
5	10	44
6	25	2
7	13	0
8	2	0

Adapted from “Compulsory school attendance laws, minimum and maximum age limits for required free education, by state: 2017” by NCES, 2017.

Kindergarten in Kansas

Many Kansas schools, beginning in Council Grove, Kansas, were established utilizing land grants (Martinez & Snider, 2001). "The land grants were originally made for a single, explicitly stated purpose – to support common schools and similar public institutions" (Usher, 2011, p. 3). In the late 1800s, the Territorial Legislature of Kansas supported schools' creation for the same reason Froebel created kindergarten to develop useful citizens (Martinez & Snider, 2001). The Territorial Legislature demonstrated support through the sale of land to fund new schools. The Kansas Constitution echoed the importance of public education by making the provision of education the responsibility of the state (Martinez & Snider, 2001). The first Kansas compulsory

school attendance law was passed in 1874 and required children ages 8 -14 to attend school (Martinez & Snider, 2001).

Even with an emphasis on education and a nation-wide kindergarten movement, Kansas statute still does not require children to enroll in kindergarten (Kansas Office of Revisor of Statutes, 2020). Kansas compulsory attendance laws require students age seven through eighteen to enroll in school (Kansas Office of Revisor of Statutes, 2020). Compulsory attendance requirements in Kansas were enacted in 1874, requiring attendance of students ages 8 to 14. However, Kansas allows children, age five on or before August 31, to enroll in kindergarten (KSDE, 2016). Minimum age requirements have changed by only one day since 1975 when children entering school were expected to have turned 5 prior to September 1 (Education Commission of the States, 2011; & Kansas Office of Revisor of Statutes, 2020). Table 4 presents a historical perspective of Kansas compulsory attendance laws.

Table 4

Kansas Compulsory Attendance Age Requirements

Year	Compulsory Attendance Ages
1887	8 - 14
1915	8 - 15
1935	7 - 16
1964	7 - 16
1984	7 - 16
1996	7 - 18
2020	7 -18

Adapted from "State Legislation on School Attendance and Related Matters – School Census and Child Labor" by Nelda Umbeck, 1960, and "Compulsory School Attendance" by the Kansas Office of Revisor of Statutes, 2020.

Kansas requires school districts to offer at a minimum a half-day kindergarten program. However, in 2014, Governor Sam Brownback, with the Kansas State Board of Education's support, proposed funding for school districts that chose to implement a full-day kindergarten program (Kansas Association of School Boards [KASB], 2014). Before this legislation, a small number of Kansas school districts utilized at-risk funding to provide full-day kindergarten options. The effective use of at-risk funds and the growing number of families accessing free or reduced lunch assistance were the primary reasons provided for this legislation (KASB, 2014).

Varying skill levels of students entering kindergarten require schools across the state to train staff, provide resources, and structure kindergarten programming to meet

this diverse population's needs. For schools to be effective in educating students entering school at varying ages and skill levels, there needs to be a greater understanding of how a child's age impacts all facets of a students' readiness for school.

Kindergarten Readiness Emphasis in United States Public Schools

The United States Department of Education (1983) publication, A Nation at Risk, provided urgency for legislators and educators to improve education in the United States. This urgency was strengthened by The Charlottesville Education Summit in September 1989 (Vinovskis, 1999). Convened by President George Bush to establish national educational reform, this summit of political leaders brought the notion of school readiness to the forefront of education policy. The forum followed the lead of the Southern Regional Education Board [SREB], a group comprised of southern governors, politicians, and educators, that in 1988 published twelve goals for education in Goals for Education: Challenge 2000 beginning with "All children will be ready for the first grade" (Vinovskis, 1999, p. 20). The Charlottesville Education Summit narrowed the SREB focus to six goals for American schools, with two additional goals in later legislation bringing the total to eight (Vinovskis, 1999). Members of the summit titled the first national goal, "Goal #1 All 6-year-olds Ready for the First Grade" (Vinovskis, 1999, p. 30).

President Bush's publishing of America 2000, a national strategy for reaching the goals established in the summit, and the 1990 State of the Union Speech brought these initiatives into public discourse (Vinovski, 1999). The process developed jointly by President Bush and United States governors, led by then Governor of Arkansas, Bill Clinton, would significantly impact school legislation, accountability, and expectations

for students entering school (Vinovski, 1999). The process agreed upon sought to "develop an ambitious, realistic set of performance goals," as well as a "common understanding and common mission" (Vinovski, 1999, p. 40).

America 2000 outlined the goals for American schools to accomplish by the year 2000. In 1994, President Bill Clinton continued education reform with the Goals 2000: Educate America Act (United States Department of Education, 1994). School readiness remained an area of focus with the goal that "By the year 2000, all children in America will start school ready to learn" (United States Department of Education, 1994, p. 1). Goals 2000 went further than America 2000 by establishing three objectives. First, Goals 2000 increased the emphasis on school readiness by ensuring that all children would have access to preschool programs (United States Department of Education, 1994). Next, Goals 2000 recognized the role that parents play in a child's preparation for school and sought to strengthen parental education and support (United States Department of Education, 1994). Finally, Goals 2000 outlined the impact of a child's health and well-being on school readiness by stressing the importance of physical activity and medical care on a child's ability to "maintain the mental alertness necessary to be prepared to learn" (United States Department of Education, 1994, p. 1). These objectives affirm that school readiness is more complicated than measuring a child's early literacy skills and that factors impact it outside of the school environment.

From 1983 through the early 1990's, education reform was a priority for the government of the United States. Furthermore, school readiness was at the forefront of all reform measures. Figure 1 presents a timeline of the initiatives that led to a focus on school readiness.

Date	Event	Outcome
1983	A Nation At Risk	Presented American schools as needing improvement to ensure that America remained competitive in the global market.
1988	Goals for Education: Challenge 2000	The Southern Regional Education Board identified twelve goals for education reform beginning with readiness for school.
1989	Charlottesville Education Summit	Introduced school readiness to national education reform policy and empowered governors to take action.
1990	State of the Union Speech	President George Bush presented the Charlotte Education Summit initiatives to the American public.
1991	America 2000	Published by President George Bush and made school readiness a priority.
1994	Goals 2000: Educate America	President Bill Clinton expanded on initiatives from America 2000.

Figure 1. Timeline of Kindergarten Readiness in United States

Defining kindergarten readiness. In 1991, the National Educational Goals Panel provided a multi-faceted definition of school readiness (Williams & Lerner, 2019). To ensure that "by the year 2000, all children will enter school ready to learn", the National Education Goals Panel's defined school readiness as "readiness in the child," the "schools' readiness for children," and the "family and community supports that contribute

to child readiness" (Williams & Lerner, 2019, p. 3). Nearly thirty years later, the KSDE (2019) addressed the same three areas in their kindergarten readiness fact sheet,

> A child's health and physical well-being, along with the development of cognitive, communication and social-emotional skills, all can be influenced by the community, educational environment, family and the individual child. Effective policies, targeted and appropriate levels of funding, and collaborative systems of support enhance a child's ability to thrive in learning environments. (p. 1)

Readiness in the child. In their examination of a child's readiness for school, the National Goals Panel outlined five areas that impacted a child's readiness for the tasks associated in schools. These areas included.

- physical well-being and sensory motor development, including health status and growth;
- social and emotional development, including self-regulation, attention, impulse control, capacity to limit aggressive and disruptive behaviors, turn-taking, cooperation, empathy, and the ability to communicate one's own emotions; identification of feelings facilitates accurate communication of these feelings;
- approaches to learning, including enthusiasm, curiosity, temperament, culture, and values;
- language development, including listening, speaking, and vocabulary, as well as literacy skills, including print awareness, story sense, and writing and drawing processes; and
- general knowledge and cognition, including early literacy and math skills. (Williiams & Lerner, 2019 p. 3)

A survey before the National Panel's publication found that depending on the state's measurement tool; parents withheld from school 10% to 50% of students eligible to begin school due to readiness scores below expectation (Gnedza & Bolig, 1988). In 2010, with 25 states requiring a kindergarten assessment to enroll in school, only 6% of kindergarten eligible students were denied entry (Williams & Lerner, 2019). A 2002 meta-analysis of age-based enrollment measures found advantages of older students in literacy skills, mathematics, and cognitive skills (Stipek, 2002). However, the research determined that there was little to no supporting evidence for holding a student out of school based on these advantages (Stipek, 2002).

However, younger students entering school progressed at a greater rate academically than their older peers, and their cognitive skills advanced significantly from the school experience (Stipek, 2002). Schools in the 1980s and 1990s managed school readiness by ensuring that students with similar skill levels entered kindergarten. This educational belief has changed significantly, requiring schools to be better prepared for students entering school with varying levels of cognitive, communication, and social-emotional skills.

Schools' readiness for children. In addition to skills related to students' readiness for the start of school, the National Goals Panel also identified factors that impact a school's readiness for a child to enter school (Williams & Lerner, 2019). The factors identified suggest that similar to preparing a child for school, schools have an essential role in adapting to students' needs entering their system. Preparedness of schools to address students' communication and social-emotional needs was not explicitly addressed in the panel's recommendations, however, strengthening staff

understanding of child development, incorporating elements of play, and developing an awareness of the impact of adverse childhood experiences indirectly confirms the importance of these readiness skills in a student's school success (Williams & Lerner, 2019, p. 3).

Family and community supports. Similar to the preparedness efforts of schools, families and communities play a vital part in a child's successful start to school (Williams & Lerner, 2019). First, school communities prepare a student for school by having "excellent prenatal care and ongoing primary care within a medical home setting that is comprehensive, compassionate, and family centered" (Williams & Lerner, 2019, p. 3). Next, it is crucial families and communities encourage and support "optimal nutrition and daily physical activity so that children arrive at school with healthy minds and bodies" (Williams & Lerner, 2019, p. 3).

Additionally, students who will be successful in school are in families that establish time "daily for parents to help their child learn along with the supports that allow parents to be effective teachers" (Williams & Lerner, 2019, p. 3). Finally, communities need to provide "access to high-quality preschool and childcare for all children" (Williams & Lerner, 2019, p. 3). Higher school entry scores on reading and math assessments were connected to attendance in a quality preschool program (Magnuson, Ruhm, & Waldfogel, 2007). This advantage maintains through first grade but declines significantly by the end of third grade (Magnuson et al., 2007). Another challenge with preschool programming is the disparity in funding.

The First Five Years Fund (2020) reports that less than half of children from at-risk families have access to early childhood education. Federal early childhood funding

has increased from $12.7 billion in 2008 to $20.6 billion in 2019, with the majority of these funds allocated for at-risk preschool programs such as “Head Start, Early Head Start, Childcare and Development Block Grants, IDEA Part C Grants for Infants and Families, and IDEA Part B Preschool Grants” (Afton Partners, 2019, p. 1). Even with increased funding, only 42% of four-year-olds and 15% of three-year-olds enrolled in early childhood programs in 2015 (Reynolds, Ou, & Templeton, 2018). Differences in early-childhood opportunities may contribute to the differences in students’ readiness for school. Furthermore, preschool attendance has been demonstrated to provide students an advantage related to kindergarten readiness; however, kindergarten programming may need to be adjusted to ensure that both gains provided from preschool attendance are maintained and that deficits from not attending preschool are overcome.

Kansas Can Vision. In October 2015, Kansas Education Commissioner Randy Watson and the Kansas Board of Education outlined a plan for school reform with the vision, "Kansas leads the world in the success of each student" (KSDE, 2020). The plan was developed with input from Kansas business leaders, educators, and community leaders and established five outcomes to support reaching the vision: social-emotional growth, high school graduation, kindergarten readiness, postsecondary success, and individual plans of study focused on career interest (KSDE, 2020). Kindergarten readiness concentrated on ensuring that children entered school "socially, emotionally, and academically prepared for success" (KSDE, 2020, p. 7). There are many factors acknowledged by KSDE that impact a child's preparedness for school. "A child's health and physical well-being, along with the development of cognitive, communication and social-emotional skills all can be influenced by the community, educational environment,

family and the individual child" (KSDE, 2016, p. 3). The development of a child's cognitive, communication, and social-emotional skills may differ among students entering school at varying ages.

To measure kindergarten readiness, the KSDE implemented a series of assessments required of all Kansas children enrolling in kindergarten. These assessments were intended to strengthen schools' and parents' connections while building classroom environments prepared to meet all students' needs (KSDE, 2020). The ASQ-3 and ASQ: SE-2 measure a child's readiness for school while providing educators relevant data to address the schools' readiness for students, strengthen families, and improve the community's ability to support students' school success.

The ASQ-3 assessed students' developmental readiness in five areas: communication, gross motor, fine motor, problem-solving, and personal social skills (KSDE, 2018b). Additionally, the ASQ: SE-2 assessed students' social-emotional development in seven areas: self-regulation, compliance, communication, adaptive behaviors, autonomy, affect, and interaction with people (KSDE, 2018b). Collecting information from parents about essential areas of child development should allow school districts to redesign classroom environments, adapt teaching practices, personalize approaches to learning, and initiate the parent-school relationship at the beginning of a student's school career (KSDE, 2018b).

Social-emotional school readiness. Before the National Goals Panels publication, parents' and teachers' expectations for school readiness aligned with three areas identified as most important at the start of school, including listening, feeling confident, and following directions (Knudsen-Lindauer, & Harris, 1989). With the shift

in national policy and educator expectations, parental expectations continue to focus on a student's ability to interact with their peers and adults in the school environment (Knudsen-Lindauer, & Harris, 1989; Williams & Lerner, 2019). As the primary decision-maker on when to enroll a student in school, parents maintain the belief that a student should develop strong social-emotional skills to be ready for kindergarten's academic demands (Wesley & Buvsse, 2003).

In essence, parents believe that if students can "interact meaningfully with each other and adults, follow simple rules and directions, and demonstrate independence in the classroom, then kindergarten teachers could teach the academic skills and knowledge" (Wesley & Buvsse, 2003, p. 357). Teachers have supported this perspective, suggesting that a student's ability to express their feelings and self-regulate their emotions in the classroom makes them easier to teach (Rimm-Kaufman & Pianta, 2000). Studies of first-grade students have suggested this assumption that strong social-emotional skills lead to more significant academic gains is supported; however, there appears to be a gap in research as to whether younger students with deficits in these areas improve academically as their social-emotional skills develop (Normandeau & Guav, 1998; Welsh, Nix, Blair, Bierman, & Nelson, 2010; Capara et al., 2000; Elias & Haynes, 2008).

Additionally, the belief that strong social-emotional skills lead to more significant academic gains creates concerns related to younger students. Students considered to be young for their grade have been identified as more likely to have behavior problems (Elder & Lubotsky, 2009). They are also more likely to be identified as having focus and attention problems such as attention deficit hyperactivity disorder (Evans, Morrill, & Parente, 2010). Students considered to be younger for their grade were retained at a

higher rate for social-emotional concerns than others at the same grade level (Huang, 2014). These findings suggest that students with summer birthdays would have lower social-emotional readiness scores and would be more likely to see lower gains in academics than grade level peers.

Adverse childhood experiences. The Adverse Childhood Experiences Study conducted in 2017 suggested that "multiple factors can cause toxic stress that results in changes in brain circuitry with subsequent negative effects on physical and mental health" (Williams & Lerner, 2019, p. 2). The study defined toxic stress as experiences of "prolonged adversity, such as physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness, exposure to violence, and/or the accumulated burdens of family economic hardship, without adequate adult support" (Williams & Lerner, 2019, p. 2). A National Survey of Children's Health suggests that approximately 12.5% of children will be part of a report of abuse or neglect while in school (Williams & Lerner, 2019). Furthermore, the survey documented that 48% of children will have at least one adverse childhood experience, with 22.6% of children having two or more adverse childhood experiences (Williams & Lerner, 2019). The adverse childhood experience study's findings that students will experience trauma at an early age, suggests schools will need to be more prepared to address the impact of these experiences on a child's social-emotional development and indirectly on the child's academic progress.

Communication school readiness. While language development was identified as a separate indicator of kindergarten readiness from a child's social-emotional development by the National Panel, teachers surveyed at the end of the America 2000 goal period included following directions and problems with communication as two of

the most likely behaviors to create issues for kindergarten students (Rimm-Kaufman & Pianta, 2000). Prior research has connected language difficulties in elementary students with an increased likelihood of reading disabilities (Catts, Hogan, & Adlof, 2005; Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004; Nathan, Stackhouse, Goulandris, & Snowling, 2004). However, there is a gap in educational literature. Studies often focused on language development in toddlers or students in older elementary grades rather than students entering the school environment for the first time (National Institute of Child Health and Human Development [NICHD], 2006).

The National Institute of Child Health and Human Development [NICHD] Early Child Care Research Network [ECCRN] conducted an extensive study in language development. The NICHD ECCRN study sought to connect preschool oral language development with first-grade students' reading skills (NICHD, 2006; Bracken, 2005). The research presented the essential finding that there was a "statistically significant direct path between a broad measure of oral language ability at age 54 months and Grade 1 reading skills" (Bracken, 2005, p. 998). The study criticized earlier research suggesting that previous studies did not thoroughly examine the connection between early language skills and reading development (Bracken, 2005). However, the NICHD ECCRN study was criticized for the two-year time frame in which the research was conducted, citing that this period of time allowed other factors to impact a child's reading development, thus negating the correlation made within the study (Bracken, 2005). Language development deficits have been connected to behavior problems later in school and to disorders such as attention deficit hyperactivity disorder [ADHD] (Beitchman et al., 2001; Silva, Williams, McGee, & Anderson, 1987; Yew & O'Kearney, 2015).

Approximately 50% of children with ADHD have been identified with some form of language deficit (Cohen, Plonsky-Toder, & Tirosh, 2016).

Connections have been made between a child's inability to internally self-talk and their ability to self-regulate or problem-solve (Berk, 1999; Barnett et al., 2008; Diamond, Barnett, Thomas, & Munro, 2007). Language disorders have also been linked to a student's inability to attend to a task (Sanders, Stevens, Coch, & Neville, 2006). In addition to impacting self-regulation and attention, language disorders may also interfere with a student's ability to learn the skills necessary to interact with peers (Keenan & Shaw, 2003). The connections made in previous research suggest that students entering kindergarten with low language skills will be unprepared for many of the tasks associated with kindergarten readiness and may not progress academically at the same rate as their peers.

Summary

Throughout history, kindergarten has adjusted to meet societal needs and to produce productive citizens. However, the pattern of increasing academic rigor in the kindergarten curriculum has decreased the amount of time schools have to address the communication and social-emotional development of kindergarten students. Furthermore, discrepancies in funding, legislative requirements, and instructional time for kindergarten from state-to-state and district-to-district restrict schools' ability to meet students' needs. These challenges place greater importance on ensuring all students are prepared for school and that schools address readiness areas such as communication and social-emotional development in their kindergarten curriculum to support the success of

students entering school unprepared. Chapter 3 details the methods used to address the research questions within this study.

Chapter 3

Methods

The first purpose of this quantitative causal-comparative and regression analysis study was to assess whether students enrolling in kindergarten with summer birthdays, birthdays on or after June 1, enter school at a disadvantage relative to their peers with birthdays on or before May 31, pertaining to communication and social-emotional school readiness levels. The second purpose of the current study was to ascertain whether communication or social-emotional school levels were predictive of related skill gains during the first semester of their kindergarten year. Increased understanding of these school readiness factors could improve the structure of kindergarten, curriculum design for kindergarten, and the development of classroom interventions.

The current study utilized data from parent or guardian-completed screening tools to assess children's communication and social-emotional school readiness skills. Responses from these screening tools were collected at the beginning of the 2019-2020 school year and analyzed to examine whether a difference existed in skill levels between students with summer and earlier birthdates at their time of school entry. Additionally, data from an early literacy assessment administered both in the fall and winter was analyzed to examine whether a difference existed in the mean gains scores of early literacy skills between students with summer and earlier birthdates. Similarly, kindergarten teachers completed a social-emotional questionnaire in both the fall and winter, and analysis of that data examined whether a difference existed in the mean gains scores of social-emotional skills between students with summer and earlier birthdates. Furthermore, communication assessment data was analyzed with fall to winter early

literacy assessment gain scores to examine whether students' communication scores at the beginning of kindergarten could predict the growth a student might have in early literacy skills during the first semester of kindergarten. Finally, the parent-completed social-emotional screening tool collected data in the fall and was analyzed with the fall to winter mean gains scores on the teacher-completed social-emotional questionnaire to examine whether a students' school readiness social-emotional scores could predict the growth a student might have in social-emotional skills during the first semester of kindergarten. Chapter 3 is organized as follows: research design, the selection of participants, measurement instruments, data collection procedures, data analysis, and limitations of the study.

Research Design

The current quantitative study utilized both causal-comparative and regressional quantitative research designs. Causal-comparative research seeks to explain an outcome that has already occurred by comparing two groups on a variable (Creswell, 2014). The current study compared the mean of dependent variables as grouped by the independent variable. The independent variable for the causal-comparative analysis was students' birthdates. Students' birthdates were categorized either as a summer birthday, on or after June 1, or earlier birthday, on or before May 31. The dependent variables were the mean of student scores for school readiness communication skills and social-emotional skills. Communication skills were measured using the ASQ-3, and social-emotional skills were measured using the ASQ: SE-2. This causal-comparative analysis evaluated the impact of the independent variable of summer or earlier birthdays, on the dependent variables, the mean ASQ-3 and ASQ: SE-2.

(Creswell, 2014). The current study employed linear regression analysis to examine the extent to which a predictive relationship existed between a student's communication skills or social-emotional skills at the time of enrollment in kindergarten and their fall to winter gains in early literacy and social-emotional skills respectively. The independent variables of kindergarten readiness levels were communication skills measured with the ASQ-3, and social-emotional skills measured with the ASQ: SE-2. The dependent variables being predicted were early reading skills growth calculated as the fall to winter gains scores using the FAST earlyReading Assessment and social-emotional skill growth calculated as the fall to winter gains scores using the SAEBRS.

Selection of Participants

Participants purposively selected for this study were kindergarten students from three elementary schools in a rural Kansas school district. The three elementary schools were Title I schools in School District A. Only students whose parents completed the ASQ-3 and the ASQ: SE-2 were included in the causal-comparative part of the study. The summer birthday subgroup was developed by including all students with birthdays on or after June 1 with completed school readiness measures. Utilizing stratified random sampling, students having early birthdays, birthdays on or before May 31, were selected to be part of the comparative peer group. During the peer group sampling, stratification ensured similarities in student demographics such as gender, ethnicity, economic status, and student supports; thus, increasing the likelihood that findings from the study were representative of differences in birthdate rather than characteristics of the participants selected.

Two regression analyses were conducted in the current study. The first regression analysis included all kindergarten students from three Title I elementary schools whose parents had completed the fall ASQ-3 and had a score on both the fall and winter FAST earlyReading Assessments. Similarly, the second regression analysis included all kindergarten students from three Title I elementary schools whose parents had completed the fall ASQ: SE-2 and had a social emotional score on both the fall and winter SAEBRS.

Measurement

Data for the current study was collected using two assessment batteries: the Ages and Stages Questionnaires (ASQ) and the FastBridge Learning Fast Approach. The study incorporated two assessment tools from the ASQ: the Ages and Stages Questionnaires, Third Edition (ASQ-3) to measure communication skills, and the Ages and Stages Questionnaires: Social-emotional, Second Edition (ASQ: SE-2) to measure social-emotional skills. Parents or guardians of each student completed the ASQ-3 and the ASQ: SE-2 at the time of kindergarten enrollment. FastBridge Learning Assessments, including the SAEBRS rating scales, were completed by the students' classroom teachers in the fall and winter of the 2019-2020 school year.

Ages and Stages Questionnaires, Third Edition. KSDE requires the ASQ-3 and ASQ: SE-2 to evaluate a student's readiness for kindergarten. Parents or guardians of enrolling kindergarten students in School District A completed these questionnaires as part of the school enrollment process. The school district scheduled a time for each kindergarten family to meet with their child's kindergarten teacher. Parents or guardians completed each assessment using the online tool, while students completed activities with their teacher.

The ASQ-3 assesses children in five areas of development: Communication, Gross Motor, Fine Motor, Problem Solving, and Personal Social, as well as providing parents or guardians with an opportunity to note any specific concerns that they might have about their child (Squires et al., 2009). The ASQ-3 questionnaire consists of 30 items written in family-friendly language with pictures to assist those completing the questions. For each item, three choices are provided: "yes to indicate that their child performs the behavior specified in the item, sometimes to indicate an occasional or emerging response from their child, or not yet to indicate that their child does not yet perform the behavior" (Squires et al., 2009, p. 4). School personnel used the individual item responses to determine a student's score for each of the five areas of development. The current study employed students' scores for communication from the ASQ-3. Screening cut-off points were applied to determine a student's "risk of long-term reading difficulties" level for each student's overall rating (Christ & Colleagues, 2018, p. 42).

Validity and reliability. Beginning in the early 1980s, when the ASQ system was titled the Infant/Child Monitoring Questionnaire, the validity and reliability of the assessments were studied. First, comparisons conducted of parental classifications to standardized assessment's classifications had an agreement of 86% with a range from 83% to 88% (Squires et al., 2009). Additionally, test-retest reliability analysis, in which parents completed the tool twice in a two-week time revealed 92% agreement between the results with an intraclass correlation ranging from .75 to .82 (Squires et al., 2009). Furthermore, researchers assessed the instrument's inter-observer reliability by having a parent and a trained observer complete the questionnaire, and found 93% agreement (Squires et al., 2009). These results suggest that the tool has strong validity and

reliability in assessing a child's school readiness and showed that the completion of the questionnaire by parents had little negative impact on the tool's validity and reliability.

Ages and Stages Questionnaires: Social-Emotional, Second Edition. The ASQ: SE-2, a parent or guardian-completed screener, assesses the social-emotional school readiness of a child (Squires et al., 2015). The questionnaire consists of thirty items. For each item, three response options are provided to parents. The response options include, often or always, sometimes, and rarely or never (Squires et al., 2015). An online scoring system assigns points to each parent or guardian response. Additional points are added to each response if the parent marked that the item is an area of concern for them. Once scored, educators utilize screening cut-off points to evaluate the child's risk of exhibiting inappropriate social-emotional behaviors in the school environment (Chris & Colleagues, 2018).

Validity and reliability. Psychometric data collected on both the first and second editions of the ASQ exhibited strong reliability and validity evidence (Squires et al., 2015). Brookes Publishing Co. assessed the ASQ: SE-2 for its sensitivity and the ability of educators and parents to use the questionnaire to identify children with possible social-emotional disabilities (Squires et al., 2015). The publisher found the ASQ: SE-2 to have 81% overall sensitivity, ranging from 77% to 84% (Squires et al., 2015). Specificity data, the utilization of the ASQ: SE-2 in identifying children without social-emotional deficiencies was 86%, with scores ranging from 76% to 98% (Squires et al., 2015). These results support the tool's utilization to assess enrolling kindergarten students' likelihood of having a social-emotional deficit compared to same-age peers.

FAST earlyReading Assessment. The FastBridge Learning FAST Approach Assessments rely on criterion-referenced and norm-referenced scores in reading, mathematics, and behavior (Christ & Colleagues, 2018). The FAST Approach assessments of earlyReading, earlyMath, and SAEBRS are administered three times during the school year. Academic aspects of the assessment system, including the earlyReading and earlyMath Assessments, are administered individually.

The earlyReading Assessment evaluates kindergarten students in areas associated with literacy, including concepts of print, onset sounds, letter names, letter sounds, word rhyming, word blending, word segmenting, decodable words, nonsense words, sight words, sentence reading, and oral language (Christ & Colleague, 2018). Each assessment period has a prescribed set of subtests. Table 5 outlines the prescribed subtest scores for each testing period. The earlyReading composite score for a test period is determined using these subtest scores and is utilized by educators to predict a student's overall reading achievement (Christ & Colleague, 2018).

Table 5

Recommended Subtests for the FAST earlyReading Composite Score

Grade	Fall Composite	Winter Composite	Spring Composite
Kindergarten	Concepts of Print	Onset Sounds	Letter Sounds
	Onset Sounds	Letter Sounds	Word Segmenting
	Letter Names	Word Segmenting	Nonsense Words
	Letter Sounds	Nonsense Words	Sight Words

Adapted from the "Formative Assessment System for Teachers Technical Manual," by T. J. Christ and Colleagues, 2018, p. 34.

Brookes Publishing Co. developed benchmark scores for the FAST earlyReading Assessment through a criterion-related-validity study comparing the earlyReading Assessment to the Group Reading Assessment and Classification Evaluation (Christ & Colleagues, 2018; Williams, 2001). Benchmark scores were developed only for assessments prescribed for administration during a specific test period. Additionally, benchmark scores classify students into two categories on each subtest; not at-risk and at-risk (Christ & Colleagues, 2018).

Validity and reliability. The FAST earlyReading Assessment was examined for content-related validity, the tool's ability to measure the skills it was designed to assess. Developers addressed content-related validity through alignment of the assessment with the 2010 Common Core State Standards [CCSS] (Christ & Colleagues, 2018). Table 6 presents the alignment of the earlyReading subtests to CCSS.

Table 6

Alignment of FAST earlyReading Subtests and CCSS

Subtest	Common Core State Standards	Reading Skill
Concepts of Print	RF.K1, RF.K.1.a, RF.K.1.b, RF.K.1.c, RF.1.1, F.1.1.a	Concepts of Print
Letter Names	RF.K.1.d	Alphabetic Principle Phonics
Letter Sounds	RF.K.3.a	Alphabetic Principle Phonics
Decodable Words	R.F.K.3, RF.1.3, RF.1.3.b, RF.2.3, RF.3.3	Alphabetic Principle Phonics
Nonsense Words	R.F.K.3, RF.1.3, RF.1.3.b, RF.2.3, RF.3.3	Alphabetic Principle Phonics
Sight Words	RF.K.3.c, RF.1.3.g, R.2.3.f, RF.3.3.d	Fluency
Sentence Reading	RF.K.4, RF.1.4, RF.1.4.b, RF.2.4, RF.2.4.b, RF.3.4	Fluency
Onset Sounds	RF.K.2.c, RF.K.2.D, RF.1.2.c	Phonemic Awareness
Rhyming	RF.K.2.a	Phonemic Awareness
Word Blending	RF.K.2.b, RF.K.2.c, RF.1.2.b	Phonemic Awareness
Word Segmenting	RF.K.2.b, RF.K.2.d, RF.1.2.c, RF.1.2.d	Phonemic Awareness
Oral Repetition	SL.K.6, SL.1.6	Phonemic Awareness

Adapted from the “Formative Assessment System for Teachers Technical Manual,” by T. J. Christ and Colleagues, 2018, p. 36.

In addition to content-related validity, the earlyReading Assessment was evaluated for criterion-related validity by comparing earlyReading Assessment scores with the Group Reading Assessment Classification Evaluation (GRADE). Similar to the FAST earlyReading Assessment, the GRADE uses subtests to determine a Total Test Composite Score. The criterion-related validity analysis compared subtests and composite scores for fall, winter, and spring administrations and rendered acceptable concurrent and predictive validity coefficients for FAST earlyReading and GRADE. Table 7 presents the concurrent and predictive validity coefficients for kindergarten. FAST earlyReading Composite Scores for kindergarten and first grade were determined to have the highest criterion-related validity and are, therefore, good predictors of a student's success in reading (Christ & Colleagues, 2018).

Table 7

Concurrent and Predictive Validity Coefficients for FAST earlyReading

		Coefficient	
Subtest	N (range)	Range	Median
Composite	173	.67 - .69	.68
Onset Sounds	100	.72 - .83	.81
Letter Names	85 - 230	.03 - .62	.58
Letter Sounds	85 - 230	.19 - .63	.49
Word Blending	213 - 230	.23 - .66	.41
Word Segmenting	213 - 228	.25 - .58	.42
Decodable Words	214	--	.27
Sight Words (50)	213	--	.19
Nonsense Words	105 - 215	.27 - .44	.60

Adapted from the "Formative Assessment System for Teachers Technical Manual," by T. J. Christ and Colleagues, 2018, p. 38.

Additionally, the FAST earlyReading Assessment was examined for reliability using internal consistency measures, test-retest analysis, and inter-rater reliability. First, for internal consistency, a random sample of kindergarten students from the nationwide 2012-2013 school year database was evaluated. There are two types of items included in the earlyReading Assessment. Items that are not timed were subject to traditional internal consistency measures. The timed items can demonstrate higher variance due to the number of items not completed at the end of the assessment. To analyze these items, "estimates of internal consistency were run on the items completed by approximately

16% of students, the items completed by 50% of students, and items completed by approximately 84% of students" (Christ & Colleagues, 2018, p. 38). Table 8 illustrates the kindergarten internal consistency results for the FAST earlyReading Assessment subtests.

Table 8

Internal Consistency for FAST earlyReading Subtests

		Alpha		Split-Half	
Subtest	N	Range	Median	Range	Median
Concepts of Print	336	--	.75	--	.76
Onset Sounds	597	--	.87	--	.91
Letter Names	444	.95 - .98	.98	.96 - .99	.99
Letter Sounds	683	.93 - .98	.98	.93 - .99	.98
Word Blending	480	--	.90	--	.91
Word Segmenting	500	--	.95	--	.96
Rhyming	586	--	.94	--	.91
Decodable Words	434	.76 - .98	.95	.75 - .98	.96
Sight Words (50)	505	.91 - .99	.97	.91 - .99	.98
Nonsense Words	501	.74 - .96	.93	.73 - .98	.95

Adapted from the "Formative Assessment System for Teachers Technical Manual," by T. J. Christ and Colleagues, 2018, p. 39.

Eighty-five kindergarten students were administered the assessment twice in three weeks to assess test-retest reliability (Christ & Colleagues, 2018). Test-retest analysis examines whether similar scores are obtained in each administration. While the concept

of print subtest had a test-retest reliability coefficient of .42, the majority of subtests had a test-retest reliability coefficient of .92 or higher. The subtests of word segmenting, onset sounds, and word blending had scores below .92, scoring .86, .79. and .73, respectively (Christ & Colleagues). Table 9 presents the test-retest reliability coefficients for the FAST earlyReading assessment.

Table 9

Test-retest reliability for FAST earlyReading

Subtest	N	Coefficient
Concepts of Print	39	.42
Onset Sounds	67	.79
Letter Names	45	.94
Letter Sounds	75	.92
Word Blending	70	.73
Word Segmenting	37	.86
Decodable Words	29	.98
Nonsense Words	27	.94
Sight Words (50)	34	.97
Sentence Reading	37	.98
Composite	33	.97

Adapted from the "Formative Assessment System for Teachers Technical Manual," by T. J. Christ and Colleagues, 2018, pp. 39 - 40.

Finally, the FAST earlyReading Assessment was evaluated for inter-rater reliability. Inter-rater reliability examines whether students obtain similar scores with

different evaluators. Developers noted that some variance in scores "may be the result of clerical errors or differences in the interpretation of a student's FAST earlyReading subtest response" (Christ & Colleagues, 2018, p. 40). All subtests administered received inter-rater reliability coefficients between .85 and .99. Table 10 displays the Pearson product-moment correlation coefficients between raters for the kindergarten student results.

Table 10

Inter-Rater Reliability for FAST earlyReading Subtests

Subtest	Correlation	N
Onset Sounds	.98	40
Letter Names	.99	69
Letter Sounds	.99	47
Word Blending	.98	55
Word Segmenting	.85	90
Sight Words (50)	.99	9

Adapted from the "Formative Assessment System for Teachers Technical Manual," by T. J. Christ and Colleagues, 2018, p. 41.

Social, Academic, Behavior, and Emotional Behavior Risk Screener. In addition to the earlyReading Assessment, the current study utilized data collected using the FAST Approach SAEBRS. The SAEBRS assessment is a teacher-completed screener that focuses on children's social-emotional and behavioral development (Christ & Colleagues, 2018). Teachers individually score each student in the fall, winter, and spring based on behaviors observed during the previous month (Christ & Colleagues,

2018). The sum of individual responses from the screener's three categories of Social Behavior, Academic Behavior, and Emotional Behavior determines a student's Total Behavior Score (Christ & Colleagues, 2018). Table 11 illustrates the range of scores utilized by a teacher to assess a student's "risk for emotional and behavioral problems" (Christ & Colleagues, 2018, p. 98).

Table 11

FAST SAEBRS Score Ranges for Risk and No Risk

SAEBRS Scale/ Subscale	Not At Risk	At Risk
General Behavior	37 - 57	0 - 36
Social Behavior	13 - 18	0 - 12
Academic Behavior	10 - 18	0 - 9
Emotional Behavior	18 - 21	0 - 17

Adapted from the “Formative Assessment System for Teachers Technical Manual,” by T. J. Christ and Colleagues, 2018, p. 100.

Validity and reliability. Researchers analyzed SAEBRS for validity evidence. Content-related validity, the quality with which items in the SAEBRS represent the construct they are measuring, was determined using both the Content Validity Index [CVI] and the Factorial Validity Index [FVI] (Christ & Colleagues, 2018). Ratings of each item's relevance to the construct assessed were divided by the number of experts that rated each item to determine the CVI (Christ & Colleagues, 2018). The FVI was determined by dividing the frequency in which evaluators placed each item into the category assigned in the SAEBRS by the number of evaluators that categorized each item (Christ & Colleagues, 2018). The SAEBRS showed strong estimates for content-related

validity with all items rendering CVI and FVI values equal to or greater than .80 (Christ & Colleagues, 2018).

Additionally, criterion-related validity was examined for the SAEBRS against other social-emotional assessment tools to examine the ability with which it can assess a child's behavioral functioning level (Christ & Colleagues, 2018). The SAEBRS was compared with similar assessments such as the Social Skills Improvement System, BASC-2 BESS, Student Risk Screening Scale, and Student Internalizing Behavior Screener (Christ & Colleagues, 2018). The SAEBRS rendered correlations similar to other social-emotional and behavioral assessment tools. Concurrent criterion-related correlation coefficients for the SAEBRS subtests ranged from .71 to .93 (Christ & Colleagues, 2018). The results of the content-related validity and criterion-related validity analysis of the SAEBRS supports its use as an indicator of a student's behavior within the social, academic, and emotional domains (Christ & Colleagues, 2018).

The internal reliability and the test-retest reliability of the SAEBRS was also examined. Statisticians assessed the internal reliability of the SAEBRS utilizing Omega coefficients within SAEBRS' Total Behavior Scale (Christ & Colleagues, 2018). Omega coefficients "represent the proportions of variance attributable to a factor after controlling for all other factors" (Christ & Colleagues, 2018, p. 103). The resulting Omega coefficient was .98, suggesting strong internal validity for the (Christ & Colleagues, 2018, p. 104). The resulting calculations of coefficient alphas supported SAEBRS' internal consistency, and Table 12 presents the coefficient alphas.

Table 12

Internal Consistency of FAST SAEBRS

Measure	Grade	N	Coefficient Alpha
Social	Elementary	243	.89 - .94
Academic	Elementary	243	.90 - .92
Emotional	Elementary	219	.83
Total	Elementary	243	.93

Adapted from the "Formative Assessment System for Teachers Technical Manual," by T. J. Christ and Colleagues, 2018, p. 104.

Test-retest reliability examines whether an assessment given multiple times produces similar results. In examining the test-retest reliability of SAEBRS, a randomly selected population of students was rated twice over two weeks. Using the Pearson product-moment correlation for test-retest reliability, SAEBRS was determined to be reliable with a test-retest reliability score of 1.00 with "all performance levels (i.e., low, moderate, and high risk) represented within this sample, despite its restricted size" (Christ & Colleagues, 2018, p. 104).

Finally, Fastbridge Learning reviewed SAEBRS for factors related to bias. A multi-group confirmatory factor analysis [MG-CFA] assessed the amount of variance exhibited on SAEBRS across ethnic groups (Christ & Colleagues, 2018). MG-CFA is utilized to examine whether a similar pattern of responses occurs across various ethnic groups. A series of MG-CFAs from least restrictive to more restrictive found the SAEBRS to be relatively invariant across ethnic groups (Christ & Colleagues, 2018).

Data Collection Procedures

Before initiating the study, a formal request for permission to conduct a research study was submitted to School District A's Superintendent of Schools and the Board of Education. The request included a proposal outlining the data to be collected, the anticipated use of the data, the procedures to be utilized, and the safeguards in place to protect the confidentiality of students, families, and teachers involved in the study (See Appendix A). The formal request for permission to conduct research was submitted on August 23, 2020. Approval from School District A to proceed with the research study was received on September 28, 2020 (See Appendix A).

Additionally, a formal proposal was submitted to the Baker University Institutional Review Board (IRB) on January 18, 2021. The study was approved by the IRB Committee on January, 25, 2021 (See Appendix B). Approval from both School District A and Baker University's IRB Committee led to a request for School District A's Data Coordinator to construct a file containing kindergarten ASQ-3, ASQ-SE-2, SAEBRS, and FAST earlyReading data, as well as demographic information from the 2019-2020 school year. Data was received from the District A's record management system on February 8, 2021.

The school district provided an electronic file of the data requested, which included students' birthdates, gender, ethnicity, and socio-economic status. Additionally, the school district provided reports from the ASQ-3 and ASQ: SE-2 with total scores for each subsection and parent or guardian responses from each screener question. Similarly, data from the SAEBRS included each student's at-risk score and teacher responses for each test item. Finally, FAST earlyReading reports included each student's total reading

score, as well as subtest scores. The district protected students' anonymity for the current study by removing identifiable information such as the students' names, social security numbers, and state identification numbers. Each student was assigned a unique student identification number. Data used for the current study was stored electronically on a password-protected computer until the study's completion. At that time, the researcher securely maintained the data for three years before deleting the files.

Data Analysis and Hypothesis Testing

RQ1. To what extent is there a difference in the school readiness mean communication skills as measured by the ASQ-3 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020?

H1. There is a difference in school readiness mean communication skills scores as measured by the ASQ-3 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020.

An independent-samples *t*-test was conducted to address H1. The school readiness communication skills mean ASQ-3 score for the summer birthday group was compared to the mean ASQ-3 score for the earlier birthday group. An independent-samples *t*-test was chosen for the hypothesis testing as it examines the mean difference between two mutually exclusive independent groups, and the means of two groups are continuous variables. The level of significance was set at .05.

RQ2. To what extent is there a difference in the progress made for literacy skills as measured by the mean fall to winter gains score on the FAST earlyReading

Assessment between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020?

H2. There is a difference in the progress made for literacy skills as measured by the mean fall to winter gains score on the FAST earlyReading Assessment between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020.

An independent-samples *t*-test was conducted to address H2. The school readiness communication skills mean FAST earlyReading fall to winter gains score for the summer birthday group was compared to the mean FAST earlyReading fall to winter gains score for the earlier birthday group. An independent-samples *t*-test was chosen for the hypothesis testing as it examines the mean difference between two mutually exclusive independent groups, and both means of two groups are continuous variables. The level of significance was set at .05.

RQ3. To what extent is there a predictive relationship between school readiness mean communication skills as measured by the ASQ-3 and mean fall to winter gains score on the FAST earlyReading Assessment of literacy skills for all kindergarten students at three rural Title I schools during 2019-2020?

H3. There is a predictive relationship between school readiness mean communication skills as measured by the ASQ-3 and mean fall to winter gains scores on the FAST earlyReading Assessment of literacy skills for all kindergarten students at three rural Title I schools during 2019-2020.

Simple linear regression analysis was conducted to address H3. The ability to predict the fall to winter gains scores on the FAST earlyReading Assessment based on the ASQ-3 scores at school entry was evaluated. Simple linear regression was chosen for the hypothesis testing as it examines the prediction of a dependent continuous variable from an independent continuous variable. A one-sample *t*-test was conducted to test for the statistical significance of the slope. The level of significance was set at .05.

RQ4. To what extent is there a difference in the school readiness mean social-emotional skills as measured by ASQ: SE-2 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020?

H4. There is a difference in the school readiness mean social-emotional skills scores as measured by ASQ: SE-2 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020.

An independent-samples *t*-test was conducted to address H4. The school readiness social-emotional skills mean ASQ: SE-2 score for the summer birthday group was compared to the mean ASQ: SE-2 score for the earlier birthday group. An independent-samples *t*-test was chosen for the hypothesis testing as it examines the mean difference between two mutually exclusive independent groups, and the means of two groups are continuous variables. The level of significance was set at .05.

RQ5. To what extent is there a difference in the progress made for social-emotional skills as measured by the mean fall to winter gains score on the SAEBRS between kindergarten students at three rural Title I schools with birthdays on or after June

1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020?

H5. There is a difference in the progress made for social-emotional skills as measured by the mean fall to winter gains score on the SAEBRS between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020.

An independent-samples *t*-test was conducted to address H5. The school readiness social-emotional skills for the mean SAEBRS fall to winter gains score for the summer birthday group was compared to the mean SAEBRS fall to winter gains score for the earlier birthday group. An independent-samples *t*-test was chosen for the hypothesis testing as it examines the mean difference between two mutually exclusive independent groups, and the means of two groups are continuous variables. The level of significance was set at .05.

RQ6. To what extent is there a predictive relationship between school readiness mean social-emotional skills as measured by the ASQ: SE-2 and mean fall to winter gains score on the SAEBRS assessment for all kindergarten students at three rural Title I schools during 2019-2020?

H6. There is a predictive relationship between school readiness mean social-emotional skills as measured by the ASQ: SE-2 and mean fall to winter gains score on the SAEBRS assessment for all kindergarten students at three rural Title I schools during 2019-2020.

Simple linear regression analysis was conducted to address H6. The ability to predict the fall to winter gains scores on the SAEBRS based on the ASQ: SE-2 scores at school entry was evaluated. Simple linear regression was chosen for the hypothesis testing as it examines the prediction of a dependent continuous variable from an independent continuous variable. A one-sample *t*-test was conducted to test for the statistical significance of the slope. The level of significance was set at .05.

Limitations

Lunenberg and Irby (2008) defined limitations as "factors that may have an effect on the interpretation of the findings or the generalizability of the results" (p. 133). Furthermore, limitations are factors that the researcher is unable to control. This study had the following limitations:

1. Data collected was from one rural school district in Kansas and may not be generalizable to other school districts within or outside of the state.
2. The ASQ-3 and ASQ: SE-2 relied on parental responses, and variations may have occurred based on parental experiences, knowledge, and perceptions of their children's school readiness.
3. The parent or guardian completing the instruments pertaining to the child's school readiness may not have been the most knowledgeable family member to complete the instruments.
4. Student growth in school is impacted by multiple factors. However, other than the school readiness factors included in the study, no additional factors were examined.

Summary

The methodology utilized for the current study to examine the kindergarten readiness levels of students with summer or earlier birthdays, and how school readiness levels relate to later growth in early literacy, communication, and social-emotional skills was reviewed within this chapter. Additionally, participant selection criteria and sampling methods, the instruments used for collecting data, and the statistical analysis procedures followed were described in this chapter. Chapter 4 details the results obtained through data analysis.

Chapter 4

Results

The current study was designed to examine the impact of a student's birthday on their communication and social-emotional school readiness. Specifically, the focus of the study was to determine whether there was a difference in communication school readiness, social-emotional school readiness, early reading growth, and early social-emotional growth when comparing students with summer birthdays, birthdays on or after June 1, to those students with earlier birthdays, on or before May 31. Additionally, examined in the study was the use of communication school readiness to predict students' early reading growth and the use of social-emotional school readiness to predict students' early social-emotional growth. Included in Chapter 4 are descriptive statistics and the results of the hypothesis testing of the current study.

Descriptive Statistics

During the 2019-2020 school year, School District A, a rural Kansas school district with three Title I elementary schools, enrolled a total of 176 kindergarten students. The number of students with birthdays on or after June 1, included 38 students or 21.6% of all kindergarten students enrolled. The number of students with birthdays on or before May 31, included 138 students or 78.4% of all kindergarten students enrolled.

Communication analyses. Three analyses examining students' communication school readiness and first semester gains scores were conducted. These analyses were utilized to test H1, H2, and H3. To conduct these analyses, two subgroups were developed: A summer birthday group, with birthdates on or after June 1, and an earlier

birthday group, with birthdates on or before May 31. Before creating the subgroups, all students with missing data from the ASQ-3 or the FAST earlyReading Assessment were removed. There were 22 students removed from the analyses due to incomplete data. Once students with missing data were removed from the data set, the summer birthday group included 31 students with complete data and birthdates on or after June 1. The demographic characteristics of the summer birthday group were reviewed, including the school attended, the classroom assigned, gender, ethnicity, economic status, and whether the student received special education or English language learner supports. The earlier birthday group was selected utilizing a stratified random sampling process to ensure similar demographic characteristics between the two subgroups. The demographic characteristics of the summer birthday comparison group and the earlier birthday group are presented in the following tables. Tables 13 - 17 present the communication analyses subgroups classified by school, gender, ethnicity, economic status based on students' school lunch assistance classification, and types of student supports.

Table 13

Communication Analyses Subgroups by School

Subgroup	School 1	School 2	School 3	Total
Summer Birthdays	7	12	12	31
Earlier Birthdays	7	12	12	31

Table 14

Communication Analyses Subgroups by Gender

Subgroup	Female	Male	Total
Summer Birthdays	21	10	31
Earlier Birthdays	20	11	31

Table 15

Communication Analyses Subgroups by Ethnicity

Subgroup	White	Black	Hispanic	Multi-Ethnic	Total
Summer Birthdays	28	2	0	1	31
Earlier Birthdays	28	1	1	1	31

Table 16

Communication Analyses Subgroups by Economic Status

Subgroup	Full-Pay	Reduced	Free	Total
Summer Birthdays	10	5	16	31
Earlier Birthdays	10	5	16	31

Table 17

Communication Analyses Subgroups by Student Supports

Subgroup	General Education	Special Education	English Learner	Non-English Learner
Summer Birthdays	26	5	1	30
Earlier Birthdays	26	5	1	30

Social-emotional analyses. Three analyses examining students' social-emotional school readiness were conducted. These analyses were utilized to test H4, H5, and H6. To conduct these analyses, two subgroups were developed: A summer birthday group, with birthdates on or after June 1, and an earlier birthday group, with birthdates on or before May 31. Before creating the subgroups, all students with missing data from the ASQ: SE-2 or the SAEBRS were removed. There were 25 students removed from the study due to incomplete data. Once students with missing data were removed from the data set, the summer birthday group included all students with complete data and birthdates on or after June 1. The demographic characteristics of the summer birthday group were reviewed, including the school attended, the classroom assigned, gender, ethnicity, economic status, and whether the student received special education or English learner supports. The earlier birthday group was selected utilizing a stratified random sampling process to ensure similar demographic characteristics between the two subgroups. The demographic characteristics of the summer birthday group and the earlier birthday group are presented in the following tables. Tables 18 - 22 present the social-emotional analyses subgroups classified by school, gender, ethnicity, economic

status based on students' school lunch assistance classification, and types of student supports.

Table 18

Social-Emotional Analyses Subgroups by School

Subgroup	School 1	School 2	School 3	Total
Summer Birthdays	8	11	12	31
Earlier Birthdays	8	11	12	31

Table 19

Social-Emotional Analyses Subgroups by Gender

Subgroup	Female	Male	Total
Summer Birthdays	21	10	31
Earlier Birthdays	20	11	31

Table 20

Social-Emotional Analyses Subgroups by Ethnicity

Subgroup	White	Black	Multi-Ethnic	Total
Summer Birthdays	27	3	1	31
Earlier Birthdays	27	1	3	31

Table 21

Social-Emotional Analyses Subgroups by Economic Status

Subgroup	Full-Pay	Reduced	Free	Total
Summer Birthdays	9	6	16	31
Earlier Birthdays	11	5	15	31

Table 22

Social-Emotional Analyses Subgroups by Student Supports

Subgroup	General Education	Special Education	English Learner	Non-English Learner
Summer Birthdays	25	6	1	30
Earlier Birthdays	25	6	1	30

Hypothesis Testing

RQ1. To what extent is there a difference in the school readiness mean communication skills as measured by the ASQ-3 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020?

***H1*.** There is a difference in school readiness mean communication skills scores as measured by the ASQ-3 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020.

An independent-samples *t*-test was conducted to address RQ1. Communication school readiness, as measured by the mean fall ASQ-3 communication score, was

compared between students with summer birthdays and an equivalent comparison group of peers with earlier birthdays. An independent-samples *t*-test was chosen for the hypothesis testing because the hypothesis involves the examination of the mean difference between two mutually exclusive independent groups and the means are continuous variables. The level of significance was set at .05. When appropriate, an effect size, as indexed by Cohen's *d*, was reported.

The results of the independent-samples *t*-test indicated no statistically significant difference between the two means, $t(60) = -0.691$, $p = .49$. The sample mean for the summer birthday group ($M = 53.06$, $SD = 6.54$, $n = 31$) was only slightly higher than the sample mean for the earlier birthday group ($M = 51.61$, $SD = 9.69$, $n = 31$). H1 was not supported. There was no evidence to suggest that communication school readiness, as measured by the mean fall ASQ-3 communication score, for students with summer birthdays was statistically different than the communication school readiness for students with earlier birthdays in kindergarten. Table 23 presents the results of H1 for summer birthdays and earlier birthdays.

Table 23

Fall ASQ-3 Communication Scores by Birthday Group

Variable	*M*	*SD*	*N*
Summer Birthdays	53.06	6.54	31
Earlier Birthdays	51.61	9.69	31

RQ2. To what extent is there a difference in the progress made for literacy skills as measured by the mean fall to winter gains score on the FAST earlyReading Assessment between kindergarten students at three rural Title I schools with birthdays on

or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020?

H2. There is a difference in the progress made for literacy skills as measured by the mean fall to winter gains score on the FAST earlyReading Assessment between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020.

An independent-samples *t*-test was conducted to address RQ2. Early reading growth, as measured by the mean fall to winter gains scores on the FAST earlyReading Assessment, was compared between students with summer birthdays and an equivalent comparison group of peers with earlier birthdays. An independent-samples *t*-test was chosen for the hypothesis testing because the hypothesis involves the examination of the mean difference between two mutually exclusive independent groups and the means are continuous variables. The level of significance was set at .05. When appropriate, an effect size, as indexed by Cohen's *d*, was reported.

The results of the independent-samples *t*-test indicated no statistically significant difference between the two means, $t(60) = -0.99$, $p = .33$. The sample mean for the summer birthday group ($M = 12.61$, $SD = 5.18$, $n = 31$) was only slightly lower than the sample mean for the earlier birthday group ($M = 13.81$, $SD = 4.31$, $n = 31$). H2 was not supported. There was no evidence to suggest that the mean fall to winter gains scores on the FAST earlyReading Assessment for students with summer birthdays was statistically different than the mean fall to winter gains scores on the FAST earlyReading Assessment

for students with earlier birthdays in kindergarten. Table 24 presents the results of H2 for summer birthdays and earlier birthdays.

Table 24

FAST earlyReading Fall to Winter Gains Score by Birthday Group

Variable	*M*	*SD*	*N*
Summer Birthdays	12.61	5.18	31
Earlier Birthdays	13.81	4.31	31

RQ3. To what extent is there a predictive relationship between school readiness mean communication skills as measured by the ASQ-3 and mean fall to winter gains score on the FAST earlyReading Assessment of literacy skills for all kindergarten students at three rural Title I schools during 2019-2020?

***H3*.** There is a predictive relationship between school readiness mean communication skills as measured by the ASQ-3 and mean fall to winter gains scores on the FAST earlyReading Assessment of literacy skills for all kindergarten students at three rural Title I schools during 2019-2020.

A simple linear regression was conducted to address RQ3. Simple linear regression was chosen for the hypothesis testing because it examines the prediction of a dependent continuous variable, reading growth as measured by the fall to winter gains scores on the FAST earlyReading Assessment, from an independent variable, communication school readiness as measured by the fall ASQ-3 communication score. The level of significance was set at .05. When appropriate, an effect size, R^2, was reported.

The results of the simple linear regression revealed a non-significant regression equation with $F(1,60) = 1.31$, $p = .26$, $R^2 = .02$). Therefore, the independent variable, communication school readiness as measured by fall ASQ-3 communication scores, did not explain a significant proportion of the variation in the dependent variable, the FAST earlyReading Assessment fall to winter gains scores with $B = 0.15$, $t(60) = 1.15$, $p = .26$. H3 was not supported. There was no evidence to suggest that communication school readiness, as measured by the fall ASQ-3 communication score, significantly predicted the fall to winter gains scores on the FAST earlyReading Assessment in kindergarten.

RQ4. To what extent is there a difference in the school readiness mean social-emotional skills as measured by ASQ: SE-2 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020?

H4. There is a difference in the school readiness mean social-emotional skills scores as measured by ASQ: SE-2 between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 at the time of school entry in 2019-2020.

An independent-samples *t*-test was conducted to address RQ4. Social-emotional school readiness, as measured by the mean fall ASQ: SE-2 total score, was compared for students with summer birthdays and an equivalent comparison group of peers with earlier birthdays. An independent-samples *t*-test was chosen for the hypothesis testing because the hypothesis involves the examination of the mean difference between two mutually exclusive independent groups and the means are continuous variables. The level of

significance was set at .05. When appropriate, an effect size, as indexed by Cohen's *d*, was reported.

The results of the independent-samples *t*-test indicated no statistically significant difference between the two means, $t(60) = -0.45$, $p = .65$. The sample mean for the summer birthday group ($M = 33.39$, $SD = 22.0$, $n = 31$) was only slightly higher than the sample mean for the earlier birthday group ($M = 30.48$, $SD = 28.18$, $n = 31$). H4 was not supported. There was no evidence to suggest that social-emotional school readiness, as measured by the mean social-emotional score, of students with summer birthdays was statistically different than the mean social-emotional school readiness of students with earlier birthdays in kindergarten. Table 25 presents the results H4 for summer birthdays and earlier birthdays.

Table 25

Fall ASQ: SE-2 Social-Emotional Scores by Birthday Group

Variable	*M*	*SD*	*N*
Summer Birthdays	33.39	22	31
Earlier Birthdays	30.48	28.177	31

RQ5. To what extent is there a difference in the progress made for social-emotional skills as measured by the mean fall to winter gains score on the SAEBRS between kindergarten students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020?

H5. There is a difference in the progress made for social-emotional skills as measured by the mean fall to winter gains score on the SAEBRS between kindergarten

students at three rural Title I schools with birthdays on or after June 1 compared to an equivalent group of their peers with birthdays on or before May 31 during the first semester of kindergarten in 2019-2020.

An independent-samples *t*-test was conducted to address RQ5. Social-emotional growth, as measured by the mean fall to winter gains scores on the SAEBRS, was compared between students with summer birthdays and an equivalent comparison group of peers with earlier birthdays. An independent-samples *t*-test was chosen for the hypothesis testing because the hypothesis involves the examination of the mean difference between two mutually exclusive independent groups and the means are continuous variables. The level of significance was set at .05. When appropriate, an effect size, as indexed by Cohen's *d*, was reported.

The results of the independent-samples *t*-test indicated no statistically significant difference between the two means, $t(60) = -1.37$, $p = .18$. The sample mean for the summer birthday group ($M = 1.32$, $SD = 6.22$, $n = 31$) was only slightly higher than the sample mean for the earlier birthday group ($M = -0.65$, $SD = 5.04$, $n = 31$). H5 was not supported. There was no evidence to suggest that the mean fall to winter gains scores on the SAEBRS for students with summer birthdays was statistically different than the mean fall to winter gains scores on the SAEBRS for students with earlier birthdays in kindergarten. Table 26 presents the results of H5 for summer birthdays and earlier birthdays.

Table 26

SAEBRS Fall to Winter Gains Score by Birthday Group

Variable	*M*	*SD*	*N*
Summer Birthdays	1.32	6.22	31
Earlier Birthdays	-0.65	5.04	31

RQ6. To what extent is there a predictive relationship between school readiness mean social-emotional skills as measured by the ASQ: SE-2 and mean fall to winter gains score on the SAEBRS assessment for all kindergarten students at three rural Title I schools during 2019-2020?

***H6*.** There is a predictive relationship between school readiness mean social-emotional skills as measured by the ASQ: SE-2 and mean fall to winter gains score on the SAEBRS assessment for all kindergarten students at three rural Title I schools during 2019-2020.

A simple linear regression was conducted to address RQ6. Simple linear regression was chosen for the hypothesis testing because it examines the prediction or explanation of a dependent continuous variable, the fall to winter gains scores on the SAEBRS assessment, from an independent continuous variable, the fall ASQ: SE-2 score. The level of significance was set at .05. When appropriate, an effect size, R^2, was reported.

The results of the simple linear regression revealed a non-significant regression equation with $F(1,60) = 0.14$, $p = 0.71$, $R^2 = .002$). Therefore, the independent variable, the fall ASQ-3 score, did not explain a significant proportion of the variation in the dependent variable, the FAST earlyReading Assessment fall to winter gains scores with

$B = 0.05$, $t(60) = 0.38$, $p = 0.71$. H6 was not supported. There was no evidence to suggest that social-emotional school readiness, as measured by the fall ASQ: SE-2 social-emotional score, could statistically predict the fall to winter gains on the SAEBRS.

Summary

This chapter presented the results from independent-samples *t*-tests conducted to determine whether there was evidence of a difference in communication school readiness, social-emotional school readiness, early reading growth, and early social-emotional growth when comparing students with summer birthdays, birthdays on or after June 1, to those students with earlier birthdays, on or before May 31. Additionally, the chapter presented the results from simple linear regression analyses conducted to determine whether communication school readiness could statistically predict students' early reading growth and whether social-emotional school readiness could statistically predict early social-emotional growth. The results of the study indicated that there was not a significant difference in communication school readiness, social-emotional school readiness, early reading growth, or early social-emotional growth when comparing students with summer birthdays, on or after June 1, to an equivalent comparison group of students with earlier birthdays, on or before May 31. Similarly, the results of the analysis indicated that communication school readiness did not account for a significant portion of the variance in early reading growth and that social-emotional school readiness did not account for a significant portion of the variance in early social-emotional growth. A study summary, findings related to the literature, and conclusions are presented in Chapter 5.

Chapter 5

Interpretation and Recommendations

The first two chapters of the current study provided the purpose and significance of the study and the review of literature related to the background of kindergarten and its evolution in the United States, including the development of an emphasis on school readiness. Chapters 3 and 4 included a description of the research design utilized in the current study and the results of hypothesis testing. Chapter 5 presents a summary of the study that consists of a review of the problem, purpose statement, research questions, the methodology used in the study, and major findings from the study. Chapter 5 concludes with findings related to previous literature, conclusions from the study, implications for action, and recommendations for future research.

Study Summary

Presented in the study summary is an overview of the problem, as well as a review of the purpose statement and research questions used to focus the study. The study summary also describes the methodology utilized to examine the impact a student's birthdate has on their school readiness, including the study design, selection of participants, and instruments used in the study. Finally, the results of the data analysis for the study are presented, specifically differences in communication school readiness, social-emotional school readiness, and early reading between students with different birthdates, as well as the impact of communication school readiness on early reading skills growth and social-emotional school readiness on social-emotional skills growth.

Overview of the problem. The problem addressed in this study was identifying the impact a student's birthdate may have on their communication school readiness,

social-emotional school readiness, early reading gains, and early social-emotional gains. Increasing academic demands have shifted kindergarten programs in the United States away from play-based programming that emphasized skills necessary to be a productive citizen to a standardized curriculum that transitions students into the demands of the school environment (Shapiro, 1983; Mindess & Mindess, 1972). The emphasis on reading, writing, and math in the classroom has created a void in research related to communication and social-emotional readiness for school that restricts educators from meeting the needs of all students. Further understanding the impact of these school readiness factors will help educators improve the structure of kindergarten and incorporate intervention strategies to support students' overall development.

Additionally, investigating the predictive relationship between communication and social-emotional readiness skills and students' growth may provide teachers additional indicators to predict a students' need for early intervention. Anticipating a student's potential needs at school entry should support school systems' effective utilization of resources by reducing students requiring Title I and special education services as they advance in grades. Finally, results of the current study could support states like Kansas that strive to ensure all students enter school prepared to learn (KSDE, 2016).

Purpose statement and research questions. The first purpose of this quantitative causal-comparative and regression analysis study was to investigate whether kindergarten students with birthdays on or after June 1 enter school at a disadvantage relative to their peers with birthdays on or before May 31, pertaining to their communication and social-emotional school readiness levels. The second purpose of the

current study was to ascertain whether communication or social-emotional school readiness levels were predictive of related skill gains during the first semester of their kindergarten year. The mean communication scores on the ASQ-3 and the mean social-emotional scores on the ASQ: SE-2 for the two subgroups were compared. The analysis of mean ASQ-3 and ASQ: SE-2 scores would provide educators a better understanding of whether a student entering school with a summer birthday indicates delayed growth in the areas of communication or social-emotional development.

The current study also examined the relationship between communication and social-emotional school readiness levels and whether these measures were predictive of gains in early reading and early social-emotional skills during their first semester of kindergarten. The fall to winter SAEBRS gains scores were regressed on the ASQ: SE-2 school readiness levels to examine whether there was a predictive relationship between school readiness and later development of social-emotional skills during the first semester of kindergarten. Similarly, the fall to winter FAST earlyReading gains scores were regressed on the ASQ-3 school readiness levels to examine whether there was a predictive relationship between school readiness communication levels and later development of literacy skills during the first semester of kindergarten.

Furthermore, the current study connected the kindergarten readiness levels of communication and social-emotional skills with students' progress in learning early reading or literacy concepts and social-emotional growth, respectively. This analysis determined the extent to which indicators such as communication and social-emotional school readiness could help identify those students most at risk of slow literacy or social-emotional growth. Therefore, the regression analysis could provide educators with a

better understanding as to whether a student's lower kindergarten readiness scores could predict slower gains in related areas.

Review of the methodology. The current quantitative study utilized both causal-comparative and linear regression research designs. The study compared the mean of dependent variables as grouped by the independent variable. The independent variable for the causal-comparative analysis was students' birthdates. Students' birthdates were categorized either as summer birthdays or earlier birthdays. The dependent variables were the mean students' scores for communication school readiness, social-emotional school readiness, early reading gains, and early social-emotional gains. Communication school readiness skills were measured using the ASQ-3, and social-emotional school readiness skills were measured using the ASQ: SE-2. This causal-comparative analysis evaluated the impact of the independent variable of summer birthdays, on or after June 1, or earlier birthdays, on or before May 31, on the dependent variables, the mean ASQ-3 and ASQ: SE-2. To examine the mean differences between the summer birthday group, including all students with birthdays on or after June 1, and the earlier birthday group, students selected through a stratified sampling process with a birthday on or before May 31, an independent-samples *t*-test was conducted.

The current study utilized two linear regression analyses to examine the extent to which a predictive relationship existed between a student's communication skills or social-emotional skills at the time of enrollment in kindergarten and their fall to winter gains in early literacy and social-emotional skills. The independent variables of kindergarten readiness levels were communication skills measured with the ASQ-3 and social-emotional skills measured with the ASQ: SE-2. The dependent variables being

predicted were early literacy skills growth calculated as the mean fall to winter gains scores using the FAST earlyReading Assessment and social-emotional skill growth calculated as the fall to winter gains scores using the SAEBRS.

Major findings. The current study evaluated to what extent there were differences in communication school readiness, social-emotional school readiness, early reading growth, and early social-emotional growth between students with summer birthdays, birthdays on or after June 1, and students with earlier birthdays, on or before May 31. The results of the data analysis indicated that there was not a significant difference in communication school readiness, social-emotional school readiness, early reading growth, or early social-emotional growth between students with summer birthdays and students with earlier birthdays. The study also examined whether a student's communication school readiness could be used to predict their early reading growth and whether a student's social-emotional school readiness could be used to predict their early social-emotional growth. The results of the data analysis indicated that communication school readiness did not account for a significant portion of the variance in early reading growth and therefore could not be utilized as a predictor for early reading growth. Similarly, social-emotional school readiness did not account for a significant portion of the variance in early social-emotional growth. Therefore, social-emotional school readiness could not be utilized as a predictor for early social-emotional growth.

Findings Related to the Literature

In this section, previous research related to the impact of a student's birthdate on school readiness is compared with the current study findings. Results of the current study both support and contradict previous research described in Chapter 2. This section

presents connections between the previous literature and the study's findings related to communication school readiness, social-emotional school readiness, early reading growth, and early social-emotional growth.

In a Stipek (2002) meta-analysis, older students were found to have an advantage compared to younger peers; however, younger students progressed more significantly upon entering the school environment. In the current study, although no significant difference was found in early reading gains between students with summer birthdays and earlier birthdays, students with summer birthdays gained less on the FAST earlyReading Assessment than peers with earlier birthdays from fall to winter. Whether this pattern of academic growth would continue is unknown due to the length of the study; however, early reading findings from the current study contradict literature related to early reading growth and the impact of a student's birthdate, as younger students did not progress at a significantly greater rate than their older peers.

Previous research suggested that language and communication difficulties increase students' likelihood of having a reading disability in elementary school (Catts et al., 2005; Fey et al., 2004; Nathan et al., 2004). Similarly, the NICHD (2006) study found a significant correlation between oral language and elementary reading skills. However, findings from the current study suggest that students' communication school readiness were not predictive of early reading gains. The ASQ-3 communication scores were found to account for about 2% of the variance in a student's FAST earlyReading fall to winter gains. Therefore, a non-significant regression equation was produced, which suggests that a student's communication school readiness score is unlikely to predict early reading growth. The current study was different than those noted in the NICHD (2006)

study that assessed the oral language of toddlers or preschool students and connected reading assessments in older elementary grades rather than in the child's first year in school.

Elder and Lubotsky (2009) found that students who are young for their grades have a higher probability of having behavior problems. Similarly, Evans, Morrill, and Parente (2010) found that younger students were more likely to have focus and attention problems. In the current study, similar to previous research, students with summer birthdays had slightly higher mean ASQ: SE-2 scores, indicating more substantial social-emotional concerns than peers with earlier birthdays. However, no significant difference was found in social-emotional school readiness between students with summer birthdays and earlier birthdays.

While Stipek (2002) studied the academic gains of younger students for their grade level and found that they progressed at a higher rate than their peers, previous research had not examined the rate at which younger students' social-emotional skills progress. In the current study, students with summer birthdays demonstrated slightly greater gains on the SAEBRS than peers with earlier birthdays; however, no significant difference was found in social-emotional gains between students with summer birthdays and earlier birthdays. Replicating the current study with a larger sample size could produce results that align with previous research on academic progress by showing that students younger for their grade level have a higher rate of social-emotional progress than their peers.

Conclusions

Presented in Chapter 5 of the current study are implications for action and recommendations for future research. Implications for action provide policymakers, educators, and parents application of the findings from the study. Recommendations for future research describes opportunities for expanding and strengthening the current study.

Implications for action. Assessing students' readiness for school has been a common practice in public schools and the information obtained from readiness assessment tools impacts multiple decisions that affect students' school success. The current study examined the impact of age on students' readiness for school. Hypothesis testing in the current study produced results that showed no significant differences between students with summer birthdays and students with earlier birthdays in the areas of communication school readiness, social-emotional school readiness, early reading growth, and social-emotional growth. However, the absence of significant differences still provides information that should impact parent, educator, and policymaker decisions.

Parents are the primary decision-maker as to when it is appropriate to enroll a child in school. The findings of the current study do not support age as a determining factor in determining when to enroll a student. Previous literature suggests that students who enter school younger for their grade level make more significant academic gains and exhibit cognitive skill gains from the school experience (Stipek, 2002). Findings from the current study and previous literature do not support withholding younger students from school for an additional year. Instead, it is essential that educators clearly explain all aspects of the kindergarten readiness tool, including how the school will utilize the assessment's information. This process could be valuable in counseling parents about the

advantages of enrolling their child, even in the presence of a lower kindergarten readiness score.

An effective conversation about school enrollment between the parent and the school relies on educators' understanding of the kindergarten readiness tool. School systems should provide school staff further professional development on kindergarten readiness tools. Professional development should address academic, communication, and social-emotional data obtained and how schools will utilize this data to develop effective curriculum and interventions to support student learning. Based on the findings of this study and previous literature, providing educators additional information related to the increased value of having a student attend kindergarten, even with a summer birthday or with lower readiness scores, should assist teachers in appropriately advising parents.

Similar to a parent's decision to withhold enrolling a student, a student's age is a contributing factor in a teacher's decision to retain a student. Students who are younger for their grade are more likely to be retained than their older peers, primarily due to social-emotional concerns (Huang, 2014). The current study showed no significant difference in social-emotional school readiness or social-emotional growth between students with summer birthdays and students with earlier birthdays. The study's findings do not support retention based on social-emotional concerns based on a student's age. Replicating this study over a full school year or into later grades should provide educators additional evidence to inform retention decisions based on age. However, the current study showed no evidence that a student's age contributes to social-emotional concerns in a classroom setting or overall social-emotional development.

Kindergarten readiness collected on a state-wide and national level could lead to questions about the minimum age requirement for enrollment in school and compulsory attendance requirements. Current enrollment date requirements allow some younger students to enroll in kindergarten while still four-years-old. However, the findings of the current study do not support a change in this criteria, as no significant difference in communication readiness, social-emotional readiness, or early reading skills were found between students with summer birthdays and earlier birthdays. Instead, KSDE (2019) suggested that education policy should address "appropriate levels of funding" and "collaborative systems of support" (p.1). Ensuring that all schools are prepared to meet the needs of students entering school at varying levels of school readiness will require equitable funding measures for early childhood and school funding. Additionally, strengthening schools' ability to collaborate and intervene appropriately will require training and necessary personnel rather than changes to the age at which students enter the school environment.

Recommendations for future research. Recommendations for future research based on the results of the current study should include:

1. Further research on the topic that would include a larger sample size, suburban and urban school districts, and a more diverse student population is recommended.
2. Further research on the topic that examines early reading gains and social-emotional gains over a full school year is recommended.
3. Further research that disaggregates the data based on gender and a students' participation in early childhood opportunities is recommended.

Concluding remarks. The current study examined the impact of students' birthdates on communication school readiness, social-emotional school readiness, early reading growth, and social-emotional skills growth. While the findings of the study showed no significant differences between students with summer birthdays, on or after June 1, and students with earlier birthdays, on or before May 31, school readiness is complex. Policymakers, educators, and parents should not make decisions based on a sole indicator of school readiness. Instead, further study is needed surrounding the relationships between these indicators. A strengthened understanding of how these indicators of school success impact each other could result in a more robust kindergarten program, enhanced kindergarten curriculum, and policy decisions that support each student in obtaining the "knowledge, skills, and attitudes that will prepare them to lead happy and successful lives" (Education Evolving, 2016, p. 1).

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Appendices

Appendix A – Approval to Conduct Research from District A

Application to Conduct Research

Name: Joshua Robinson
Address: 1116 Eagle Pass Court
Phone Number: 785-418-0227
Position: Assistant Superintendent
City, State, Zip Code: Ottawa, KS 66067
Email: robinson@usd290.org

Is this study part of your work for a degree?

☑ Yes ☐ No

If yes, complete the following:

☐ Ph.D. ☑ Ed. D. ☐ M.A./M.S. ☐ Other

University or College: Baker University

Date of IRB Application: January 18, 2021

Advisor: Dr. Sharon Zoellner

Include a concise response to each of the following items:

1. **Title and Purpose of the Study**
   a. *Title: The Impact Of Birthdate On A Kindergarten Student's Communication, Social-Emotional, and Early Reading Skills In Rural Title I Elementary Schools*

   b. *Purpose of the Study:* This study uses archival data from the 2019-2020 school year. The ASQ-3 for kindergarten students will be grouped by students' birthdates to determine whether a student's birthdate can be used as a predictor for communication deficits upon enrollment in kindergarten. The ASQ: SE-2 for kindergarten students will be grouped by students' birthdates to determine whether a student's birthdate can be used as a predictor for social-emotional or behavioral concerns. SAEBRS for kindergarten students will be grouped by students' birthdates to determine whether students with varying birthdates make similar social-emotional and behavioral progress from fall to winter. Finally, a series of analyses will be conducted to determine whether a student's beginning of kindergarten communication skills from the ASQ-3 or their social-emotional skills from the ASQ: SE-2 are predictors of a student's early reading development as measured by the Fast earlyReading assessment in the fall and winter.

2. **Timeline**
   This study uses archival data from the 2019-2020 school year. The data is being requested in August 2020. The study will be completed in Spring 2021. The data would be retained for three years following the completion of the study, or until January 2024.

3. **Benefits to the School District**
   USD 290 staff collect a variety of data related to kindergarten students' readiness for school. This study will analyze the data collected and provide Ottawa School District staff information to assist them in utilizing kindergarten school readiness data to guide instruction and intervention.

   ☐ The researcher has permission to utilize the Ottawa School District name.
   ☑ The Ottawa School District prefers to not be identified. The researcher will refer to the school district as District A.

4. **Assurances of Anonymity for Ottawa School District Staff and Students**
   Throughout this study, no Ottawa School District student or staff names will be utilized with the data collected. Data requested by the research will be maintained on a password-protected computer. The data will be retained for three years following the completion of the study. At the conclusion of this period, data will deleted.

5. **Risks of the Research**
   There are no known risks of the proposed study to the Ottawa School District. Additionally, there are no known risks of the proposed study to Ottawa School District staff or students.

6. **District Involvement**
   The researcher is requesting the following data:
   a. Kindergarten student demographic information from the 2019-2020 school year
   b. ASQ-3 Fall data for kindergarten students from the 2019-2020 school year
   c. ASQ: SE-2 data for kindergarten students from the 2019-2020 school year
   d. SAEBRS Fall and Winter data for kindergarten students from the 2019-2020 school year
   e. Fast earlyReading Fall and Winter data for kindergarten students from the 2019-2020 school year

   If approved, the researcher will work with the school district's Data Coordinator to obtain the data requested.

Submitted To: Dr. Ryan Cobbs, Superintendent **Date:** August 24, 2020

Research Application: ☑Approved ☐ Denied **Date:** 2/5/2021

Signature: _____ **Dr. Ryan Cobbs, Superintendent**

Appendix B – Institutional Review Board Approval Letter

Baker University Institutional Review Board

January 25th, 2021

Dear Josh Robinson and Sharon Zoellner,

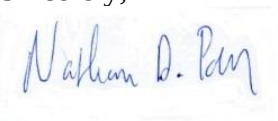
The Baker University IRB has reviewed your project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.
6. If this project is not completed within a year, you must renew IRB approval.

If you have any questions, please contact me at npoell@bakeru.edu or 785.594.4582.

Sincerely,



Nathan Poell, MLS
Chair, Baker University IRB

Baker University IRB Committee
Sara Crump, PhD
Nick Harris, MS
Christa Manton, PhD
Susan Rogers, PhD