COGNITIVE AND BEHAVIORAL CONSEQUENCES OF MOBILITY FOR FIFTH-GRADE STUDENTS IN A LARGE METROPOLITAN SCHOOL DISTRICT

by

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DEDICATION

When the architects of our republic wrote the magnificent words of the Constitution and the Declaration of Independence, they were signing a promissory note to which every American was to fall heir. This note was a promise that all men would be guaranteed the unalienable rights of life, liberty, and the pursuit of happiness. It is obvious today that America has defaulted on this promissory note insofar as her citizens of color are concerned … now is the time to open the doors of opportunity to all of God's children.

- Reverend Dr. Martin Luther King, Jr.

This dissertation is dedicated to my children and family, who never gave up on me, yet sacrificed the most to ensure that I could fulfill my dream.

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ABSTRACT

WAYNE FRANKLIN CLAYTON, III
COGNITIVE AND BEHAVIORAL CONSEQUENCES OF MOBILITY FOR FIFTH-GRADE STUDENTS IN A LARGE METROPOLITAN SCHOOL DISTRICT
Under the direction of DR. EDWARD BOUIE, ED.D.

School mobility increases the likelihood that students will experience low academic achievement, more discipline infractions, absenteeism, grade retention, and a higher propensity to drop out of high school compared to students who are nonmobile. The purpose of this quantitative ex post facto study was to examine the cognitive and behavioral implications of mobility on a group of fifth-grade students. A nonexperimental, quantitative, ex post research design was used to collect and analyze data to answer five research questions that guided the study. Archival school and state data were collected, as well as College and Career Ready Performance Index (CCRPI) scores from 2012 and 2013 for 35 elementary schools in one school district. The researcher selected 2,195 fifth-grade students to participate in the study, with 450 students selected as the sample.

The results from the study suggested that there were no statistically significant differences in the CRCT mathematics scores of mobile and nonmobile fifth grades. Moreover, findings indicated that there were no statistically significant differences in the CRCT reading and mathematics scores of mobile fifth-grade students who transferred to either a low-performing or high-performing school. Results also showed that there were

no statistically significant differences in the number of discipline referrals and the number of days of out-of-school suspension of mobile and nonmobile fifth-grade students. However, there were significant differences found in the CRCT reading scores and grade-point averages of mobile and nonmobile fifth-grade students. Also, findings suggested that there were significant differences in the CRCT reading and mathematics scores of mobile fifth-grade students who transferred to either a low-performing or high-performing school. Lastly, findings indicated significant differences in the number of days absent and the number of days tardy of mobile and nonmobile students. Due to the limitations of the study and findings from the analysis of data, the researcher suggested a qualitative study for future research.

CHAPTER 1

INTRODUCTION TO THE STUDY

In 1965, the U.S. Congress passed legislation titled the Elementary and Secondary Education Act of 1965 (ESEA), which focused on providing equal educational opportunities for all elementary and secondary students. At the core of ESEA was a promise from the federal government to children from low-income families that the federal government "would strengthen and improve educational quality and educational opportunities in the Nation's elementary and secondary schools" (U.S. Congress, 1965, p. 27). In 1983, a report from the National Commission on Excellence in Education, *A Nation at Risk*, addressed the need for America's public and private schools and universities to prepare students to compete with students in other countries. *A Nation at Risk* in 1983 sounded the alarm for U.S. citizens to take note:

> Individuals in our society who do not possess the levels of skill, literacy, and training essential to this new era will be effectively disenfranchised, not simply from the material rewards that accompany competent performance, but also from the chance to participate fully in our national life. (National Commission on Excellence in Education, 1983, p. 10)

Thirteen years after *A Nation at Risk* was published, Kerbow (1996) examined the relationship between mobility and student achievement by studying the movement of a group of sixth graders for two years who attended elementary schools beginning in the

spring of 1994 in Chicago Public Schools. Results from the study revealed that students who moved during the school year showed lower academic achievement than nonmobile students. Students who moved four or more times experienced a loss of educational attainment equal to one year (Kerbow, 1996).

Similarly to Kerbow (1996), Eddy (2011) contended that mobility plays a role in education in the 21st century, for it affects the educational experiences of students in many ways. Research has attempted to explain the impact of mobility on academic achievement through a skills deficit model. Kerbow, Azcoitia, and Buell (2003) suggested that students who switch schools can have gaps in their education because of missing foundational skills, which derive from the differences between the curriculum and pacing from one school to another. Actual content deficits may remain unknown until years later, specifically in mathematics, which is a content area in which students develop skills over time (kerbow et al., 2003). While the focus in public schools in America has been to increase achievement for all students, an extremely mobile population of families with children under the age of 17 and varying content standards throughout the country creates a need to explore causes of low student achievement further.

The need to further explore the causes of low student achievement among students who are mobile is warranted as nearly 18,264,000 families with children between the ages of 6 and 17 moved in the United States between 2013 and 2014 (U.S. Census Bureau, 2015a). Of the families who changed residences, 6.5% stayed in the same county. Table 1 contains the percentages of moves students in Grade 4, 8, and 12

made between 1998 and 2000, according to the National Assessment of Educational Progress (NAEP) (2017).

Table 1

*Percentage of Students Moving by Grade Level between 1998 and 2000**

Grade	No Move	One Move	Two Moves	Three or More Moves
4	65	19	7	9
8	79	12	4	4
12	90	7	3	0

Note. *Data derived from "The Nation's Report Card: NAEP Data Explorer: Percent of Students Who Changed Schools, 1998 to 2000," National Assessment of Educational Progress, 2017. 2000 was the last year national data on student mobility was collected from students who took a National Assessment of Educational Progress assessment.

In a study of almost 300,000 students enrolled in 507 elementary schools in Chicago Public Schools between 1995 and 2007, de la Torre and Gwynne (2009) discovered that 40% of the elementary students transferred within the school district. A comparision of the national percentage of families with children between the ages of 6 and 17 who moved with the percentage of families with children between the ages of 6 and 17 who moved and resided in the state of Georgia between 2013 and 2014 reveals that 1 million households with children between the ages of 6 and 17 moved, with 8.5% of the families moving within the same county and in the same state (U.S. Census Bureau, 2015a).

Research suggests that student mobility is a concern for parents, students, teachers, school and district leaders, and policymakers (Rumberger, 2015). Student mobility is most pervasive throughout the United States, and students who suffer the most are low-income minority students transferring for nonpromotional purposes to low-performing schools in school districts that lack the necessary resources to improve academic achievement for all students (Friedman-Krauss & Raver, 2015).

During the 2009-2010 school year, 28% percent of mobile students in America who moved four or more times lived below the poverty threshold of $22,050, as compared to only 17% of U.S. mobile students who moved zero to two times and also lived below the poverty threshold (U.S. Department of Health & Human Services, 2016). When considering the race of mobile students, researchers found that African American students were three times more likely than Hispanic or Caucasian students to be mobile (Cutuli et al., 2013). Similarly, Parke and Kanyongo (2012) also found that 44% of African American elementary students changed schools for reasons other than for promotion, compared to 27% of Caucasian students and 6% of Hispanic, Asian, or Native American students.

When studying the relationship between mobility and student achievement, mobile students tend to have lower academic achievement results on reading and mathematics assessments (Cutuli et al., 2013; Eadie, Eisner, Miller, & Wolf, 2013; Grigg, 2012). Researchers agree that the postacademic achievement of mobile students is lower when compared to nonmobile students (Boon, 2011; Kerbow 1996; Kerbow et al., 2003; Schulz & Rubel, 2011; Thompson, Myers, & Oshima, 2011). Kerbow et al. (2003)

reported, “Students who transfer between schools may actually miss exposure to key concepts that are prerequisites for higher order skills” (p. 160), and the unfortunate reality for these students is that “its consequences may be delayed as the student moves across grades and is required to build on previous knowledge” (p. 160). Likewise, Heinlein and Shinn (2000) discovered that elementary students who transferred schools were more likely to experience the adverse effects of mobility on their achievement.

Thompson et al. (2013) discovered that mobility had the most significant adverse effect on reading for first through fifth-grade students. Lesnick, Goerge, Smithgall, and Gwynne (2010) examined the effect of reading achievement on the future academic achievement of 26,000 third through ninth-grade students in Chicago Public Schools and reported that mobile elementary students missed critical foundational skills in reading compared to older mobile students who switched school for nonpromotional reasons. Additionally, a mobile student who received a low third-grade reading score was also likely to earn a low ninth-grade reading score, too when controlling for school type and demographics (Lesnick et al., 2010)

Although numerous studies have examined the effects of student mobility on reading achievement, other studies of mobility have also explored the effects of student mobility on mathematics achievement. Grigg (2012) found that mobile students had gaps in their learning ability in reading and mathematics, with the most significant differences being prevalent in mathematics. In a quantitative study, Buchanan (2015) examined math and English semester grades, as well as math and reading scores from a state assessment of 1,100 students from a high school in a Midwestern metropolitan city. Buchanan found

that nonmobile students had higher first-semester math and English grades than those earned by mobile students, with the difference being a letter grade higher. However, there was no significant difference between second-semester math and English grades for both groups of students (Buchanan, 2015). Findings from the study suggest that elementary principals should ensure that adequate educational supports are available to elementary students, as student achievement in the elementary grades is a predictor for student success in high school (Buchanan, 2015). Popp, Grant, and Stronge (2011) discovered that effective teachers could reduce the adverse effects of mobility on achievement by setting high expectations for all students, encouraging peer-to-peer collaboration, implementing higher-order instruction in the classroom, and building relationships with students.

Buchanan (2015) warned, "Mobility may also have an effect on non-mobile students in the classroom," (p. 8). Mobile students transferring with gaps in their education can slow down instructional pacing. Furthermore, it increases the potential for increased time teachers use dealing with discipline issues of nonmobile students in the classroom, who become bored and disengaged from instruction as the teacher works with mobile students in the classroom (Engec, 2006; Gasper, DeLuca, & Estacion, 2012; Kerbow, 1996; Romanowski, 2003; Sanderson, 2003; Schulz & Rubel, 2011; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993).

In addition to the cognitive and structural implications of mobility on student, there are behavioral implications of mobility on students and schools. Boon (2011) examined both the relationship between mobility and student achievement and the

relationship between behavior and mobility, discovering that 50% of mobile high school students had lower achievement in their English and math classes compared to nonmobile students and exhibited behavior problems. Engec (2006) examined the number of moves 750,000 U.S. students made and found that mobile students were two to three times more likely than their nonmobile peers were to experience school suspensions. When looking at the strength of the relationship between student mobility and behavior, researchers found a positive relationship between student mobility and student suspension, as well as a propensity of mobile students to be suspended twice as much as their nonmobile classmates (Boon, 2011; Engec, 2006). This positive relationship highlights another behavior implicated with mobile students: absenteeism (Boon, 2011; Engec, 2006).

Mobile students are absent from school more days than nonmobile students (Parke & Kanyongo, 2012). Cutuli et al. (2013) found that mobile students attended school 90% of the time, compared to nonmobile students who attended school 96% of the time. Similarly, Herbers, Reynolds, and Chen (2012) pointed out that African American students had an attendance rate of 91% compared to 97% for nonmobile students.

Statement of the Problem

Researchers assert that school mobility increases the risk of poor achievement, behavior problems, absenteeism, grade retention, and high school dropout (Cutuli et al., 2013; Herbers et al., 2013). Numerous research studies on student mobility and student achievement reveal that the most consistent and severe impacts of mobility were on standardized test scores and high school graduation (Mantzicopoulos & Knutson, 2000; Rumberger 2015). In as much as elementary students represent a significant number of

students in the educational spectrum, the impact of mobility on this population could have potentially detrimental effects on students in that "mobility during the elementary school years may be strongly linked to long-term measures of school success, such as high school completion" (Gruman, Harachi, Abbott, Catalano, & Fleming, 2008, pp. 1833-1834). Thus, the structural aspect of school plays a role in the success of mobile students in both primary and secondary schools (Mantzicopoulos & Knutson, 2000; Nelson, Simoni, & Adelman, 1996; Rumbeger, 2015; Vernberg, 1990). Therefore, a problem is present that an educational leader should consider if he or she aims to improve school for the betterment of all students.

Research Questions

To examine the cognitive and behavioral implications of mobility on a group of fifth-grade students, the following questions were analyzed using a sample of fifth-grade students in one school district in a metropolitan city in Georgia in 2013:

1. Do fifth-grade mobile students move to lower or higher performing schools when they transfer from one school to another in one school district?
2. Is there a significant difference in the scale scores of mobile and nonmobile fifth-grade students?

    $H_0$2a: There is no significant difference in the CRCT mathematics scale scores of mobile and nonmobile fifth-grade students.

    $H_0$2b: There is no significant difference in the CRCT reading scale scores of mobile and nonmobile fifth-grade students.

$H_0$2c: There is no significant difference in the grade-point averages of mobile and nonmobile fifth-grade students.

3. Is there a significant difference in the scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school?

   $H_0$3a: There is no significant difference in the CRCT mathematics scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

   $H_0$3b: There is no significant difference in the CRCT reading scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

   $H_0$3c: There is no significant difference in the grade-point averages of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

4. Is there a significant difference in the behavior of mobile and nonmobile fifth-grade students?

   $H_0$4a: There is no significant difference in the number of days absent of mobile and nonmobile fifth-grade students.

$H_0$4b: There is no significant difference in the number of days tardy of mobile and nonmobile fifth-grade students.

$H_0$4c: There is no significant difference in the number of discipline referrals of mobile and nonmobile fifth-grade students.

$H_0$4d: There is no significant difference in the number of days of out-of-school suspension of mobile and nonmobile fifth-grade students in one school district.

5. Is there a significant difference in the behavior of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school in a school district?

$H_0$5a: There is no significant difference in the number of days absent of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5b: There is no significant difference in the number of days tardy of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5c: There is no significant difference in the number of discipline referrals of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5d: There is no significant difference in the number of days of out-of-school suspension of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

Theoretical Framework

The researcher used the opportunity to learn (OTL) framework as the theoretical framework to explain why school mobility increases the risk of poor achievement, behavior problems, absenteeism, grade retention, and high school dropout for fifth-grade students in an urban public elementary school. In 1993, Stevens and Grymes wrote that an "opportunity to learn the designated curriculum for a grade level or age group is a major equity issue for students who are at risk of not developing academically to their fullest potential" (p. 7). However, still today, countless "low-income students and students of color . . . are not getting the quality education they need and deserve, leaving them unprepared for success in our economy and our democratic society" (Ushomirsky, Williams & Hall, 2014, p. 1) an the OTL frameowrk is still relevant.

Elmore and Fuhrman (1995) described OTL as "a set of conditions that schools, districts, and states must meet to ensure that students are being offered an equal opportunity to meet the expectations embodied in performance standards" (1995, p. 435). Similarly, Stevens and Grymes (1993) reported, "We need to know if students at risk have access to the full range of educational opportunities, what kinds of learning opportunities are provided, and how well-tailored they are to the educational needs of these students" (p. 1).

The foundation of the OTL framework is built on teacher pedagogy and students' mastery of grade-level content standards (Stevens & Grymes, 1993). Four constructs shape the boundary of the OTL: (a) content coverage, (b) content exposure, (c) content emphasis, and (d) quality of instructional delivery (Stevens, 1996). Stevens (1996) stated that a student's opportunity to learn is directly related to how teachers teach and how principals lead.

Content coverage is linked to how well state and school-level assessments align to the curriculum and how much of the curriculum students receive (Stevens, 1996). Beyond determining if state and local assessments are aligned to the curriculum, school principals are responsible for ensuring that they lead a successful school. However, in an age of increased accountability measures and lofty school performance goals resulting from mandates of the No Child Left Behind Act of 2001 (NCLB), a school was only deemed successful if all students were educated by highly qualified teachers and all students achieved increased academic achievement, as evidenced by yearly state assessments (Ushomirsky et al., 2014). Unfortunately, NCLB did not account for a population of highly mobile students in that, "students who changed schools more frequently tended to have lower scores on standardized reading and math tests and to drop out of school at higher rates than their less mobile peers" (U.S. Government Accountability Office [GAO], 2010, p. 16). In other words, a student's opportunity to learn is best met when they do not switch schools during the school year for nonpromotional reasons (Heinlein & Shinn, 2000).

The second construct is content exposure. Content exposure focuses on curriculum pacing and the content knowledge of the teacher (Stevens, 1996). Researchers agree that student mobility can adversely affect both teachers and schools when teachers slow the curriculum pacing or review previously taught standards to mobile students or when schools must adjust school improvement plans and provide additional academic supports that may not have been appropriated (Fowler-Finn, 2001; Kerbow, 1996; Kerbow, Azcoitia, & Buell, 2003; Parke & Kanyongo, 2012; Stover, 2000; Titus, 2007). The third construct is content emphasis. Content emphasis looks at how well teachers can use curriculum maps, identify power standards to assess, and incorporate differentiated learning activities that meet the needs of all students to ensure mastery of grade level content (Stevens, 1996). The last construct is the quality of instructional delivery. Quality of instructional delivery "reveals how teaching practices have an impact on students' academic achievement," in that the focus is on teacher content knowledge, effective instructional practices, instructional planning, and teacher self-reflection of instructional aptitude (Stevens, 1996, p. 5).

When considering the importance of students staying at the same school, educational leaders and teachers both argue that "there may be differences in what and how instruction has been delivered to students from school to school" (GAO, 2010, p. 17). Therefore, it is essential that school districts ensure that curriculum and assessments are aligned to state standards (Fouts, Abbott, & Baker, 2002). Moreover, an emphasis on content coverage is essential for mobile students to have "continuity in learning" (Fouts et al., 2002, p. 20), which is "a big part of student success" (Fouts et al., 2002, p. 20).

In comparison, Kerbow (1996) wrote, “Changing schools is almost certain to disrupt, to some extent, a child’s learning experience” (p. 158). Parke and Kanyongo (2012) also found that transferring schools affects student achievement because of differences in instructional delivery of the curriculum by each teacher at each school, the pace of instruction, the missed opportunity to receive essential content standards, and/or registration for the wrong course.

In addition to low academic achievement on state and local assessments, mobile students experience associated negative behaviors due to frequent moves. For instance, researchers discovered that “while some students adjust well to their new school, some do not” (GAO, 2010, p. 18). As a result, “some mobile students may feel like they do not belong, fail to make new friends, exhibit poor attendance, and, in some cases, drop out. Other mobile students try to gain attention by . . . disrupting other students in the class” (GAO, 2010, p. 18).

Purpose of the Study

In the state of Georgia, in just one year, a particular school district had a high student mobility rate of 31%, yet the state mobility rate was 16 percent. Consequently, the question arose as to what are the cognitive and behavioral consequences of mobility for students who are transferring for nonpromotional reasons. This question led the researcher to conduct this quantitative ex post facto study to examine the cognitive and behavioral implications of mobility on a group of fifth-grade students in one school district in a large metropolitan city in Georgia, using data from the 2012-2013 school year. Enrollment, achievement, and behavioral data were collected from the school

district. School performance data were collected from the Georgia Department of Education (GaDOE).

The researcher analyzed the data to determine if achievement and behavioral differences existed between mobile and nonmobile students. Additional analyses were conducted to determine if achievement and behavioral differences existed between mobile fifth-grade students who transferred to a low-performing school and mobile fifth-grade students who transferred to a high-performing school in a school district.

Significance of the Study

A gap in the research literature is prevalent when examining the cognitive and behavioral implications of mobility on a group of fifth-grade students in one school district in a large metropolitan city in Georgia in 2013. Researchers have documented that the low academic achievement of mobile students can be a result of the differences in the curriculum between schools and the interactions between mobile students, their teachers, and their peers in the classroom (Engec, 2006; Romanowski, 2003; Sanderson, 2003; Schulz & Rubel, 2011). Notably, results from research studies revealed that mobile students tend to be one year behind nonmobile students academically, and they are more likely to drop out of high school, potentially decreasing their lifelong income potential and falling in a cycle of poverty (Gasper et al., 2012; Kerbow, 2003). However, no studies have focused on the opportunities for learning that mobile students should be afforded when they transfer schools in the same school district.

In 2013, concern regarding the large number of students transferring schools for nonpromotional reasons prompted leaders at the GaDOE to fund a study to determine

patterns in student mobility throughout the state (Beaudette, 2014). However, the study did not examine the cognitive and behavioral consequences of mobility for students; therefore, the researcher of the study recommended that additional research should be conducted to determine if student achievement levels are related to whether mobile students transfer to a low-performing, high-performing, or comparable performing school (Beaudette,2014). This study attempted to answer this question for a sample of students from the population of elementary students in one school district. Understanding the dynamics of student mobility among elementary students may provide school and district administrators with valuable information to develop programs to ensure the success of all students, potentially leading to a solution to the problem. Therefore, the purpose of this quantitative ex post facto study was to examine the cognitive and behavioral implications of mobility on fifth-grade students in one school district in a large metropolitan city in Georgia in 2013.

Procedures

The research was an ex post facto study, using a descriptive quantitative research design. The researcher identified mobile students using the following criteria: (a) enrolled as a fifth-grade student in 2013; (b) enrolled in the fourth grade in 2012 at one school and different school in the fifth grade; and (c) generated achievement data in both the fourth and fifth grades. The researcher identified nonmobile students using the following criteria: (a) enrolled as a fifth-grade student in 2013; (b) enrolled in the fourth grade in 2012 *and* in the fifth grade at the same school; and (c) generated achievement data in both the fourth and fifth grades. Achievement data included CRCT reading and

mathematics scale scores and grade-point averages. Behavioral data included the number of discipline referrals, days absent, tardy, and out-of-school suspension.

The researcher accessed data from two sources. The first source was the district's student information system. The researcher requested deidentified student-level enrollment, achievement, behavioral, and demographic data for 2011–2012 and 2012-2013 school years. The data requested included CRCT reading and mathematics scale scores, enrollment start and end dates, gender, race, socioeconomic status (measured by eligibility for the free- and reduced-lunch program), number of days absent and tardy, number of discipline referrals, number of days in out-of-school suspension, and grade-point average for each year. The data were analyzed to determine if achievement and behavioral differences were found between mobile and nonmobile students. Additional analyses were conducted to determine if achievement and behavioral differences were found between mobile fifth-grade students who transferred to a low-performing school and mobile fifth-grade students who transferred to a high-performing school in a school district.

The second source was the Georgia Department of Education (GaDOE). The researcher collected individual school performance scores for each elementary school in the school district for 2012 and 2013. These data were used to determine the performance level of the elementary schools. Univariate (ANOVA) and multivariate analyses of variance (MANOVA) were conducted to answer the five research questions.

Limitations

The researcher identified three limitations to this study. The first limitation is the potential for student-level data to have unknown inaccuracies. Student-level data are collected and stored by the school district and subsequently sent to the Georgia Department of Education (GaDOE) for analysis and submittal to various stakeholders in summary form. Although the school district is responsible for ensuring all student-level data are accurate before submitting the data to the GaDOE, there can be instances when data are not accurate. Therefore, the researcher assumes the student student-level data submitted to the GaDOE and subsequently returned to the district were accurate.

The second limitation is not knowing why students change schools for reasons other than grade promotion. Factors contributing to students changing schools voluntarily (i.e., family moving out of the school's attendance zone, a desire to attend a better school or loss of parental or guardian income) or involuntarily (i.e., school choice, school closes, changes with school attendance zones or redistricting, or expulsion) are all unknown and could have contributed to a student's cognition and behavior prior to enrolling at the new school. Thus, the researcher does not know if these unknown contributors caused mobile students to experience lower academic achievement when compared to nonmobile students.

The last limitation of this study is determining the amount of instructional time each elementary student receives per school day. Currently, attendance at the elementary level is only captured during homeroom, which means the researcher had to assume that

if a student was present at school, the student had the opportunity to receive the fully allocated instructional time for each content area.

Delimitations

There are several delimitations to this study. The school district selected for this study was large and located in a suburban community in a large metropolitan area. The school district was chosen due to it having a student mobility rate greater than 30%, with the state average of 16 percent. The researcher only selected students who were fifth graders in the 2012-2013 school year and enrolled and attended the elementary schools in the district. State-level achievement data for this study were collected for the 2011-2012 and 2012-2013 because of the archival data readily available to the researcher. Mobility was defined as students who were enrolled in one school when the fourth-grade Georgia Criterion-Referenced Competency Tests (CRCT) was conducted in April during the 2011-2012 school year and enrolled in a different school when taking the fifth-grade CRCT in April during the 2012-2013 school year. Nonmobile students were identified as students who were enrolled in the same school in the fourth and fifth grades in 2011-2012 and 2012-2013.

Definition of Terms

The following terms are operational definitions for this study:

Academic achievement is a measurement of an individual student's performance on state criterion-referenced assessments and end-of-term grades in mathematics, science, social studies, and English Language Arts classes (U.S. Department of Education, 2012).

College and Career Ready Performance Index (CCRPI) is a state of Georgia accountability measure used to inform the public how well school districts and schools are performing. Additionally, the index can be used as a barometer to determine if student achievement levels indicate readiness to enter two or four-year colleges or universities, or a technical college without requiring additional support with college-level courses. Schools and districts receive a CCRPI score up to 100 points each. The total score of 100 points is divided into three sections: (1) Achievement Points (70 points), (2) Progress Points (15 points), and (3) Achievement Gap Points (15 points). Schools also can receive an additional 10 points, known as Challenge Points, if there are a high number of English Learner students, Economically Disadvantaged students, and Students with Disabilities who either meet or exceed expectations (GaDOE, 2013).

High-performing school, for this study, is an elementary school in one school district in a metropolitan city in Georgia in 2012 and 2013 with a College and Career Ready Performance Index (CCRPI) score ranging from 70 to 100.

Low-performing school, for this study, is an elementary school in one school district in a metropolitan city in Georgia in 2012 and 2013 with a CCRPI score below 70.

Mobile student, for this study, refers to any student enrolled in one school when the fourth-grade Criterion-Referenced Competency Tests (CRCT) was conducted in April during the 2011-2012 school year and enrolled in another school when taking the fifth-grade CRCT in April during the 2012-2013 school year.

Nonmobile student, for this study, refers to a student enrolled in the same school in the fourth and fifth grades in 2011-2012 and 2012-2013.

Summary

Throughout the United States, most students in kindergarten through twelfth grade will change schools at least once during the school year for reasons other than a grade promotion, with some of the students transferring two or more times (Rumberger, 2015). Frequent school moves are a leading factor as to whether or not mobile students have the ability to meet or exceed grade-level achievement indicators on state mathematics and reading assessments, as well as in the classroom compared to their nonmobile peers (Alexander, Entwisle, & Dauber, 1996; Eadie et al., 2013; Grigg, 2012; Rumberger, 2003; Smith, Fien, & Paine, 2008; Temple & Reynolds, 1999; Thompson et al., 2011). Rumberger (2015) argued, "Student mobility, in general, leads to negative impacts on students" (p. 11), with the most noticeable effects being low student achievement and a higher risk of not graduating from high school.

For instance, students who frequently change schools during the school year risk the chance of missing important grade-level instruction already taught at the student's new school, thereby further exacerbating a cycle of low grades and potential for retention in the same grade and increasing the likelihood of dropping out of school (Grigg, 2012). Research continues to show the adverse effects mobility can have on achievement and the reasons why students transfer (Rumberger, 2015). However, the available research on student mobility does not examine the postmove achievement and behavior of mobile students when they transfer to a low-performing or high-performing school.

This research study examined the cognitive and behavioral implications of mobility on a group of fifth-grade students in one school district in a large metropolitan

city in Georgia. This chapter presented the research questions that guided the study, an overview of the study's theoretical perspective, and the procedures used to examine the postmove academic achievement and behavioral implications of mobile students when they transfer from and to either a low-performing school or a high-performing school. The methodology is discussed further in Chapter 3. The results of the data analysis are reported in Chapter 4, and the conclusions and implications are reported in Chapter 5.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this quantitative ex post facto study was to examine the cognitive and behavioral implications of mobility on a group of fifth-grade students in one school district in a large metropolitan city in Georgia in 2013. This chapter provides an examination of the relevant literature on student mobility, student academic achievement, school performance level, and the opportunity to learn (OTL) framework while focusing on elementary students who attend public schools in the United States of America. The chapter consists of seven sections: residential mobility, public elementary schools in the United States, academic achievement in U.S. public schools, defining student mobility, effects of mobility on student achievement, theoretical framework, and academic achievement of mobile elementary students.

Residential Mobility

In 1948, data collected from the first Current Population Survey (CPS) revealed that approximately 33 million U.S. citizens changed residences as compared to 45 million U.S. citizens changing residences in 2010 (U.S. Census Bureau, 1949; U.S. Census Bureau 2011). For many years, the United States has witnessed its citizens change residences at an alarmingly high rate (Long, 1992). Nevertheless, some 20 years later, "residential moves are common yet consequential events in young children's lives" (Mollborn, Lawrence, & Root, 2018, p. 485). As a matter of fact, researchers have found

that adolescent children change residences more frequently than children younger than six (Haynie, South, & Bose, 2006; Root & Humphrey, 2014). Even more important is the fact that these young children who change residences come from low-income households, with the residential change potentially disrupting family routines, which may trigger negative consequences on student academic achievement and behavior (Mollborn et al., 2018). Therefore, "examining both behavior and cognition is therefore key to understanding the implications of mobility on school readiness" (Mollborn et al., 2018, p. 486).

Although this may be true, there are reasons why families move within or away from their communities, resulting in "an employment change, improved quality of life, a better school district, or other destination attributes, which are often thought to be critical factors shaping residential change decision-making" (Schafft, 2006, p. 212). Likewise, Metzger, Fowler, Anderson, and Lindsay (2015) also found that families living in poverty tend to move within their current county instead of moving to a nearby county or out of state. A study conducted by the Center on Rural Education and Communities (CREC) (2011) indicated that highly mobile students tend to come from families who rent houses and apartments and are living in poverty. In addition, families living in poverty tended to move unexpectedly due to unsafe and deplorable living conditions, evictions and utility disconnections, and financial and personal problems among members of the family (CREC, 2011).

Numerous other researchers studying similar reasons why families move also discovered that problems associated with mobility can include loss of parental and/or

guardian income, change in parent and/or guardian job location, inadequate housing, eviction, homelessness, and family social issues (Fisher, Matthews, Stafford, Nakagawa, & Durante, 2002; Kerbow, 1996; Romanowski, 2003; Schafft, 2006; Smrekar & Owens, 2003). As a result, hasty residential moves create uncertainty of future living arrangements for families and lessen the overall progress of communities.

For many of the families who abruptly change residences, whether it is voluntary or involuntary, moving can be one way to improve the family's financial and housing situations (Cadwallader, 1992; Cunningham & MacDonald, 2012; Cushing, 1999; Ihrke, 2014). In the same way, families changing residences to improve their financial and housing situations can experience a positive gain in human capital that can result in the family improving their overall quality of life (Massey, 1990). On the other hand, other research suggests that children who change residences are more likely to be high school dropouts or not attend college in the future, with low student achievement beginning when mobile students are in elementary or middle school, not just in high school (Metzger et al., 2015). In contrast to findings from Metzger et al. (2015), Theodos, Coulton, and Budde (2014) asserted that students living in poverty typically have higher student achievement when placed in classrooms with students who also have high academic achievement.

Nearly 2 million U.S. elementary students in the third through sixth grades living in poverty experience residential mobility annually (Wight & Chau, 2009). Moreover, in a longitudinal study consisting of 25 years of data, 1,539 students born in 1979 and 1980 in Chicago experienced between zero and eight unstructured school moves between

kindergarten and 12th grade (Herbers, Reynolds, & Chen, 2012). Researchers found that school mobility was significantly correlated with residential mobility, gender, ethnicity, early family risk, poor achievement in kindergarten, lower social/emotional maturity in "first grade, child abuse and neglect, special education placement, grade retention, and juvenile delinquency" (Herbers et al., 2012, p. 15). According to Cutuli et al. (2013), "Residential mobility is linked with lower levels of academic achievement, more problems at school, and increased rates of grade retention" (p. 4). Frequent moves are closely related to low student academic achievement (National Research Council & Institutes of Medicine, 2010).

Academic Achievement in U.S. Public Schools

In 1983, the report, *A Nation at Risk: The Imperative for Educational Reform*, addressed the need for America's public and private schools and universities to prepare students to compete with students in other countries. The commissioners wrote in the report, "We have squandered the gains in student achievement made in the wake of the Sputnik challenge" (National Commission on Excellence in Education, 1983, p. 5). In particular, the commission suggested that declines in student achievement are directly related to a lack of educational support needed to ensure all students have access to a quality education that affords them the opportunity to compete both locally and globally. Continuing the push to highlight concerns within the U.S. educational system to the citizens of America, the National Commission on Excellence in Education (1983) argued, "We must dedicate ourselves to the reform of our educational system for the benefit of all—old and young alike, affluent and poor, majority and minority" (p. 7).

The National Commission on Excellence in Education (1983) continued to explain that "the people of the United States need to know that individuals in our society who do not possess the levels of skill, literacy, and training . . . will be effectively disenfranchised . . . from the chance to participate fully in our national life" (p. 7). Consequently, not all students would experience academic achievement or receive the necessary academic supports to facilitate academic growth as promised (Kerbow, 1996; National Commission on Excellence in Education, 1983; No Child Left Behind Act [NCLB], 2002). Years after the 1983 space race and the educational reforms of the 1990s and beyond, students continue to experience low academic achievement even though discussions of accountability and performance remain on the minds of policymakers (Kerbow 1996; National Commission on Excellence in Education, 1983; NCLB, 2002). Incidentally, one group of students who have been found to exhibit low academic achievement are mobile students.

Kerbow (1996) stated, "Students who transfer between schools may miss exposure to key concepts which are prerequisites for higher order skills" (p. 164) and "its consequences may grow as the student progresses through the grades and is required to build on previous knowledge" (p. 164). Therefore, a student's opportunity to receive instruction is dependent on receiving educational continuity from appropriately paced grade-level curriculum and effective teachers (Barr, 1974; Good & Marshall, 1984; Rowan & Miracle, 1983).

Obviously, mobile students do not experience educational continuity from one school to another, which led Kerbow (1996) to analyze mobility and achievement data of

13,000 elementary students in Chicago Public Schools in 1994, with interest in investigating the patterns of movement that mobile students take. A comparative analysis of quantitative data of school performance scores of elementary schools grouped into four quartiles—lowest 2nd, 3rd, and highest—and student state assessment scores from the study revealed that 44% of students who withdrew from a low-performing school also transferred to a similar performing school (Kerbow, 1996). Additionally, Kerbow (1996) further asserted that a "strong association between the achievement level of the student's previous school and the school to which he or she transfers is evident" (p. 159) and "is a strong predictor of the type of school to which he or she will transfer" (p. 159). Interestingly, other researchers agreed with Kerbow (1996) in that they also found overall school performance scores were closely related to a mobile student's academic achievement, and switching schools could benefit certain mobile students seeking better educational opportunities or extracurricular activities (de la Torre & Gwynne, 2009; Engberg, Gill, Zamarro, & Zimmer, 2012).

In 2001, the Reauthorization of the Elementary and Secondary Education Act led to the establishment of the No Child Left Behind Act, which focused on "holding schools, local educational agencies, and states accountable for improving the academic achievement of all students", specifically African American and Hispanic students (No Child Left Behind [NCLB], 2002, sec. 1001). Moreover, identifying and turning around low-performing schools that have failed to provide students with a high-quality education was an essential aspect of NCLB.

In February 2012, Georgia received a waiver based on mandates established by the enactment of NCLB (Georgia Department of Education [GaDOE], 2015a). Because the state received the exemption, the state had to create an accountability system, named the College and Career Ready Performance Index (CCRPI), to measure student achievement to inform all stakeholders how well school districts and schools are performing and whether or not students in the state are ready to attend colleges and universities without the need to complete any remedial courses or start an entry-level career (GaDOE, 2015a). At the core of CCRPI is a focus on closing the achievement gap between African American and Caucasian students, preparing all students for college and career, ensuring teachers and administrators are highly qualified and efficient, and improving low-performing schools and school districts (GaDOE, 2015a).

Schools and districts receive a CCRPI score up to 100 points each (GaDOE, 2013). The total score of 100 points is divided into three sections: (1) Achievement Points (70 points), (2) Progress Points (15 points), and (3) Achievement Gap Points (15 points) (GaDOE, 2013). Schools also can receive an additional 10 points, known as Challenge Points, if there are a high number of English Learner students, Economically Disadvantaged students, and Students with Disabilities who either meet or exceed expectations (GaDOE, 2013). While the focus in U.S. public schools has been to increase achievement for all students, with an extremely mobile population of families with children under the age of 17, and with content standards not being the same throughout the country, there is a need to explore causes of low student achievement further.

Student Mobility and School Type

Researchers have found that "families who fall into financial hardship are more likely to have children who switch to lower performing schools" (Theodos et al., 2014, p. 79). School performance decreases based on the number of residential moves in the same school community (Kim, Yi, & Choi, 2017). A study conducted by Rothwell (2012) revealed that low-income students typically attended low-performing schools outperformed by 68% of other schools, whereas middle and high-income students attended higher-performing schools outperformed by only 39% of other schools. Schools with a large number of mobile students have lower-school performance compared to schools with a low number of mobile students (Gibbons & Telhaj, 2011; Burdick-Will et al., 2010). School mobility is most pervasive throughout the United States, and students who suffer the most are at-risk, low-income, minority students transferring to low-performing schools in urban school districts that lack necessary resources to improve academic achievement for all students (Friedman-Krauss & Raver, 2015). According to Theodos and colleagues (2014), "Understanding the role that mobility plays in children's access to good schools is important, because switching schools may be one way that children in distressed neighborhoods can gain an educational advantage" (p. 62).

Definition of Student Mobility

Student mobility has been a topic of interest for both researchers and policymakers in the United States for over 55 years (Greene & Daughtry, 1961; Rumberger, 2003, 2015). In the United States, 30% of children living in households with an annual income less than $10,000 moved three times or more by third grade compared

to only 10% of children living in households with income above $25,000 (LeBoeuf, 2013). Students from low-income families are more likely to change schools for nonpromotional reasons (Gasper, DeLuca, & Estacion, 2012). Fowler-Finn (2001) found that many students in high-poverty, urban areas transfer schools frequently. Likewise, a research study conducted by Eadie, Eisner, Miller, and Wolf (2013) revealed that students identified as economically disadvantaged moved at least one time during the school year.

In the United States, 35.7 million people ages one year and over moved between 2013 and 2014 (U.S. Census Bureau, 2015b). Of the 18,264,000 families with children between the ages of 5 and 17 who moved in the United States between 2013 and 2014, 6.5% stayed in the same county, and 1.3% remained in the same state but different county (U.S. Census Bureau, 2015a). In 2013, of the 3,518,097 households in a southeastern state of the United States, 31.6% consisted of families with children under the age of 18 (U.S. Census Bureau, 2013). In 2013, 8.5% of residents over the age of one moved in the same county in the target state, compared to 7.5% who moved to a different county in the same state (U.S. Census Bureau, 2013).

Today, many students in U.S. public schools will leave school for reasons other than grade promotion (Triplett, 2015). At any point during a school year, students will transfer from one school to another school in the same district or move from one school district to another school district in the same state (Rumberger, 2015).

In a longitudinal study of 18,300 kindergartners from 970 schools across the country, including their families, teachers, school administrators, and before- and after-school care

providers, 18% of students changed schools three times by the eighth grade (National Center for Education Statistics [NCES], 2010). Like findings from research on the reasons why students transfer schools and the implications associated with the school transfers conducted by Rumberger (2015), results from the National Research Council and Institute of Medicine (2010) also suggested that student mobility is high and steadily increasing among low-income African American and Hispanic students. African American and Hispanic students were three times more likely than Caucasian students to be mobile (Cutuli et al., 2013; Eadie et al., 2013; Parke & Kanyongo, 2012).

Results from the Early Childhood Longitudinal Study funded by the U.S. Department of Education (2010) showed that 18% of students changed schools three times by the time they entered the eighth grade. A research study conducted by Beaudette (2014) of 1.7 million students during the 2012-2013 school year indicated schools with a larger student with disabilities population and high free- and reduced-lunch rates also had a higher student mobility rate. Findings from the same study also revealed ethnicity was not a significant predictor for mobility; gifted students and English Language Learners were less mobile; and elementary students had the highest mobility rate of 10.6% out of the median mobility rate of 16.9% (Beaudette, 2014). Eddy (2011) claimed, “Mobility plays a role in education today that is affecting the educational experiences of students in many ways” (p. 7). Research further indicates that mobile students potentially have low academic achievement compared to nonmobile students (Boon, 2011; Thompson, Myers, & Oshima, 2011). According to Wray (2010), student mobility is a contributing factor to the achievement gap between students.

Effects of Mobility on Student Achievement

Just as research studies have revealed that mobility can affect student academic achievement, there are also research studies that indicate mobility does not impact student academic achievement. This occurs when there are effective teachers who employ a variety of instructional strategies to meet the instructional needs of all students and there is an abundance of academic supports, such as remediation, enrichment, and differentiation (Benner, 2011; Boon, 2011; O'Gara & Kanellis, 2008, 2010, 2011; Popp, Grant & Stronge, 2011). Popp and colleagues (2011) found that effective teachers could reduce the adverse effects of mobility on achievement.

Beyond thinking effective teachers as able to reduce the adverse effects of mobility on achievement, Stanton-Salazar (2010) considered that other adults at school could help mitigate the adverse effects of student mobility. Salazar (2010) referred to an adult at school who could help reduce the harmful effects of mobility on student achievement as an institutional agent, which he defined as "an individual who occupies one or more hierarchical positions of relatively high-status, either within a society or in an institution (or an organization)" (p. 17). He suggested success in school and the future for mobile students depends on the support provided by teachers, principals, and counselors. Therefore, mobile students who are not provided support by these institutional agents might not be as academically successful as students who do receive support. As institutional agents, many teachers, principals, and counselors shape the lives of students they interact with, and these same institutional agents can show students how unequal society is with delivering opportunities (Stanton-Salazar, 2010).

However, low-income and low-status mobile youth can find ways to motivate themselves to be successful by seeking the assistance of highly effective teachers, principals, and counselors who will help them to succeed academically, graduate high school, and prepare for college and career (Stanton-Salazar, 2010). Additionally, students who move often can be academically successful by establishing "resourceful relationships and activities socially organized within a network of socialization agents, natural or informal mentors, pro-academic peers, and institutional agents" (Stanton-Salazar, 2010, p. 8). This may be necessary, for some mobile parents may lack the capacity to assist their children academically or socially. Mobile students have fewer chances of being academically successful or graduating compared to nonmobile students without the help of instructional agents (i.e., teachers, principals, and counselors) or "supportive adults" (Stanton-Salazar, 2010, p. 9).

Stanton-Salazar (2010) and other researchers (Dubois & Silverthorn, 2005; Rhodes, Ebert, & Fischer, 1992; Zimmerman, Bingenheimer, & Notaro, 2002) provided evidence that "those who identify a significant nonparental adult in their lives tend to report better psychological well-being, more rewarding relationships with parents and others, academic success, higher school completion, better employment experiences, and fewer problems with peers" (p. 10).

Department of Defense Education Activity

It should be noted that another group of mobile students who have shown high academic achievement even when faced with multiple residential moves are students who attend U.S. Department of Defense Education Activity (DoDEA) schools in the United

States and around the world (Smrekar & Owens, 2003). The DoDEA operates the Domestic Dependent Elementary and Secondary Schools (DDESS) in the United States and the Department of Defense Dependent Schools abroad, begun in 1821 when Congress enacted a federal law to allow military installations the ability to operate schools (DoDEA, 2017). Since 1821, numerous federal legislative acts regarding the governance and operating entities for schools of military dependents were established by Congress, specifically addressing the need for educating military dependents by establishing DDESS under the authority of federal law. Today, the DoDEA educates 72,006 military students, of which 39, 268 students are in grades K-5 with an average mobility rate of 31%, in 166 schools located around the world (DoDEA, 2017).

The significance of reviewing research literature pertaining to military students is the fact that military students who attend DoDEA schools are highly mobile (31%), yet when comparing African American and Hispanic military students to their counterparts nationally, results from the National Assessment of Educational Progress (NAEP) 2013 reading and mathematics assessments indicate that African American and Hispanic military students consistently scored higher in reading and mathematics (DoDEA, 2017; NCES, 2013; O'Gara & Kanellis, 2013). According to O'Gara and Kanellis (2013), 67% of African American and Hispanic military students scored at or above proficient on the 2013 NAEP reading assessment, and 62% of African American and Hispanic military students scored at or above proficient on the 2013 NAEP mathematics assessment.

A review of the academic achievement of mobile military students, especially African American and Hispanic military students, is helpful, for public schools that do

not teach high concentrations of military students but do teach a high number of African American and Hispanic students can utilize strategies implemented by DoDEA in an effort to improve the academic achievement of mobile students in their school district (NCES, 2013; O'Gara & Kanellis, 2013; Smrekar & Owens, 2003; Thomas, 2002). After the results of the 1998 NAEP assessment were released, the National Education Goals Panel established a team of four researchers from the Peabody School at Vanderbilt University to study the processes and procedures of DoDEA schools (Thomas, 2002).

The researchers discovered that DoDEA schools conduct business differently than public schools, in that the processes and procedures implemented by the DoDEA schools are well-organized, consistent, and clearly-defined (Thomas, 2002).

The eight actions that DoDEA schools initiate to foster high academic achievement for all students in their schools are:

1. Maintains a centralized command structure that provides explicit direction for school improvement, while allowing for school-based decision making;
2. All schools follow the same standards and curriculum, with teachers and school leaders determining instructional strategies, classroom structure, and individualized student learning;
3. Schools enjoy one school leader for every 600 students, and a teacher to student ratio of 1:23;
4. All DoDEA teachers are fully certified, teach in their content area, and 2/3 of all teachers have more than ten years of experience teaching;

5. DoDEA schools plan strategically for five years and utilize one comprehensive school improvement plan, instead of a separate Title I school-wide plan, professional development plan, remediation, and enrichment plans, or student support plans; all that must be updated annually and are cumbersome because of redundancy;
6. DoDEA schools provide standardized assessments and allow schools to determine the most efficient way to use data to improve student academic achievement;
7. DoDEA schools provide its teachers with a competitive salary, spend over $200 per student on technology compared to public schools nationally, and reduced the class size of all first through third-grade classrooms, which allowed for a 1:18 teacher to student ratio; and lastly,
8. DoDEA provides schools with onsite instructional coaches, teacher leaders, and content specialists, professional development based on student achievement data, not on teacher need, and a requirement that school leaders visit each classroom a minimum of once a week. (Thomas, 2002, pp. 62-64)

The researchers from Vanderbilt noted that the eight actions initiated by DoDEA schools have shown to consistently maintain high levels of academic achievement for military students, despite the mobility rate of 31%, and foster high expectations for teachers and school leaders that ultimately result in students setting high expectations for themselves (DoDEA, 2017; Thomas, 2002). Excluding mobile students who do receive academic support (Stanton-Salazar, 2010), other researchers assert that mobile students

who do not receive academic support are at risk of experiencing poor academic achievement compared to nonmobile students, which can cause mobile students to repeat the same grade or drop out of school (Gasper et al., 2012; Houchens, 2004; Kerbow, 1996; Rumberger & Larson, 1998; Rumberger & Thomas, 2000; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993). For this reason, student mobility is a concern in many states throughout the United States (Rumberger, 2015).

Attendance, Behavior Problems, and Dropping Out

An abundance of research reveals negative consequences associated with student mobility. These include attendance, behavior problems, and dropping out of high school that are related to the number of times a student transfers school for nonpromotional reasons (Gruman, Harachi, Abbott, Catalano, & Fleming, 2008; Heinlein & Shinn, 2000; Reynolds, Chen, & Herbers, 2009; Rumberger, 2003).

Attendance

Parke and Kanyongo (2012) reported, "Each day that a student does not attend school is a day of missed knowledge through a lack of contact with his or her teachers" (p. 161). Student attendance is directly related to low or high student academic performance (Roby, 2004). Findings from various studies show that highly mobile students and students who frequently miss school come from comparable neighborhoods and ethnicities (Alexander, Entwisle, & Dauber, 1996; Kerbow, 1996; Malmgren & Gagnon, 2005). Parke and Kanyongo (2012) conducted a quantitative study in a large northeastern urban school district with students from 80 K-12 schools to examine the relationship between mobility, student attendance, and student achievement. They

discovered a strong correlation between mobility, poor attendance, and student achievement for elementary and middle school students (Parke & Kanyongo, 2012). Additionally, although mobile students scored higher on state assessments, attendance had more impact on achievement than mobility (Parke & Kanyongo,2012).

When looking at low student attendance rates, homelessness, and the socioeconomic status of families, findings from a study conducted in the Minneapolis Public Schools indicate that African-American students are highly mobile (Cutuli et al. 2012). Cutuli et al. (2013) found that mobile students were absent from school more than nonmobile students, and mobile students received low reading and mathematics assessment results in third through eighth grade compared to nonmobile students. In a research study conducted in the Minneapolis Public Schools during the 2005 through 2009 school years, Cutuli and colleagues (2013) analyzed achievement data for 18,011 third- through eighth-grade students. The results indicated that highly mobile and homeless African American students had an attendance rate of 90% compared to 95.4% for highly nonmobile and homeless students. Thirty-four percent of the highly mobile and homeless students received services from special education and obtained a median score of 40.5% on the math and reading assessments, compared to 86.6% for students who are not highly mobile and homeless and in general education classes (Cutuli et al., 2013).

Behavior and Discipline

At-risk students are more susceptible to problems when changing schools for nonpromotional reasons (Herbers et al., 2012), and incidences of discipline problems of

mobile students are higher than they are for nonmobile students. The reasons for the problems vary (Gasper et al., 2012; Schulz & Rubel, 2011). Boon examined the relationship between mobility and student achievement, as well as behavior and behavior interventions, and found that mobile high school students failed English class three times more than nonmobile students (Boon, 2011). In addition, 50% of mobile students who failed a math class exhibited negative behaviors (Boon, 2011). Boon (2011) and Engec (2006) found a positive relationship between student mobility and student suspension. Both researchers found that mobile students were suspended more than nonmobile students, and in Boon's study, mobile students were twice as likely to be suspended as compared to nonmobile students (Boon, 2011; Engec, 2006).

Mobility can also hurt student achievement and social development (Malmgren, & Gagnon, 2005; Kerbow, 1996). Herbers et al. (2012) discovered that school mobility hurts classroom instruction and social interactions with peers, teachers, and other adults. Mobile students can also lose or gain social interactions with peers and teachers (Engec, 2006; Romanowski, 2003; Sanderson, 2003; Schulz & Rubel, 2011). According to Benenson, Markovits, Thompson, and Wrangham (2011), mobile students potentially disrupt established friendships and social interactions once they arrive at their new school. They usually exhibit behavior problems as the result of differences between the social dynamics of current students and new students who arrive to class with a history of severe behavior due to a lack of social capital (Coleman, 1988). Noted research on social capital by Coleman (1988) confirm that mobility does negatively affect social relationships at school and within the community when mobile students transfer to low-

performing, high-performing, or comparable performing schools. Furthermore, students who are unable to adjust to a new school can become disinterested in school and become disruptive, which can lead to suspension, and if the behavior problems are not addressed, these same students are more likely to drop out of high school (Gasper et al., 2012).

Dropping Out of High School

Mobile students are more likely to experience poor academic achievement compared to nonmobile students, which can cause students to repeat the same grade and often drop out of school (Gasper et al., 2012; Houchens, 2004; Kerbow, 1996; Rumberger & Thomas, 2000; Rumberger & Larson, 1998; Wood et al., 1993). Similarly, mobility during early school years predicts grade retention, academic performance, and likelihood of dropping out of high school (Temple & Reynolds, 1999). Admittedly, mobile students who did not graduate from high school exhibited negative behaviors before transferring schools, and many were already on track not to graduate high school based on predictive data (Gasper et al., 2012). Findings from the study conducted by Gasper et al. (2012) indicate that student mobility is a predictor of low achievement in early school years, child endangerment, placement in special education, behavior problems, and grade retention. However, when these predicted outcomes are controlled, highly mobile students are also at risk of developing a mental illness during early adulthood, being incarcerated, not graduating high school on time, or dropping out of high school (Gasper et al., 2012). Coleman and Hoffer (1987) posited that not having resources and interventions available to mobile students in school can affect their

academic performance and predict whether they graduate from high school and continue their education by going to college.

In a U.S. Census Bureau (2013) report, 948,468 adults over the age of 25 in the state of Georgia identified themselves as having either less than a ninth-grade education or some high school education, but no diploma. Numerous researchers have found that mobile students have low academic achievement and challenges with graduating high school on time or not graduating high school at all (Boon, 2011; Eadie et al., 2013; Gasper et al., 2012; Schulz & Rubel, 2011).

Many of the one million students in U.S. public schools who drop out of high school each year also live in poverty (Editorial Projects in Education Research Center, 2016). A research study conducted by the Annie E. Casey Foundation revealed that "one in six children who are not reading proficiently in third grade do not graduate from high school on time, a rate four times greater than that for proficient readers" (Hernandez, 2011, p. 3).

Gasper and colleagues (2012) examined over 10, 000 students ages 12-16 who participated in the National Longitudinal Survey of Youth 1997 (NLSY97) and found that 70% of high school students did not transfer high schools, but students who did transfer did not graduate from high school. However, this is not the case for all mobile students, as findings from the NLSY97 indicate that mobile students with a stable family structure did graduate high school on time (Gaspr et al., 2012). Lee and Burkam (1992) found similarities between the predictors associated with dropping out of high and students who transferred to a school for nonpromotional reasons. Lee and Burkam

(1992) suggested that highly mobile students who do not receive academic interventions and supports early in their academic career remain on a path that leads to dropping out of high school. While graduation rates are an outcome that shows the number of students who successfully matriculated kindergarten through twelfth grade, an early predictor of academic success may be to examine mobility during the elementary years.

Mobility affects nonmobile students in the classroom, as well as the teacher's ability to maintain adequate pacing based on the academic needs of current students and mobile students who transfer into the class (Buchanan, 2015). Buchanan (2015) explained, “Teachers may feel the need to slow the pace of the curriculum to meet the needs of the mobile student at the detriment to the rest of the class” (p. 9). Consequently, all students have the potential to experience adverse effects of reviewing content already covered or waiting for students who require remediation, specifically mobile students, who may be behind the rest of the class (2015). Thus, the slow pace of curriculum as the result of mobile students entering the classrooms (Kerbow, 1996) disrupts nonmobile students academically (Sanderson, 2003).

Theoretical Framework

Folden (2002) suggested that researchers who study educational phenomenon employ two perspectives when examining the educational outcomes of students: academic achievement and opportunity to learn (OTL). For this study, the OTL framework was used to examine the postmove academic achievement of mobile elementary students. According to Stevens (1996),

> The emphasis is on what teachers do in their classroom when they are teaching students and whether or not they grant students sufficient access to information and resources to enable them to learn the curriculum for their age and grade level. (p. 2)

Furthermore, Stevens (1996) posited that the foundation of quality instruction and student learning rests on the "shoulders" of both teachers and school leaders, as socioeconomic status should not hinder students' ability to obtain high levels of academic achievement.

In 1963, John Carroll, a well-regarded educational psychologist who studied human intelligence, developed a model for learning, which consists of five factors of learning. The five factors of learning or determinants of achievement are aptitude, opportunity to learn, perseverance, quality of instruction and the ability to understand instruction (Carroll, 1963). Carroll further categorized the factors into two groups, with one group of factors being based on time (aptitude, opportunity to learn, and perseverance) and the last group being based on achievement (quality of instruction and ability to understand instruction). Through the research of Carroll (1963), a conceptual understanding of opportunity to learn (OTL) was developed that described the opportunity to learn as the time required students to learn grade-level content standards.

Conversely, Husén (1967), a professor and educational psychologist at Stockholm University in Sweden and an expert in military psychology, described OTL as the difference between the content standards students are taught and the content standards students are assessed on to determine mastery. Twenty-five years after Husén defined OTL as the difference between what students are taught and what standards will be

assessed, Wang (1998) and Stevens (1993) streamlined OTL as a framework consisting of four domains that are widely used today, which are content exposure, content coverage, content emphasis, and quality of instructional delivery.

Opportunity to learn, specifically when addressing content exposure, content delivery, and instructional delivery, as well as student attendance, are all predictors of individual student achievement levels on summative assessments (Wang, 1998). Wang (1998) conducted a study of 623 eighth graders who attended five public schools in Los Angeles, California to examine the relationship between students' opportunity to learn and student academic achievement. Wang (1998) wrote, "They [the predictors] help explain why students' achievement may vary within a classroom (school) and across classrooms (schools)" (p. 137).

Likewise, when using the OTL framework to examine students' academic achievement, researchers should utilize all aspects of the framework to formulate opinions regarding its effect on student academic achievement (Wang, 1998). Therefore, the theoretical framework for this study was guided by the principles of opportunity to learn (OTL), which are content coverage, content exposure, content emphasis, and quality of instructional delivery.

Content coverage reminds educators to ensure that formative and summative assessments align to state standards, content taught is content assessed, and students receive instruction covering all content standards (Leinhardt, 1983; Leinhardt & Seewald, 1981; Yoon, Burstein, Gold, Chen, & Kim, 1990). Content exposure focuses on the number of time students have to learn content, and the degree of rigor teachers employ

while teaching the content (Brophy & Good, 1986; Doyle, 1983; Wiley, 1990; Winfield, 1987). Content emphasis underscores the importance of teachers understanding the 'power standards' and content weights of the content they are teaching and knowing when to differentiate, remediate, and enrich instruction (Floden, 2002). Lastly, quality of instructional delivery, which researchers have determined is directly tied to teachers' subject knowledge as well as the ability for teachers to adjust their instructional delivery according to student assessment data (Brophy & Good, 1986).

In Wang's (1998) OTL framework—particularly the principles of content exposure and content coverage, the researcher borrows from the work of Carroll (1963), who determined that OTL is equal to the amount of time students have to master grade-level content. Husén (1967), just like Carroll (1963) and Wang (1998), based his research on determining the difference between what standards students have been taught and whether the content standards are aligned to assessments. Tate (2005) moved beyond just looking at the time, and instead focused on content emphasis—relevant content that must be taught and will appear on the state criterion-referenced assessment—and instructional delivery, which is the depth of content knowledge teachers possess and the instructional strategies teachers use to meet the educational needs of all students. Tate's (2005) thinking on a student's opportunity to learn being tied to content exposure and instructional delivery is in contrast to Carroll (1963), Husén (1967) and Wang (1998), who all argued that a student's opportunity to learn is based on time.

When considering the amount of time it takes students to achieve grade-level content standards or whether content standards are aligned to state assessments, Wijaya,

van den Heuvel-Panhuizen, and Doorman (2015) suggested, “A plausible question when particular educational goals are not achieved by students is whether they have received the education enabling them to reach the competences expressed in their goals” (p. 42). Wijaya et al. (2015) analyzed three mathematical textbooks to determine the types of tasks included in each textbook and found that 90% of each textbook lacked context-based tasks, 15% of the tasks did not provide students the information required to solve math problems, and tasks provided students limited opportunities to think critically. Therefore, lack of relevant, context-based tasks diminished the students’ opportunity to learn mathematics (Wijaya et al., 2015).

In addition to the theories of Carroll (1963), Husén (1967), Stevens (1993, 1996), and Wang (1998) for this study, the research studies conducted by Triplett (2015) and DeLuca and Dayton (2009) should also be considered because of their focus on residential mobility, student mobility, and student academic achievement. According to Triplett (2015), students who move experience a disruption in social relationships with students and adults all of which is critical to maintaining achievement and integrating into the norms of a new environment. Furthermore, it is important to consider that school mobility is not always detrimental as shown in a study conducted by DeLuca and Dayton (2009), who found that parents would move if such change means upward mobility and access to better income, schools, or neighborhoods. A focus on a student’s opportunity to learn may provide insights into the levels of academic achievement mobile students attain or lose when they move and change schools. The unknown favorable or adverse effects

of high student mobility on student academic performance are a concern for families, schools, and educational policymakers (Rumberger, 2015).

Academic Achievement of Mobile Students

Rumberger (2015) found that "student mobility is a widespread and often unheralded problem facing American schools" (Executive Summary, para. 1). Rumberger (2015) suggested that the most unheralded problem regarding student mobility for students, parents, teachers, administrators, support staff, and policymakers is not why students transfer for nonpromotional reasons, but instead, it is in determining the effect frequent moves have on students' academic achievement. For example, a five-year study of highly mobile low-income youth in third through eighth grade found that mobile students had low assessment scores and tended to be three academic years behind compared to nonmobile students in the same grade (Obradovic et al., 2009). Schulz and Rubel (2011) found that mobility hurt academic achievement because of gaps in a student's content knowledge.

Students who are poor and who move frequently, as well as homeless students, often experience low academic achievement, which leads to a widening of the already slow closing of the achievement gap (National Research Council and Institute of Medicine, 2010; Obradovic et al., 2009). Mobile students are also more likely to perform poorly on state and national assessments compared to nonmobile students. A quantitative study of reading and math scores conducted by Grigg (2012) showed no difference in student achievement in reading and math among 61,084 third through eighth-grade

mobile and nonmobile students; however, the researcher did discover that mobile students had gaps in their learning ability in reading and mathematics.

Likewise, a quantitative study of 319,000 K-12 students in cohort groups from 2005-06 through 2010-11 in the State of Wisconsin conducted by Eadie and colleagues (2013) revealed that students have lower academic achievement results on reading and mathematics assessments, and students identified as economically disadvantaged moved at least one time during the school year. Numerous researchers have examined the differences in achievement between mobile and nonmobile students (Buchanan, 2015) and found that mobile students tend to have low assessment scores on state and local assessments (Benner, 2011; Cutuli et al., 2012; Eadie et al., 2012, Engec, 2012; Grigg, 2012; Heinlein & Shinn, 2012; Herbers et al., 2012; Parke & Kanyongo, 2012; Parke & Keener, 2011; Thompson et al., 2011). Researchers found lower state and national assessment results for mobile students on the California Achievement Test (Heinlein & Shinn, 2000) and the Iowa Test of Basic Skills (Engec, 2006; Temple & Reynolds, 1999).

The effect of transferring schools on academic achievement is more pronounced at the elementary level than middle and high school levels (Heinlein & Shinn, 2000). Mobile students have lower academic achievement than nonmobile students in the areas of mathematics and English (Boon, 2011; Thompson et al., 2011). Research further suggests that students who transfer are more likely to have poor academic achievement because of differences in curriculum and academic pacing from one school to another (Engec, 2006; Romanowski, 2003; Sanderson, 2003; Schulz & Rubel, 2011). Thompson et al. (2013) found that mobility had the most significant adverse effect on reading for

first through fifth-grade students. Herbers et al. (2012) examined mobility and student achievement of elementary students and discovered that mobile students in first grade had a low oral reading fluency as compared to nonmobile first-grade students. In elementary school, a student's third grade reading level has shown in various studies to predict student academic performance in later years, the ability to graduate high school on time, and possible interactions with the criminal justice system (Hernandez, 2011; Lesnick, Goerge, Smithgall, & Gwynne, 2010; Sum, Khatiwada, & McLaughlin, 2009).

In a quantitative study of 1,581 fourth graders in a school district located in the western United States, Eddy (2011) found a significant difference between the academic achievement of mobile and nonmobile students in that mobile students had lower math and language arts scores. This is significant because Herbers and colleagues (2012) discovered that mobile students who did not master reading comprehension by the third grade scored lower on math and reading assessments in the eighth grade compared to nonmobile students.

Although Grigg (2012) found no difference in student achievement in reading and math between mobile and nonmobile students, the researcher did find that mobile students had gaps in their learning ability in reading and mathematics, with the most significant gaps being prevalent in mathematics. In comparison to research on the relationship between mobility and student achievement conducted by Grigg (2012) and Cutuli et al. (2012), Eadie et al. (2013) also found mobile students to have lower academic achievement results on reading and mathematics assessments. Kerbow, Azcoitia, and Buell (2003) cautioned, "Students who transfer between schools may miss

exposure to key concepts that are prerequisites for higher order skills. Its consequences may be delayed as the student moves across grades and is required to build on previous knowledge" (p. 160).

This was evidenced in a study of 1,050 students from three high schools in North Queensland, Australia, in which 33% of mobile students received a D or F letter grade in mathematics, compared to only 10% of nonmobile students who received the same grade, in the same course (Boon, 2011). A study of 764 mobile students in a New York school district showed that students who transferred at least two times earned six points less on math assessments and three points less on reading assessments compared to nonmobile students (Heinlein & Shinn, 2000). In a study of 13,000 sixth graders from 270 elementary schools in Chicago Public Schools over a three-year period, 50% of elementary students were mobile; 58% of students in the study experienced a residential change; and 82% of the students transferred to the district,. Mobile fifth-grade students were one year behind in math, and, overall, students in first through sixth grades who transferred three or more times were behind one year academically compared to nonmobile students (Kerbow et al., 2003).

Summary

The literature review started with a brief overview of the potential effects mobility can have on student academic achievement, followed by why families move as evidenced by research literature on residential mobility. Beyond the need to report a brief historical perspective of public elementary schools in America and provide relevant information that highlights the levels of academic achievement students obtain while attending either

low-performing or high-performing schools in America, it was necessary to share the varying definitions of student mobility and explain what student mobility is or is not.

This study used the opportunity to learn (OTL) framework, which is vital to teachers, school leaders, and policymakers who want to understand what actions they should take to understand the academic and behavioral needs of mobile students. OTL as defined by Stevens (1993) and Wang (1998) was conceptualized into four strands that explained how students learn and teachers teach to foster high levels of academic achievement for all students: content exposure, content coverage, content emphasis, and instructional delivery.

After sharing information about opportunity to learn (OTL), academic achievement, and mobile students, when mobility does not affect student achievement and, the negative effects of mobility on student achievement were discussed in length. Research studies have shown that mobility or frequent moves for nonpromotional reasons have caused some mobile students to have low achievement, low attendance, discipline problems, and an increased propensity to not graduate from high school as compared to nonmobile students. Finally, although mobility has shown through the findings of the numerous research studies to cause low student academic achievement, military students, who move frequently and have a mobility rate of 31%, still have higher achievement on the NAEP compared to their counterparts in public schools nationally due to the processes and procedures established by DoDEA schools.

CHAPTER 3

METHODOLOGY

This quantitative ex post facto study addressed the effect of student mobility on student achievement. The study attempted to add to the literature by examining the cognitive and behavioral factors of mobile fifth-grade students. This chapter includes the research methodology, research questions and hypotheses, population, sample and participants, and procedures for data collection and analysis.

Research Questions and Hypotheses Reiterated

To examine the cognitive and behavioral implications of mobility on fifth-grade students, the following questions were analyzed using a sample of fifth-grade mobile and nonmobile students in one school district in a metropolitan city in Georgia in 2013:

1. Do fifth-grade mobile students move to lower or higher performing schools when they transfer from one school to another in one school district?
2. Is there a significant difference in the scale scores of mobile and nonmobile fifth-grade students?

   $H_0$2a: There is no significant difference in the CRCT mathematics scale scores of mobile and nonmobile fifth-grade students.

   $H_0$2b: There is no significant difference in the CRCT reading scale scores of mobile and nonmobile fifth-grade students.

$H_0$2c: There is no significant difference in the grade-point averages of mobile and nonmobile fifth-grade students.

3. Is there a significant difference in the scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school?

   $H_0$3a: There is no significant difference in the CRCT mathematics scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

   $H_0$3b: There is no significant difference in the CRCT reading scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

   $H_0$3c: There is no significant difference in the grade-point averages of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

4. Is there a significant difference in the behavior of mobile and nonmobile fifth-grade students?

   $H_0$4a: There is no significant difference in the number of days absent of mobile and nonmobile fifth-grade students.

$H_0$4b: There is no significant difference in the number of days tardy of mobile and nonmobile fifth-grade students.

$H_0$4c: There is no significant difference in the number of discipline referrals of mobile and nonmobile fifth-grade students.

$H_0$4d: There is no significant difference in the number of days of out-of-school suspension of mobile and nonmobile fifth-grade students in one school district.

5. Is there a significant difference in the behavior of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school in a school district?

$H_0$5a: There is no significant difference in the number of days absent of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5b: There is no significant difference in the number of days tardy of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5c: There is no significant difference in the number of discipline referrals of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5d: There is no significant difference in the number of days of out-of-school suspension of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

Research Design

This study used a nonexperimental, quantitative, ex post facto research design to examine the cognitive and behavioral implications of mobility on a group of fifth-grade students. Johnson (2001) suggested, "A substantial proportion of quantitative educational research is non-experimental because many important variables of interest are not manipulable" (p. 3). Cohen, Manion, and Morrison (2000) stated, "Ex post facto means *after the fact* or *retrospectively*" and requires the researcher to "observe an existing condition or state of affairs and searching back in time for plausible causal factors" (p. 205). Cohen et al. (2000) further explained that "ex post facto research, then, is a method of teasing out possible antecedents of events that have happened and cannot, therefore, be engineered or manipulated by the investigator" (p. 205).

There are four essential elements to consider when developing a research design: (a) epistemology, (b) theoretical perspective, (c) methodology, and (d) methods (Crotty, 1998). Epistemology is the "theory of knowledge embedded in the theoretical perspective and thereby in the methodology" (Crotty, 1998, p. 3). It is a way of understanding and explaining how we know what we know. The theoretical perspective is a "philosophical stance" (Crotty, 1998, p. 3) that the researcher uses to guide the methodology and is responsible for providing "a context for the process and grounding its

logic and criteria" (Crotty, 1998, p. 3). Crotty defined methodology as "the strategy, plan of action, process or design lying behind the choice and use of methods and linking the choice and use of methods to the desired outcomes" (p. 3). Furthermore, Crotty defined methods as the "procedures used to gather and analyze data related to some research question or hypothesis" (p. 3).

By using the epistemology of objectivism and the theoretical perspective of postpositivism, the researcher examined the cognitive and behavioral implications of mobility on a group of fifth-grade students in one school district in a metropolitan city in the state of Georgia in 2013. Objectivism is an epistemological stance that researchers employ when objectively seeking the "truth and meaning" (Crotty, 1998, p. 5) of an object or problem being studied. Postpositivism is identified as being (a) deterministic (cause probably determine effects), (b) reductionistic (can be reduced to variables tested by hypotheses), (c) empirically observable, and (d) verified by theory (Creswell, 2009). Quantitative research is used when numerical data are reviewed and independent and dependent variables are analyzed to determine if relationships exist. Based on the research questions, a quantitative analysis was needed for this study.

The study used two independent variables and seven dependent variables to answer the research questions. The independent variables were: (a) type of mobility and (b) school performance. The dependent variables were: (a) grade-point averages for students during the 2012-2013 school year, (b) 2013 CRCT reading scores, (c) 2013 CRCT mathematics scores, (d) number of days absences during the 2012-2013 school year, (e) number of days tardy during the 2012-2013 school year, (f) number of discipline

referrals during the 2012-2013 school year, and (g) number of days suspended during the 2012-2013 school year.

Setting, Population, and Sample

This study was conducted in one district in a metropolitan city in the state of Georgia. In 2013, the state of Georgia had a three-year poverty rate of 18% compared to a national average incidence of poverty at 14 percent. In 2013, Georgia had more than 180 public school districts consisting of over 800 high-poverty schools with a student mobility rate of more than 16%, compared to over 200 low-poverty schools with a school mobility rate of less than 10%. Georgia had an average scale score of 240 on the fourth-grade mathematics National Assessment of Educational Progress (NAEP) in 2013 that was 67% lower than other states in the United States and Department of Defense Education Activity Agency schools (NCES, 2013). Georgia had an average scale score of 222 on the 2013 NAEP assessment that was 53% lower than other states in the United States schools (NCES 013).

According to GaDOE (2015b), the school district had more than 25,000 students enrolled in elementary schools during the 2012-2013 school year. The average student mobility rate for elementary schools in the district in that school year was 34 percent. All elementary students in the district were considered economically disadvantaged during the 2012-2013 school year (see Table 2). Two-thirds of the students were Black, another 22% were Hispanic. All elementary schools were included and categorized as either being low performing or high performing based on the 2012 and 2013 CCRPI.

Table 2

Demographics of Elementary Schools in the School District of Interest (2012–2013)

Demographic	*n*	*%*
Black	16,224	67
White	726	3
Hispanic	5,327	22
Asian	1,211	5
Multiracial	726	3
Students with Disabilities	1,695	7
Economically Disadvantaged	24,215	100

Operational Definitions

For this study, a high-performing school was an elementary school with a College and Career Ready Performance Index (CCRPI) score ranging from 70 to 100. A low-performing school was an elementary school with a CCRPI score below 70. Students who were enrolled in one school when the fourth-grade Georgia Criterion-Referenced Competency Tests (CRCT) was conducted during the month of April in the 2011–2012 school year and enrolled in a different school when taking the fifth-grade CRCT during the month of April in the 2012-2013 school year were considered to be mobile students. Nonmobile students were identified as students who were enrolled in the same school in the fourth and fifth grades in 2011-2012 and 2012-2013.

Instrumentation, Validity, and Reliability

This study used scores from Georgia's annual criterion-Referenced Competency Tests (CRCT) in mathematics and reading in Grade 5. The CRCT was developed to be a reliable instrument to assess student knowledge of grade-level content standards. All assessments were aligned to nationwide certified and technical standards (Georgia Department of Education [GaDOE], 2006). For the 2012 and 2013 administrations of the CRCT, total test reliability for mathematics ranged from .86 to .91 and reading ranged from .70 to .85 (GaDOE, 2006).

Scale scores for each test ranged from 650 to 900. Variations in the tests and student performance may have resulted in different upper limits for different tests at different administrations. Scores at 850 and above indicated a performance that exceeded the standard set for the test. Scores from 800 to 849 indicated performance that met the standard, while scores below 800 indicated a level of performance that did not meet the state's minimum level of proficiency (GaDOE, 2013). The archival scores collected for this study included both scale scores and performance levels.

Data Collection

Archival school and state data were collected to address the research questions. The school-level student data were retrieved from the school district by submitting a research application to the district's research department. Individual school performance data (2012 and 2013 CCRPI scores) were retrieved from the Georgia Department of Education (GaDOE) website. A formal data request was not needed to access the CCRPI scores.

The researcher received a file with deidentified student demographics, enrollment, achievement, and behavior data from the school district. The file had over 580,000 entries, consisting of all students in Grades K-12 who enrolled and withdrew from a school in the district between 2010 and 2013. The researcher loaded the file into a Microsoft Excel spreadsheet. All data for students in Grades K-3 and Grades 6-12 were removed. All unknown schools and special programs were removed. Using the study's selection criteria and available student demographics, enrollment, achievement, and behavioral data, fourth- and fifth-grade students who switched schools at least once during the year or over the summer break were selected. The records remaining included 1,906 nonmobile students and 289 mobile students. A random selection of the number of nonmobile students was reduced to 289 by the sampling procedure in SPSS. The records of the 578 students contained school year, grade level, race, sex, eligibility for the school lunch program, student number, state assessment test date, number of days absent, number of days tardy, number of discipline referrals, number of days suspended, CRCT reading and mathematics scale scores, and quarterly grade-point average (GPA).

The researcher accessed the public website of the GaDOE to download a Microsoft Excel file that contained the CCRPI scores of all elementary schools in the school district for school years 2011-2012 and 2012-2013. The researcher removed the name of each elementary school and assigned each school a number between 1 and 35.

Institutional Review Board

The researcher submitted an Institutional Review Board (IRB) for Social and Behavioral Sciences application to Mercer University for approval to begin collecting

data from the school district and the GaDOE. IRB approval from the GaDOE was not needed, as school performance data were accessible from the department's public website. To protect the anonymity of the data, the researcher removed the names of schools and the school district. After receiving approval from Mercer University's IRB, the researcher requested the district's research department to collect enrollment, demographic, achievement, and behavioral data. All requested student data were kept securely by the researcher and were destroyed at the conclusion of the study.

Data Analysis

SPSS (version 25) was used to answer the research questions. A specific statistical test used for each research question was selected based on the variables in each research question. The data were screened to determine if the variables of interest met the assumptions of the statistical tests. Any student's fifth-grade CRCT reading and mathematics scores above 880 or below 765 were considered outliers and removed. With the removal of the outliers, the distributions of the mobile and nonmobile students' achievement data were normal. The dataset contained 227 mobile and 223 nonmobile students. The distributions of the behavioral data in each group of students were highly skewed because most of the students had no discipline referrals or no days suspended and had fewer than 5 days tardy or absent. These data did not meet the assumptions for inferential statistical procedures; therefore, the data were examined using nonparametric tests.

The first test was the multivariate analysis of variance (MANOVA). Salkind (2011) explained, "MANOVA is used when there is more than one dependent variable"

(p. 333). Therefore, the MANOVA was the most appropriate statistical test to examine significant achievement differences between mobile and nonmobile fifth-grade students and between mobile students who transferred to lower or higher performing schools. Behavioral data did not meet the assumptions of MANOVA, so the variables were analyzed using the Mann-Whitney U nonparametric test to examine significant behavioral differences between mobile and nonmobile fifth-grade students and between mobile students who transferred to lower or higher performing schools.

The Mann-Whitney U test compares differences between two independent groups when the dependent variable is continuous (Yaremko, Harari, Harrison, & Lynn 1986). Table 3 contains a description of data sources, the independent and dependent variables, and planned analyses for the five research questions.

Table 3

Research Questions, Source, and Data Analysis

Research Questions	Source	Independent Variable	Dependent Variable	Analysis
RQ1: Do fifth-grade mobile students move to lower or higher performing schools when they transfer from one school to another in one school district?	GaDOE school performance data; district's enrollment data	Mobile students who transferred to lower or higher performing schools	School performance	Descriptive
RQ2: Is there a significant difference in the scale scores of mobile and nonmobile fifth-grade students?	District's student enrollment and achievement data	Mobile and nonmobile students	CRCT math and reading scale scores, GPA	MANOVA
RQ3: Is there a significant difference in the scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school?	GaDOE school performance data; district's enrollment and achievement data	Mobile students who transferred to lower or higher performing schools	CRCT math and reading scale scores, GPA	MANOVA
RQ4: Is there a significant difference in the behavior of mobile and nonmobile fifth-grade students in one school district?	District's enrollment and behavioral data	Mobile and nonmobile students	Days tardy, days absent, number of discipline referrals, days suspended	Mann-Whitney
RQ5: Is there a significant difference in the behavior of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school in one school district?	GaDOE school performance data; district's enrollment and behavioral data	Mobile students who transferred to lower or higher performing schools	Days tardy, days absent, number of discipline referrals, days suspended	Mann-Whitney

Reporting Results

The results of the analyses of the research questions are presented in Chapter 4. Tables and figures are used to describe the data and the results of the analyses. A description of each result is included in the text of Chapter 4.

Summary

An ex post facto research design was used. Archival student data were collected from the school district and the Georgia Department of Education. Chapter 3 included a reiteration of the research questions and hypotheses, description of the research design, the setting of the study, operational definitions of the variables, and the data analysis plan. Results of the analyses described in this chapter are presented in Chapter 4. The conclusions and implications of the study are discussed in Chapter 5.

CHAPTER 4

DATA RESULTS AND ANALYSIS

In a study conducted by the National Research Council and Institute of Medicine (2010), researchers found that 61% of low-income African American and Hispanic students in the Florida during the 2007-2008 school year moved more than one time compared to 33% of Caucasian students who moved during the same school year. Low-income students who change schools during the same school year are more susceptible to having lower academic achievement when compared to nonmobile students, and researchers suggest that the association between mobility and achievement could be the result of parental income (Rumberger, 2003, 2015, 2016; Herbers, Reynolds, & Chen, 2012). Consequently, Herbers et al. (2012) discovered that mobile students performed lower on reading and mathematics assessment results in third through eighth grade compared to nonmobile students on state assessments. The purpose of this quantitative ex post facto study was to examine the cognitive and behavioral implications of mobility on a group of fifth-grade students in one school district in a large metropolitan city in Georgia in 2013.

This chapter presents the results of the analysis of the five research questions that guided this study. The data were analyzed to determine if achievement and behavioral differences were found between mobile and nonmobile students. Additional analyses were conducted to determine if achievement and behavioral differences were found

between mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school in one school district.

Description of the Sample

The final dataset contained the achievement and behavioral records of 450 fifth-grade students enrolled in one school district in 2013. The mobile group contained 227 students, and the nonmobile group contained 223 students. The students were enrolled in the school district's 35 elementary schools.

Demographic Characteristics of the Students

Table 4 contains a description of the mobile and nonmobile groups. Chi-square analyses were used to determine if the demographic characteristics of the students were related to their mobility. Female students made up more than half of each group; however, no statistically significant differences in gender were found between the two groups, $\chi^2(1) = .30$, $p = .64$. Statistically significant differences were found in socioeconomic status (as measured by the students' eligibility for the free- and reduced-lunch program), $\chi^2(1) = 8.99$, $p = .01$. Students receiving free lunch were more likely to be mobile (88%) than nonmobile (79%). Students who did not receive a free and reduced lunch were more than twice as likely to be in the nonmobile group (14%) than in the mobile group (6%). Although no significant statistically ethnic differences were found (χ^2 (1) = 7.69, $p = .07$), a larger percentage of Black students (82%) were in the mobile group than in the nonmobile group (75%).

Table 4

Description of the Sample

	Mobile (n = 227)		Nonmobile (n = 223)	
	n	*%*	*n*	*%*
Race				
White	5	2.2	8	3.6
Black	187	82.4	168	75.3
Hispanic	23	10.1	28	12.6
Asian	3	1.3	9	4.0
American Indian	2	0.9	0	0.0
Multiracial	7	3.1	10	4.5
Sex				
Male	99	43.6	103	46.2
Female	128	56.4	120	53.8
Eligibility for free/reduced lunch				
None	13	5.7	31	13.9
Reduced price lunch	15	6.6	17	7.6
Free lunch	199	87.7	175	78.5

School Performance

The students were enrolled in 35 elementary schools at the end of the 2012–2013 school year. The schools were grouped into low-performing and high-performing schools based on their 2013 College and Career Ready Performance Index (CCRPI) score. CCRPI is a state of Georgia accountability measure used to inform the public how well school districts and schools are performing. Schools and districts receive a CCRPI score up to 100 points each (GaDOE, 2013). The total score of 100 points is divided into three sections: (1) Achievement Points (possible 70 points), (2) Progress Points (possible 15 points), and (3) Achievement Gap Points (possible 15 points). Schools also can receive an additional 10 points, known as Challenge Points, for a high number of English

Learner students, Economically Disadvantaged students, and Students with Disabilities who either meet or exceed expectations (GaDOE, 2013). Table 5 contains a description of the two groups of schools. More than two-thirds of the schools were categorized as low performing in 2012, while in 2013 almost half of the schools were categorized as high performing. CCRPI scores for the elementary schools increased from 2012 to 2013 for 12 schools, stayed the same for 20 schools, and decreased for 3 schools. The CCRPI score was used to determine the type of school the mobile students moved from or to during or between school years 2011–2012 and 2012–2013.

Table 5

Performance of Elementary Schools

	School Year 2011–2012			School Year 2012–2013		
Performance Level	*n*	%	Mean CCRPI Score	*n*	%	Mean CCRPI Score
Low performing	25	71.4	61.7	18	51.4	61.4
High performing	10	25.6	76.5	17	48.6	77.4

Analysis of Research Questions

SPSS (version 25) was used to analyze the data from 227 mobile and 223 nonmobile students. MANOVA and Mann-Whitney statistical tests were used to answer five research questions. Each of the following sections contains the research questions and associated hypotheses, a discussion of the assumptions of the statistical procedure used to answer the question, and the results of the analysis.

Research Question 1

The first research question was: Do fifth-grade mobile students move to lower or higher performing schools when they transfer from one school to another in one school district? Descriptive statistics were used to answer this question. Based on the criterion presented in Chapter 3, the CCRPI scores of schools attended by mobile students were analyzed (see Table 6). Of these students, 81% moved to a school of comparable performance to their previous school. Almost twice as many mobile students moved to a higher performing school (13%) than did those who moved to a lower performing school (7%).

Table 6

Movement of Mobile Students

Type of Move	*n*	*%*
Moved to lower performing school than previous school	27	11.9
Moved to school of comparable performance of previous school	121	53.3
Moved to higher performing school than previous school	79	34.8

Research Question 2

The second research question was: Is there a significant difference in the scale scores of mobile and nonmobile fifth-grade students? The following hypotheses applied to the second research question:

$H_0$2a: There is no significant difference in the CRCT mathematics scale scores of mobile and nonmobile fifth-grade students.

$H_0$2b: There is no significant difference in the CRCT reading scale scores of mobile and nonmobile fifth-grade students.

$H_0$2c: There is no significant difference in the grade-point averages of mobile and nonmobile fifth-grade students.

The distributions of CRCT reading and mathematics scale scores and Grade-point averages (GPAs) were examined for violations of the assumptions of MANOVA. The distributions of the achievement variables by group are illustrated in *Figures* 1 through *6*. Skewness and kurtosis values for each variable in each group were between -1.00 and 1.10. The distributions of the achievement variables were considered normal. Additional assumptions of the multivariate analysis of variance include absence of multivariate outliers, linearity (all dependent variables are linearly related to each other), absence of multicollinearity (dependent variables are not highly correlated with each other), and equality of covariance matrices. Absence of multivariate outliers is assessed using Mahalanobis Distances. Cases are identified as multivariate outliers if the Mahalanobis Distance is greater than the critical χ^2 value at $p < .001$ with three degrees of freedom (number of dependent variables) of 16.266. No cases were found with Mahalanobis Distances greater than 14.34.

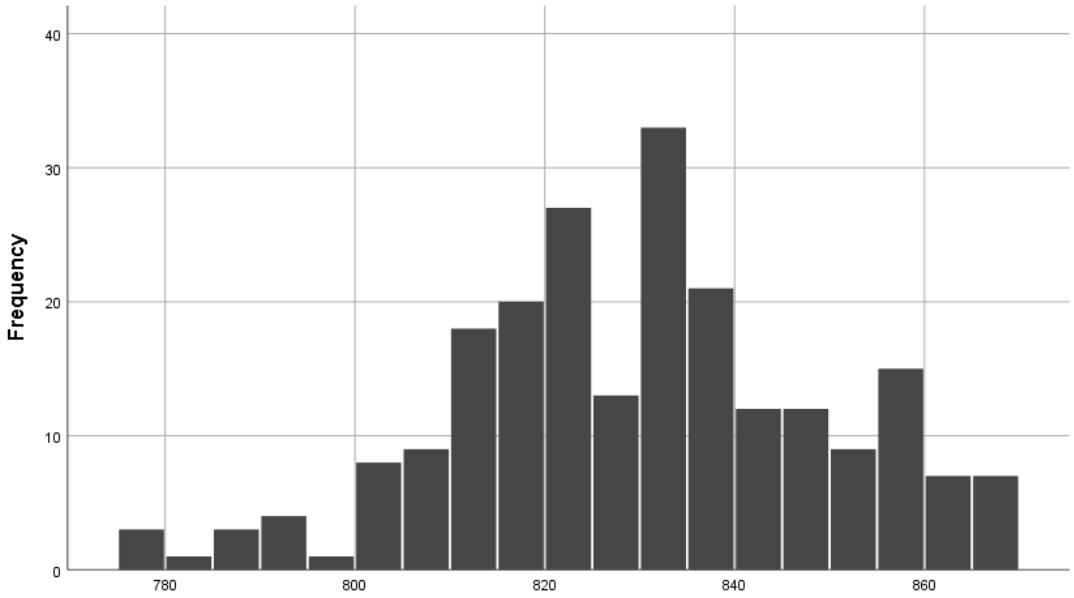

Figure 1. Distribution of 2013 CRCT reading scale scores for nonmobile students.

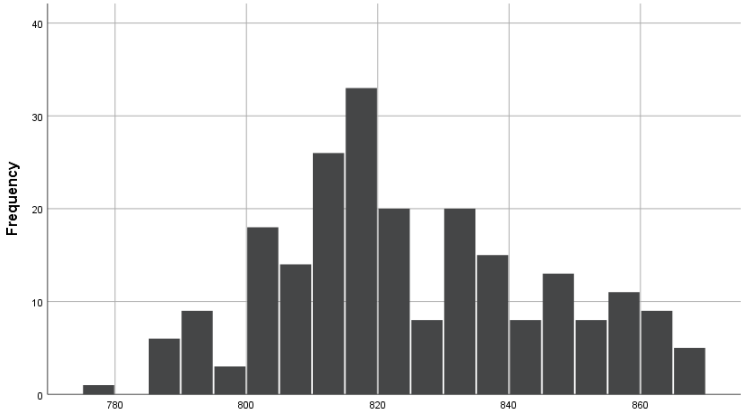

Figure 2. Distribution of 2013 CRCT reading scale scores for mobile students.

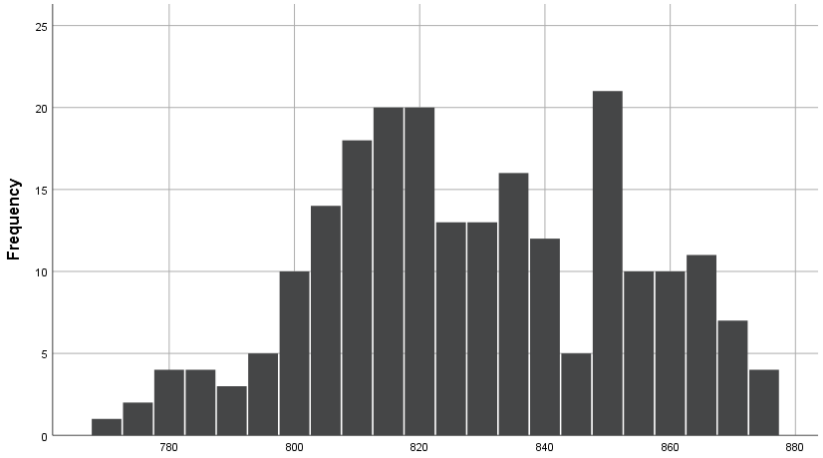

Figure 3. Distribution of 2013 CRCT mathematics scale scores for nonmobile students.

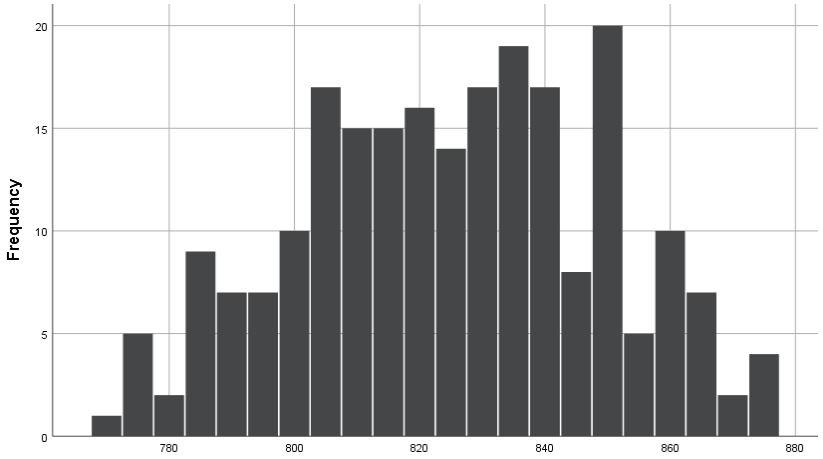

Figure 4. Distribution of 2013 CRCT mathematics scale scores for mobile students.

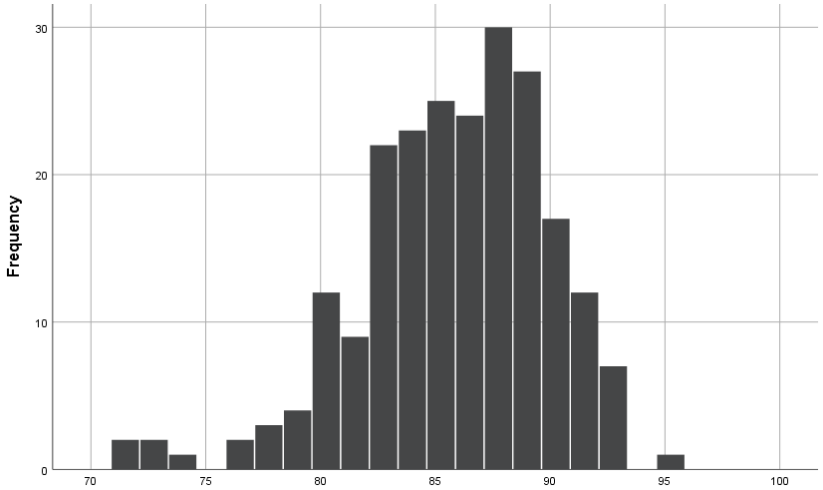

Figure 5. Distribution of GPA for nonmobile students.

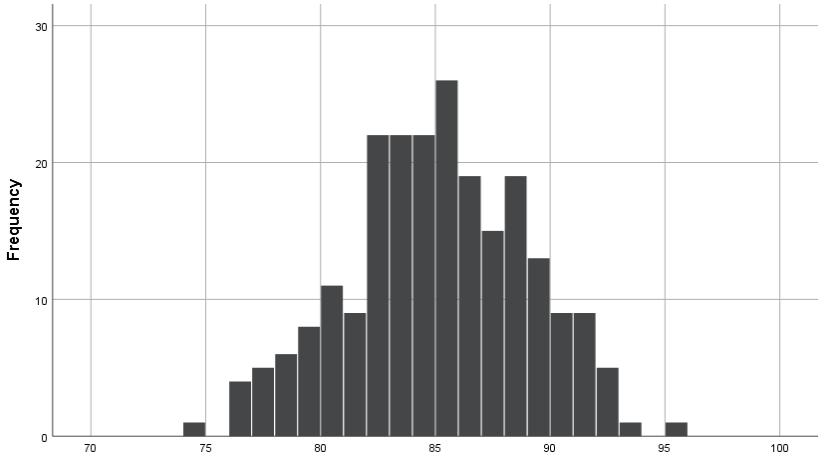

Figure 6. Distribution of GPA for mobile students.

Scatterplot matrices for mobile and nonmobile students were used to determine if the dependent variables were linearly related. The scatterplots (see *Figure 7*) show linearity is present in both groups. Multicollinearity is evaluated by the correlation among the independent variables. The independent variables should be moderately correlated, but correlations approaching .90 (Tabachnick & Fidell, 2013) are a concern

for multicollinearity. The correlations among the three achievement variables were not highly correlated (see Table 7). The assumption of equality of covariance matrices is evaluated by running a Box's M test. The Box's *M* (*M* = 5.70, *p* = .46) obtained in the MANOVA was not significant. The assumptions for MANOVA were met.

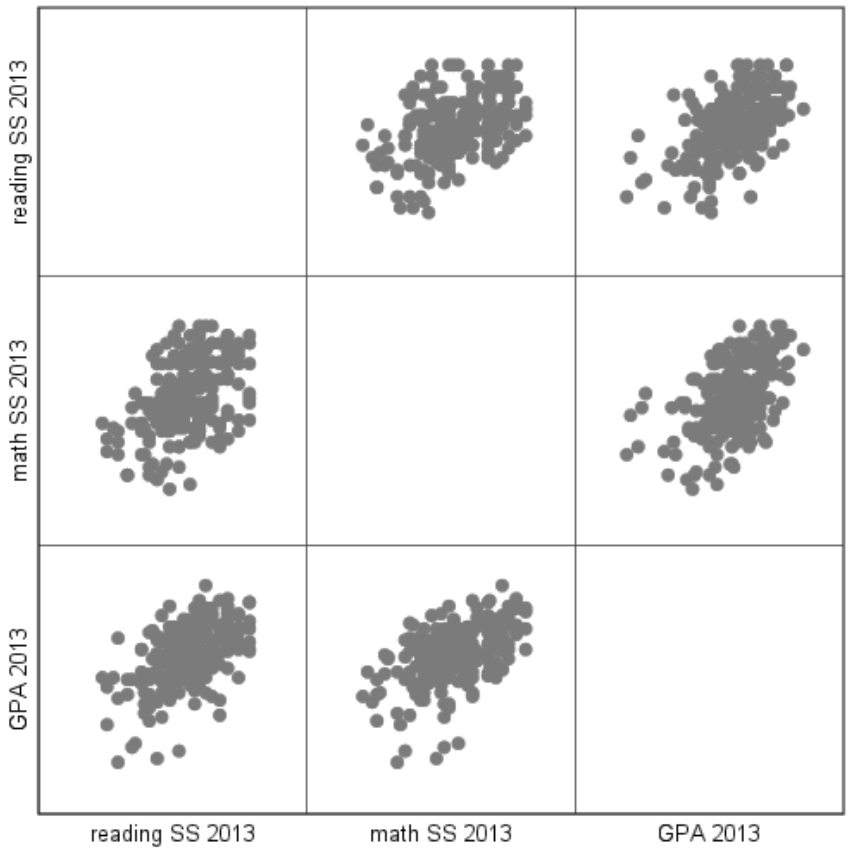

Figure 7. Scatterplots of dependent variables for nonmobile students.

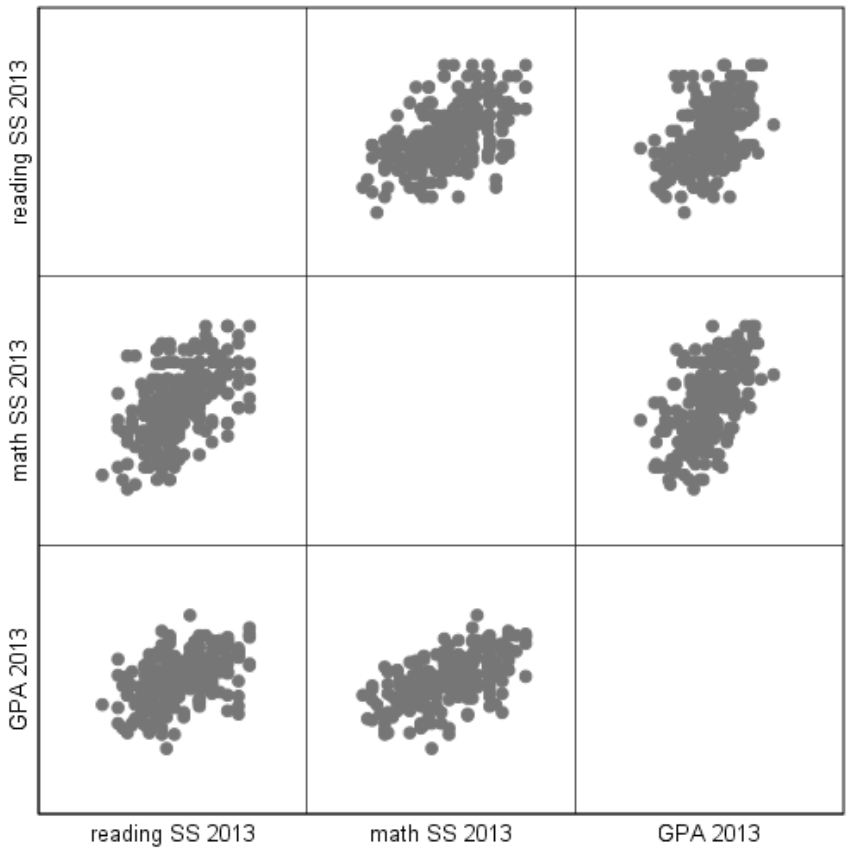

Figure 8. Scatterplots of dependent variables for mobile students.

Table 7

Correlations among Dependent Variables

Dependent Variable	2013 CRCT Reading Scale Score	2013 CRCT Mathematics Scale Score	2013 GPA
2013 CRCT Reading Scale Score	1.00		
2013 CRCT Mathematics Scale Score	.78	1	
2013 GPA	.51	.55	1

A MANOVA was used to answer research question 2. Table 8 contains the means and standard deviations of the scale scores of both groups of students. Across the board, the mobile students had lower CRCT reading and mathematics scale scores and lower GPAs than did their nonmobile counterparts.

Table 8

Means and Standard Deviations of 2013 Scale Scores by Type of Mobility

	Mobile (n = 227)		Nonmobile (n = 223)	
Achievement	*M*	*SD*	*M*	*SD*
2013 CRCT Reading Scale Score	824.07	20.35	828.98	19.34
2013 CRCT Mathematics Scale Score	825.19	23.67	828.62	23.55
2013 GPA	85.00	3.89	85.81	4.13

The results of the MANOVA indicated a significant difference between the two groups on reading and grade-point average (see Table 9). Although nonmobile students scored significantly higher than did mobile students, the effect sizes (Cohen's *d*) were small. The null hypotheses for research question 2 were rejected for two of the achievement scores: reading and GPA.

Table 9

Achievement Differences by Type of Mobility

Test	*F*	*p*	Cohen's *d*
Multivariate			
Wilk's Lambda	2.59	.05	
Univariate			
2013 CRCT Reading Scale Score	6.88	<.01	.25
2013 CRCT Mathematics Scale Score	2.37	.12	.15
2013 GPA	4.57	.03	.20

The scale scores of the reading and mathematics CRCT tests were broken into categories based on whether the students *failed to meet*, *met,* or *exceeded* the standards tested. Tables 10 and 11 contain the results of two chi-square analyses to determine if reading or math level was dependent on student mobility. There were no significant differences in the percentage of mobile and nonmobile students in their performance level on the reading, $\chi^2(1) = 1.91$, $p = .39$, or math, $\chi^2(1) = 5.04$, $p = .08$.

Table 10

CRCT Mathematics Performance Levels

	Mobile (n = 227)		Nonmobile (n = 223)		Total Group (n = 450)	
Performance Status	*n*	*%*	*n*	*%*	*n*	*%*
Did not meet standard	19	8.5	31	13.7	50	11.1
Met standard	141	63.2	148	65.2	289	64.2
Exceeded standard	63	28.3	48	21.1	111	24.7

Table 11

CRCT Reading Performance Levels

	Mobile (*n* = 227)		Nonmobile (*n* = 223)		Total Group (*n* = 450)	
Performance Status	*n*	*%*	*n*	*%*	*n*	*%*
Did not meet standard	12	5.4	19	8.4	31	6.9
Met standard	173	77.6	175	77.1	348	77.3
Exceeded standard	38	17.0	33	14.5	71	15.8

Research Question 3

The third research question was: Is there a significant difference in the scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school? The following hypotheses applied to the third research question:

$H_0$3a: There is no significant difference in the CRCT mathematics scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$3b: There is no significant difference in the CRCT reading scale scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$3c: There is no significant difference in the grade-point averages of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

The subset of mobile students who transferred to a lower-performing school (n = 27) and those students who transferred to a higher-performing school (n = 79) was examined for violations to the same assumptions of MANOVA as presented in research question 2. The distributions of the achievement variables for these two groups of students were normal, with skewness and kurtosis values ranging between -1.12 and 1.10 in each group. Additional assumptions of the MANOVA were examined. No cases were found with Mahalanobis Distances greater than 9.628; therefore, no multivariate outliers were found.

Scatterplot matrices for each group were used to determine if the dependent variables were linearly related. The scatterplots (see *Figure 8*) show linearity is present in both groups. Multicollinearity (or its absence) is evaluated by the correlation among the independent variables. The correlations among the three achievement variables were not highly correlated (correlations ranged from r = .41 to r = .55). The Box's M (M = 1.62, p = .96) obtained in the MANOVA was not significant. The assumptions for MANOVA were met.

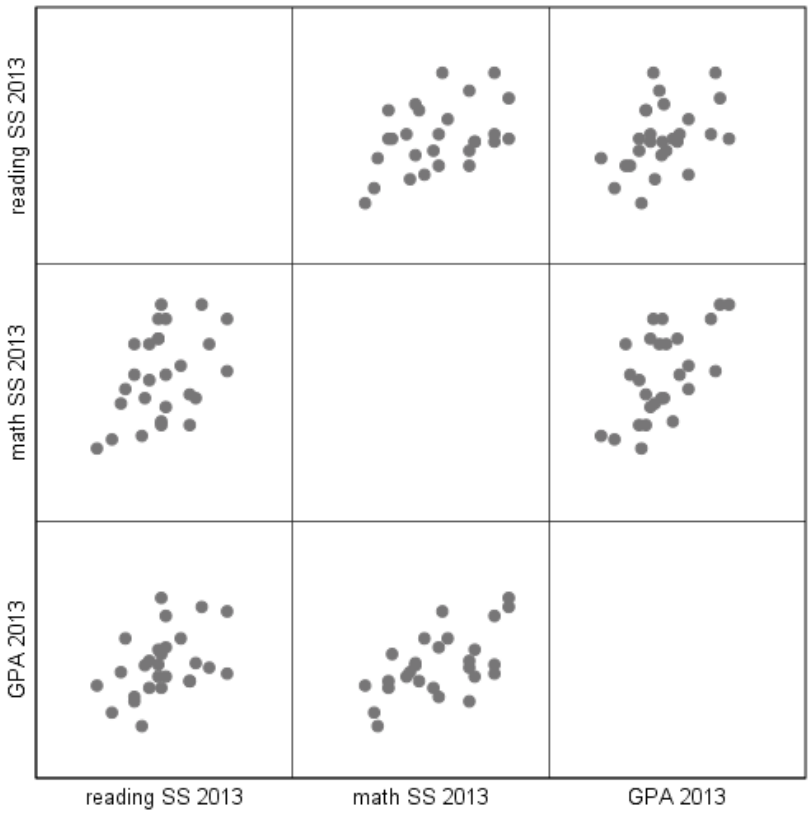

Figure 9. Scatterplots of dependent variables for mobile students' transfer to lower-performing school.

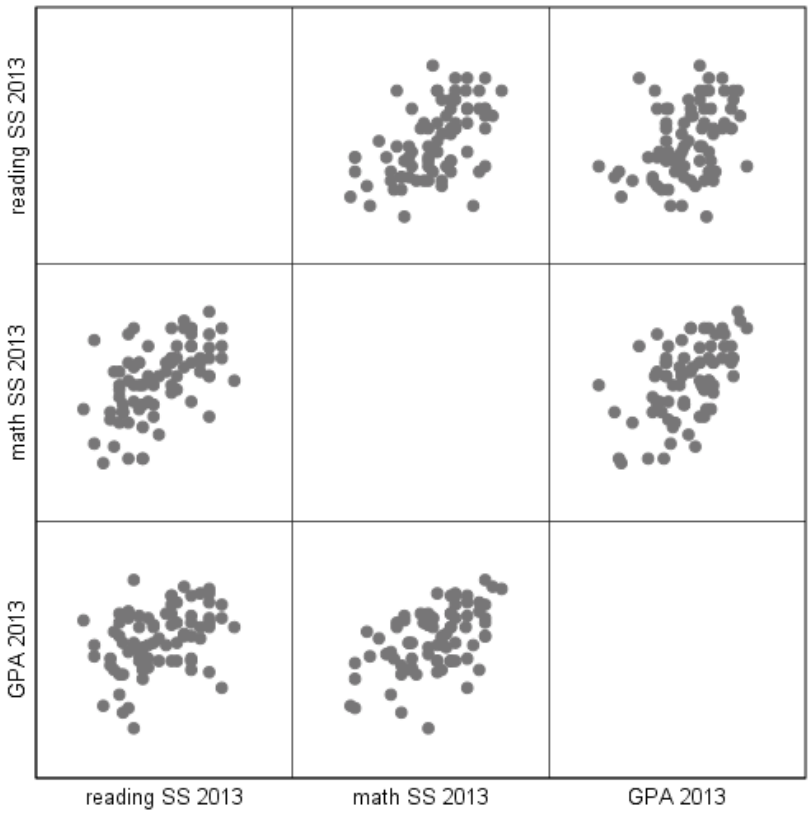

Figure 10. Scatterplots of dependent variables for mobile students' transfer to higher-performing school.

A MANOVA was used to answer research question 3. Table 12 contains the means and standard deviations of the achievement scores of both groups of students. The results of the MANOVA showed significant differences between the two groups on at least one achievement score (see Table 13), indicating that mobile students who moved to lower-performing schools scored differently than those mobile students who moved to higher-performing schools. The univariate tests showed that mobile students who moved to lower-performing schools had significantly lower GPAs than those mobile students who moved to higher-performing schools. The null hypothesis for grade-point average was rejected for research question 3.

Table 12

Means and Standard Deviations of 2013 CRCT Scale Scores of Mobile Students Transferring from High- to Low-Performing Schools or Vice Versa

	Mobile student moving to lower-performing school (n = 27)		Mobile student moving to higher-performing school (n = 79)	
Achievement	*M*	*SD*	*M*	*SD*
2013 CRCT Reading Scale Score	818.78	21.82	826.85	19.95
2013 CRCT Mathematics Scale Score	819.78	24.11	828.63	23.94
2013 GPA	83.35	3.51	86.15	3.46

Table 13

Achievement Differences of Mobile Students Transferring from High- to Low-Performing Schools or Vice Versa

Test	*F*	*p*	Cohen's *d*
Multivariate			
Wilk's Lambda	4.45	<.01	
Univariate			
2013 reading scale score	3.14	.08	.39
2013 mathematics scale score	2.74	.10	.33
2013 GPA	13.13	< .01	.80

The scale scores of the CRCT reading and mathematics sections were broken into categories based on whether the students *failed to meet*, *met*, or *exceeded* the standards

tested. Tables 14 and 15 contain the results of two chi-square analyses to determine if the reading or math level was dependent on whether students moved to a lower-performing or higher-performing school. There were no significant differences in the percentage of the two groups in their performance level on the reading, $\chi^2(1) = 2.59$, $p = .27$, or math, $\chi^2(1) = 3.10$, $p = .21$, assessments.

Table 14

CRCT Mathematics Performance Levels and School Type

	Mobile student transferring to lower performing school (n = 27)		Mobile student transferring to higher performing school (n = 79)		Total Group (n = 106)	
Performance Status	*n*	*%*	*n*	*%*	*n*	*%*
Did not meet standard	4	14.8	4	5.1	8	7.5
Met standard	20	74.1	61	77.2	81	76.4
Exceeded standard	3	11.1	14	17.7	17	16.0

Table 15

CRCT Reading Performance Levels and School Type

	Mobile (n = 27)		Nonmobile (n = 79)		Total group (n = 106)	
Performance Status	*n*	*%*	*n*	*%*	*n*	*%*
Did not meet standard	6	22.2	8	10.1	14	13.2
Met standard	16	59.3	53	67.1	69	65.1

Exceeded standard	5	18.5	18	22.8	23	21.7

Research Question 4

The fourth research question was: Is there a significant difference in the behavior of mobile and nonmobile fifth-grade students in a school district? The following hypotheses applied to the fourth research question:

$H_0$4a: There is no significant difference in the number of days absent of mobile and nonmobile fifth-grade students.

$H_0$4b: There is no significant difference in the number of days tardy of mobile and nonmobile fifth-grade students.

$H_0$4c: There is no significant difference in the number of discipline referrals of mobile and nonmobile fifth-grade students.

$H_0$4d: There is no significant difference in the number of days of out-of-school suspension of mobile and nonmobile fifth-grade students in one school district.

The distributions of the behavior variables were highly skewed because most of the students in both groups had no days tardy and absent and did not have any discipline referrals or days in out-of-school suspension. Because the data for these behavior variables did not meet the normality assumption of analysis of variance, a nonparametric test procedure was used instead. Mann-Whitney U (or Wilcoxon W) can be used without assuming a normal distribution. However, the assumption of independence was still

maintained. The nonparametric procedure uses the ranks of the observations to determine differences between the two groups.

The means and standard deviations of the behavior variables are presented in Table 16 and the results of the nonparametric test for each behavior variable are presented in Table 17. Mobile students had significantly more days tardy ($p = .03$) and days absent ($p < .01$) than did students who were not mobile. Two of the null hypotheses of research question 4 were rejected: number of days tardy and number of days absent.

Table 16

Means and Standard Deviations of 2013 Behavior by Type of Mobility

Achievement	Mobile ($n = 227$)		Nonmobile ($n = 223$)	
	M	*SD*	*M*	*SD*
Number of days tardy	8.04	12.92	7.54	13.02
Number of days absent	7.00	5.91	5.53	4.76
Number of discipline referrals	0.40	1.61	0.27	0.88
Number of days in out-of-school suspension	0.36	1.42	0.26	1.18

Table 17

Behavior Differences by Type of Mobility

Behavior	Mann-Whitney U	Wilcoxon W	*p*
Number of days tardy	22343.50	47319.50	.03
Number of days absent	21631.00	46607.00	< .01
Number of discipline referrals	24381.50	49357.50	.28
Number of days in out-of-school suspension	24642.50	49615.50	.38

Research Question 5

The fifth research question was: Is there a significant difference in the behavior of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school in a school district? The following hypotheses applied to the fifth research question:

$H_0$5a: There is no significant difference in the number of days absent of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5b: There is no significant difference in the number of days tardy of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5c: There is no significant difference in the number of discipline referrals of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

$H_0$5d: There is no significant difference in the number of days of out-of-school suspension of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

The distributions of the behavior variables were highly skewed because most of the mobile students in both groups had no days tardy and absent and did not have any discipline referrals or days in out-of-school suspension. Because the data for these behavior variables did not meet the normality assumption of analysis of variance, a nonparametric test procedure was used instead. Mann-Whitney U (or Wilcoxon W) can be used without assuming a normal distribution. However, the assumption of independence was still maintained. The nonparametric procedure uses the ranks of the observations to determine differences between the two groups of mobile students.

The means and standard deviations of the behavior variables are presented in Table 18 and the results of the nonparametric test for each behavior variable are presented in Table 19. There were no significant differences between the two groups of mobile students. The null hypotheses of research question 5 were not rejected.

Table 18

Means and Standard Deviations of 2013 Behavior of Mobile Students Transferring from High- to Low-Performing Schools or Vice Versa

Behavior	Mobile student transferring to lower performing school (n = 27)		Mobile student transferring to higher performing school (n = 79)	
	M	*SD*	*M*	*SD*
Number of days tardy	5.59	6.04	8.15	12.69
Number of days absent	7.30	4.26	6.38	5.87
Number of discipline referrals	0.26	0.71	0.25	.81
Number of days in out-of-school suspension	0.41	1.58	0.29	1.15

Table 19

Behavior Differences of Mobile Students Transferring from High- to Low-Performing Schools or Vice Versa

Behavior	Mann-Whitney U	Wilcoxon W	*p*
Number of days tardy	1033.50	1411.50	.81
Number of days absent	822.00	3982.00	.08
Number of discipline referrals	1055.00	4215.00	.89
Number of days in out-of-school suspension	1053.50	4213.00	.86

Summary

The enrollment, achievement, and behavior data of 450 fifth-grade students were used to determine if achievement and behavioral differences were found between mobile

and nonmobile students. Descriptive statistics were used to describe the students in each group. Students receiving free lunch were more likely to be mobile than nonmobile students were. Students who did not receive a free and reduced lunch were more than twice as likely to be in the nonmobile group as in the mobile group. Although no significant statistically ethnic differences were found ($\chi 2$ (1) = 7.69, p = .07), a larger percentage of Black students (82%) were in the mobile group than the number of Black students or students of other ethnicities in the nonmobile group (75%). More than half of the mobile and nonmobile students were females. A large majority of mobile students moved to a school of comparable performance to their previous school. Fewer than 10% of mobile students moved to a lower performing school, and 13% moved to a higher performing school.

A significant difference was found between the mobile and nonmobile students in reading and grade-point average. In both instances, mobile students scored lower than nonmobile students did. Mobile students had significantly more days tardy and days absent than did students who were not mobile. Additional analyses were conducted to determine if achievement and behavioral differences were found between mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school. Mobile students who moved to lower-performing schools had significantly lower GPAs than those mobile students who moved to higher-performing schools. However, there were no significant differences in behavior between the two groups of mobile students.

Chapter 5 contains a discussion of the findings and a comparison of those results to previous research. Conclusions drawn from and implications of the results are presented. The chapter also contains recommendations for future study so other researchers may continue to deepen the body of literature as well as offer potential solutions regarding the implications of mobility on elementary students.

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

The problems experienced by mobile students, such as low academic achievement, behavior problems, absenteeism, grade retention, and a higher propensity to drop out of school in the future, gave rise to the need to conduct a research study to examine the cognitive and behavioral implications of mobility on a group of fifth-grade students, and the types of schools mobile fifth-grade students transferred from and where they enrolled at during one academic school year (Grigg, 2012; Rumberger, 2003, 2015). A sample consisted of 450 fifth-grade students enrolled in the school district's 35 elementary schools. Two groups were formed from the 450 fifth-grade students: 227 mobile students and 223 nonmobile students. Mobile and nonmobile students were matched based on enrollment, achievement, behavioral, and demographic variables. The 35 elementary schools in the district were separated into two groups (low-performing and high-performing schools) based on their 2013 College and Career Ready Performance Index (CCRPI) score. This chapter includes a summary of the study, major findings of five research questions, discussion of findings, conclusion of findings, implications, and recommendations for future research.

Summary of Study

The purpose of this study was to examine the cognitive and behavioral implications of mobility on a group of fifth-grade students in one school district in a large

metropolitan city in Georgia in 2013. Understanding the dynamics of student mobility among elementary students may provide school and district administrators with valuable information they can use to develop programs and initiatives that focus on ensuring that the curriculum and assessments are aligned at all schools within the district, whereby students who do change schools for nonpromotional reasons during the same academic year will still have academic continuity, which should lead to a solution to the problems experienced by mobile students.

Chi-square analyses were used to determine if the demographic characteristics of the students were dependent on their mobility. Multivariate analysis of variance (MANOVA) and Mann-Whitney statistical tests were used to analyze archival student and state data. The student data retrieved from the school district included demographic, enrollment and achievement data. The state data were retrieved from the Georgia Department of Education (GaDOE) website. Using the study's selection criteria and available demographic, enrollment, achievement, and behavioral data, fourth- and fifth-grade students who switched schools at least once during the year or over the summer break were selected. The researcher identified 2,195 students: 1,906 nonmobile students and 289 mobile students. A random selection of the number of nonmobile students was reduced to 289 by using the sampling procedure in SPSS. The records of the 578 students (289 mobile students and 289 nonmobile students) contained school year, grade level, race, sex, eligibility for school lunch program, student number, state assessment test date, number of days absent, number of days tardy, number of discipline referrals, number of days suspended, CRCT reading and math scores, and quarterly GPAs.

The data were screened to determine if the variables of interest met the assumptions of the statistical tests used to answer each of the five research questions. The student's fifth-grade CRCT reading and mathematics scale scores above 880 or below 765 were considered outliers and removed. After the outliers were removed, the distributions of the mobile and nonmobile student's achievement data were normal. The remaining dataset contained 227 mobile and 223 nonmobile students. The researcher downloaded 2012 and 2013 CCRPI scores for each elementary school in the district from the GaDOE public website. The CCRPI scores for all elementary scores in the district ranged from 50 to 93. The researcher removed the name of each elementary school assigned each a number between 1 and 35.

Five research questions guided the research study. Descriptive statistics were used to answer research question 1, which described the type of elementary schools fifth-grade mobile students transferred from and to in one school district. A MANOVA test was used to answer research questions 2 and 3. Research question 2 asked if there was a significant difference in the CRCT scale scores of mobile and nonmobile fifth-grade students. The null hypotheses for research question 2 were: (a) there is no significant difference in the mathematics scale scores of mobile and nonmobile fifth-grade students; (b) there is no significant difference in the reading achievement scores of mobile and nonmobile fifth-grade students; and (c) there is no significant difference in the grade-point averages of mobile and nonmobile fifth-grade students. Research question 3 asked if there was a significant difference in the achievement scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who

transfer to a high-performing school. The null hypotheses for research question 3 were: (a) there is no significant difference in mathematics achievement scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school; (b) there is no significant difference in the reading achievement scores of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school; and (c) there is no significant difference in the grade-point averages of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school.

A Mann-Whitney test was used to answer research questions 4 and 5. Research question 4 asked if there was a significant difference in the behavior of mobile and nonmobile fifth-grade students in one school district. The null hypotheses for research question 4 were: (a) there is no significant difference in the number of days absent of mobile and nonmobile fifth-grade students; (b) there is no significant difference in the number of days tardy of mobile and nonmobile fifth-grade students; (c) there is no significant difference in the numbers of discipline referrals of mobile and nonmobile fifth-grade students; and (d) there is no significant difference in the number of days of out-of-school suspension of mobile and nonmobile fifth-grade students in one school district. Lastly, research question 5 asked if there was a significant difference in the behavior of mobile fifth-grade students who transfer to a low-performing school and mobile students fifth-grade students who transfer to a high-performing school in one school district. The null hypotheses for research question 5 were (a) there is no

significant difference in days absent of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school; (b) there is no significant difference in days tardy of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school; (c) there is no significant difference in discipline referrals of mobile fifth-grade students who transfer to a low-performing school and mobile fifth-grade students who transfer to a high-performing school; and (d) there is no significant difference in days out-of-school suspension of mobile fifth grade students who transfer to a low-performing school and mobile fifth grade students who transfer to a high-performing.

Summary of Major Findings

The foci of the study included mobility, student achievement, student behavior, and types of schools. The first focus of the study was to determine types of schools mobile fifth-grade students transferred from and to in one school district. The second focus of the study was to determine whether mobility had a statistically significant difference in the achievement and behavior of fifth-grade students. The third and last focus of the study was to determine whether there was a statistically significant difference in achievement and behavior according to the type of school (low-performing or high-performing) to or from which mobile fifth-grade students transferred.

Before discussing the results of the study foci, the demographic characteristics of students in the sample were analyzed to determine if mobility was dependent on student demographics. When considering the demographic characteristics of students included in

the study, there were 450 fifth-grade students separated into two groups: 248 were female (mobile = 128 and nonmobile = 120), and the other 202 students were male (mobile = 99 and nonmobile = 103), and findings showed that mobility was not dependent on gender. However, mobility was found to be dependent on socioeconomic status for students receiving free or reduced lunch, in that 88% of the mobile students in the study received free lunch as compared to only 79% of nonmobile students who received free lunch. Likewise, students who did not receive a free or reduced lunch were more than twice as likely to be in the nonmobile group (14%) than in the mobile group (6%). Finally, when discussing the demographic characteristics of students in the study, mobility was not dependent on ethnicity, although a larger percentage of Black students (82%) were in the mobile group than in the nonmobile group (75%).

The first focus of the study was to determine the types of schools mobile fifth-grade students transferred from and to in one school district, which required an analysis of CCRPI scores. Based on the 2013 CCRPI of the 35 elementary schools in the study, results showed that 53.3% of mobile students moved to a school with a comparable performance score of their previous school. In addition, almost three times as many mobile students moved to a higher performing school (34.8%) than did those who moved to a lower performing school (11.9%).

The second focus of the study was to determine whether mobility had a statistically significant difference in the achievement and behavior of fifth-grade students. To determine if there was a statistically significant difference in the achievement of mobile and nonmobile fifth-grade students, the CRCT reading and mathematics scale

scores and GPAs were examined. Overall, mobile students had lower CRCT reading and math scale scores and lower GPAs than did their nonmobile counterparts. The results indicated a significant difference between mobile and nonmobile students in reading on the CRCT and GPA. Even though nonmobile students scored significantly higher than did mobile students in reading on the CRCT and GPA, the effect sizes were small; therefore, the null hypotheses for research question 2 were rejected for two of the achievement scores: reading and GPA.

To ascertain whether there was a significant difference in the behavior of mobile fifth-grade students, the number of days tardy, the number of discipline referrals, and the number of days of out-of-school suspension were analyzed. As a result, mobile students were found to have significantly more days tardy ($p = .03$) and days absent ($p < .01$) than did students who were not mobile. Nevertheless, it is noted that behavior variables were highly skewed because most of the students in both groups had no days tardy and absent and did not have any discipline referrals or days in out-of-school suspension. Two of the null hypotheses of research question 4 were rejected: number of days tardy and number of days absent. In contrast, there were no significant differences in behavior between mobile students who attended either a low-performing or high-performing school. Like the behavior variables in research question 4, behavior variables in research question 5 were also highly skewed because most of the students in both groups had no days tardy and absent and did not have any discipline referrals or days in out-of-school suspension. Consequently, the null hypotheses of research question 5 were not rejected.

The third and last focus of the study was to determine whether there was a statistically significant difference on achievement according to the type of school (low-performing or high-performing) to or from which mobile fifth-grade students transferred. First, results indicated that there were no significant differences in the percentage of the two groups in their performance level on the 2013 CRCT reading and mathematics scale scores. Nevertheless, results did show that mobile students who moved to lower-performing schools had significantly lower GPAs than mobile students who moved to higher-performing schools. Thus, the null hypothesis for grade-point average was rejected for research question 3.

Discussion of Findings

The purpose of this study was to examine the cognitive and behavioral implications of mobility on a group of fifth-grade students. Research findings from the study have been found in previous research studies conducted on the implications of student mobility on achievement and behavior. Even so,results from the study will add to the research on the types of schools (low-performing schools or high-performing schools) mobile students transfer to and from and the differences in their achievement and behaviors at these schools. As revealed in the review of literature, mobile students are more often to be African American, and they have lower achievement, lower attendance, higher discipline infractions, a lower socioeconomic status, and they attend lower-performing schools as compared to nonmobile students of other ethnicities.

Theodos, Coulton, and Budde (2014) suggested that students from low-income families withdraw from a low-performing school and subsequently transfer to a low-

performing school. Similarly, Rothwell (2012) discovered that low-income mobile students attended low-performing schools and higher-income students usually attended high-performing schools. Gibbons and Telhaj (2011) and Burdick-Will et al. (2010) suggested low-performing schools typically have a higher number of mobile students as compared to high-performing schools that generally have a low number of mobile students. Student mobility is a significant problem in the United States, especially for at-risk low-income students who transfer to a low-performing school (Friedman-Krauss & Raver, 2015). Herbers, Reynolds, and Chen (2012) indicated that at-risk students had a higher propensity to experience challenges with achievement and behavior when switching schools during the school year.

Students changing schools for nonpromotional reasons—whether the change was voluntary (to attend a better school, parents obtain better employment or family moves to a better neighborhood) or involuntary (expulsion, school closes, or attendance zone changes)—tend to experience more problems in school. These problems include low test scores, a higher likelihood of not graduating high school, and difficulties with the curriculum and pacing at their new school as compared to nonmobile students (Miller, 2011; National Research Council & Institute of Medicine, 2010; Obradović et al., 2009; Rumberger, 2016; Samuels, Shinn, & Buckner, 2010). Researchers have overwhelmingly mentioned that the mobility of African American and Hispanic students was three times that experienced by Caucasian students (Cutuli et al., 2013; Eadie, Eisner, Miller, & Wolf, 2013; Parke & Kanyongo, 2012). In a study conducted by the National Research Council and Institute of Medicine, researchers found that 61% of low-

income African American and Hispanic students in the Florida during the 2007-2008 school year moved more than one time compared to 33% of Caucasian students who moved during the same school year (National Research Council and Institute of Medicine, 2010). Wray (2010) highlighted how student mobility has contributed to the long-standing achievement gap between African American students and Caucasian and Asian students that continues to widen. Additionally, African American students were found to have an attendance rate of 90.8% compared to 96.7% for nonmobile students (Herbers et al., 2012). In this same study, mobile students received low reading and mathematics assessment results in third through eighth grade compared to nonmobile students on state assessments (2012). Parke and Kanyongo (2012) similarly cited attendance as an issue associated with mobility, in that mobile students had more days absent than did nonmobile students, and mobile students had lower achievement scores on state reading and math assessments compared to nonmobile students. Additional research on student behaviors revealed that mobility did have a positive effect on student achievement and behavior, resulting in mobile students being suspended 50% of the time compared to nonmobile students, and three times more likely to perform poorly on assignments and assessments in an English language arts class compared to nonmobile students (Boon, 201; Engec, 2006).

Results from the present research study are inconsistent with findings from previous research studies in that 34.8% of mobile students moved to a higher-performing school than their previous school, compared to 11.9% of mobile students who moved to a lower-performing school than their previous school. These results are contrary to

previous research studies that found that mobile students typically moved to low-performing schools instead of high-performing schools. Thus, the percent of mobile students who moved to a school with comparable performance of their previous school could result in the percent of students moving to a lower-performing or higher-performing school being higher or lower than the percent currently presented in the findings.

Additionally, the researcher did not have a large enough sample of students in the mobile group, and all 35 elementary schools in the study were in one school district, and consequently, findings cannot be generalized for all mobile students or elementary schools. Possibly, a larger sample of mobile students from at least three school districts comparable in size and students' demographics could have yielded entirely different findings.

Conclusions

The research study was guided by content coverage, which is one construct of Stevens' opportunity to learn (OTL) framework that focuses on utilizing data to improve the academic achievement of minority and low-income students. Stevens (1996) suggested that teachers and school principals are responsible for providing students with opportunities to learn. Opportunities for students to learn is directly related to how well teachers and school principals apply the four constructs of the OTL framework; content coverage, content exposure, content emphasis, and quality of instructional delivery. Failure for teachers and school principals to not use the OTL framework to close the achievement gap between African American and students of different ethnicities will

result in minority and low-income students continuing to experience poor academic outcomes and schools continuing business as usual by accepting school performance results that are low and problematic for all stakeholders.

The findings of the research study show that mobile students scored lower on the reading CRCT and earned lower GPAs than nonmobile students. Additionally, mobile students who moved to lower performing schools had significantly lower GPAs than those mobile students who moved to higher performing schools. Students receiving free lunch were more likely to be mobile than nonmobile, and a higher percentage of Black students were in the mobile group than in the nonmobile group. In addition, 53.3% of mobile students moved to a school of comparable performance to their previous school, 11.9% of mobile students moved to a lower-performing school, and 34.8% of mobile students moved to a higher-performing school.

Implications

The mission of any school is to ensure that all students are academically successful and prepared for college or careers. School principals are chiefly responsible for supporting a school culture and climate that sets the expectations for teachers to give rigorous instruction, which should improve learning outcomes for all students (Williamson & Blackburn, 2010). Leithwood, Seashore, Anderson, and Wahlstrom (2004) argued that effective teachers are paramount in laying a successful pathway for students to obtain high academic achievement in the classroom, while school principals, second to teachers in fostering increased student academic achievement, monitor and support teachers to ensure quality instruction takes place all the time.

However, for over three decades, students who transfer during the academic school year, also known as mobile students, have posed a problem for school principals focused on closing the achievement gap (Ingersoll, Scamman, & Eckerling, 1989). It should be noted that researchers have found that poverty, living conditions, family composition, mental, developmental, and social deficiencies are some challenges that are beyond the control of school administrators but have been associated with causing low academic achievement among mobile students (Miller, 2011; National Research Council & Institute of Medicine, 2010; Obradović et al., 2009; Samuels et al., 2010). Rumberger (2015) suggested that school principals who seek to reduce the number of students who are highly mobile should simply focus on one action: "improving the overall quality of the school . . . and schools undertaking meaningful reforms can dramatically reduce their student mobility rate" (p. 11). Therefore, school leaders can use results from this study to help identify students at their school who are mobile and provide them with targeted instructional support to ensure they have an equal opportunity to learn and achieve high levels of academic success regardless of their socioeconomic status or ethnicity.

Recommendations for Future Research

Researchers interested in conducting a research study in the future like this study, which examined the cognitive and behavioral implications of achievement on mobile fifth-grade students in a metropolitan city in the United States, as well as whether mobile fifth-grade students transferred to and from either a low-performing or high-performing school, must interview teachers, school principals, and students identified as mobile to

better understand how the confounding variables that are associated with mobility that affect student achievement and behavior.

The following six recommendations should be considered for future research. Firstly, future researchers should consider conducting a quantitative study to determine if there is a relationship between the content knowledge, years of experience, and educational attainment of teachers and the achievement and behavior implications of mobility for elementary school students in an urban school district. Information gleaned from the research can help determine if there is a relationship between the content knowledge, years of experience, and educational attainment of teachers and the achievement and behavior implications of mobility for elementary school students in an urban school district. Moreover, the data from the suggested study can help educational leaders determine the best use of human resources, instructional programs, and appropriate class assignments for students.

Secondly, future researchers should determine if there is a relationship between mobility and the achievement scores of fourth and eighth-grade students on the National Assessment of Educational Progress (NAEP) reading and mathematics assessments of students who attend public schools in states located in the southeastern United States. Unlike state assessments that measure student achievement and growth on state-specific standards, NAEP provides stakeholders with a state-by-state or national comparison of student achievement on the reading and mathematics assessments. The current study utilized scale scores in reading and mathematics from the Criterion-Referenced

Competency Tests (CRCT), which only compared student achievement of state standards and curriculum among students in the state of Georgia.

Thirdly, future researchers should consider conducting a study in at least three school districts with a 20% or greater student mobility rate. This suggested recommendation should increase the sample size of schools, mobile students, and nonmobile students in the research study and lead to more sizeable results in school performance, student cognition, and student behavior.

Moreover, future researchers should consider examining the difference between the perceptions of teachers, school administrators, and students on the quality of instructional delivery and the achievement of students who attend a low-performing or high-performing high school with a school mobility rate equal to or higher than the state's mean or average and located in an urban school district. Using one of the four opportunity to learn constructs, which is quality of instructional delivery, as the theoretical framework should provide school staff and stakeholders with critical information to explain how teachers teach, how school principals monitor and support teaching, and how students develop the attitudes of learning that as a result of their experience attending school.

Additionally, future researchers should determine if there is a relationship between the academic achievement of military dependent students who attend public elementary schools and military dependent students who attend elementary schools in the U.S. Department of Defense Education Activity (DoDEA), Domestic Dependent Elementary and Secondary Schools (DDESS). Students who attend DoDEA Schools and

are highly mobile perform better on the reading and mathematics NAEP assessments than nonmilitary students. Data from the study should determine whether the current structure and supports available to military dependent students in DoDEA schools are the same or different from the structure and support of military dependent students who attend public elementary schools.

Lastly, future researchers should consider expanding the study to determine if there are differences in the graduation rates between mobile and nonmobile students who attend a low-performing and high-mobility high school.

Final Thoughts

The purpose of this study was to examine the cognitive and behavioral implications of mobility on fifth-grade students in one school district in a metropolitan city. There were 35 elementary schools and 450 fifth-grade students included in the study. Study results and conclusions will deepen the body of knowledge of the literature on the cognitive and behavioral consequences of mobility on elementary students as well as whether the type of school mobile students attend influences their academic achievement and behavior. Data analysis did not show a significant difference between the ethnicity of mobile and nonmobile students. However, there was a higher percentage of African American students in the mobile than in the nonmobile group. Data analysis further revealed that a large number of mobile students transferred to a school of comparable performance to their previous school. Additionally, there was no significant difference in behavior between mobile students who transferred to either a low-performing or high-performing school. In contrast to there being no significant

differences in the ethnicity of mobile and nonmobile students and the behavior of mobile students at low-performing and high-performing schools, the data did find a significant difference between mobile and nonmobile students' CRCT reading scale scores and grade-point average. Furthermore, there were significant differences found between mobile and nonmobile number of days tardy and the number of days absent. Moreover, the data analysis revealed that mobile students had lower CRCT reading scale scores and grade-point averages than did nonmobile students.

There are some potential solutions regarding the consequences of mobility not only for elementary students, but also for nonmobile students, teacher, and school principals. The current research study suggests that future researchers consider examining the relationship between the content knowledge and instructional practices of teachers with one to three years of experience and the implications of achievement and behavior on mobile elementary school students in an affluent school district. Additional research could also focus exclusively on mobility and state assessments, as well as the perceptions of teachers, school principals, and students on the instructional program at their school using the opportunity to learn framework as a rubric to determine alignment between teacher pedagogy, curriculum, and instruction.

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APPENDICES

APPENDIX A

IRB APPROVAL

MERCER UNIVERSITY

Institutional Review Board
For Research Involving Human Subjects

Wednesday, April 18, 2018

Mr. Wayne Franklin Clayton
3001 Mercer University Drive
Educational Leadership
Atlanta, GA 30341

RE: Differences In Student Achievement for Mobile Students In Low-Performing and High-Performing Schools (H1804100)

Dear Mr. Clayton:

On behalf of Mercer University's Institutional Review Board for Human Subjects Research, your application submitted on 13-Apr-2018 for the above referenced protocol was reviewed in accordance with Federal Regulations 21 CFR 56.110(b) and 45 CFR 46.110(b) (for expedited review) and was approved under category(ies) 05 per 63 FR 60364.

Your application was approved for one year of study on 18-Apr-2018. The protocol expires on 17-Apr-2019. If the study continues beyond one year, it must be re-evaluated by the IRB Committee.

Item(s) Approved:
New student application for a quantitative ex-post facto research study design using data from the targeted state's criterion-referenced assessment for various school years to examine the difference of mobile student's post-move academic achievement and attendance and the school performance scores of low-performing, high-performing, or comparable performing public elementary schools that mobile students transferred to in the target state from 2010-2013. Approved with a waiver of informed consent.

NOTE: You **MUST** report to the committee when the protocol is initiated. Report to the Committee immediately any changes in the protocol or consent form and **ALL** accidents, injuries, and serious or unexpected adverse events that occur to your subjects as a result of this study.

We at the IRB and the Office of Research Compliance are dedicated to providing the best service to our research community. As one of our investigators, we value your feedback and ask that you please take a moment to complete our Satisfaction Survey and help us to improve the quality of our service.

It has been a pleasure working with you and we wish you much success with your project! If you need any further assistance, please feel free to contact our office.

Respectfully.

Ava Chambliss-Richardson, Ph.D., CIP, CIM.
Associate Director of Human Research Protection Programs (HRPP)
Member
Institutional Review Board

"Mercer University has adopted and agrees to conduct its clinical research studies in accordance with the International Conference on Harmonization's (ICH) Guidelines for Good Clinical Practice."

APPENDIX B

DATA SET PERMISSION

The following is a statement from National Center for Education Statistics, National Assessment of Educational Progress website, https://www.nationsreportcard.gov/ndecore/xplore/nde:

The NAEP Data Explorer provides national and state results for all main subject areas assessed, including mathematics, reading, writing, and science. Results have been produced for the nation and participating states and other jurisdictions since 1990, and for selected urban districts (on a trial basis) since 2002.

After briefly defining your criteria, you can view tables, run statistical tests, and create charts or other materials. The materials you create are available for export, and your reports can be saved, copied, and shared with others. Log-in or sign-up to experience all the features of saving and sharing your reports.