IDENTIFYING AT RISK MOBILE STUDENTS FOR ACADEMIC FAILURE

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Identifying At risk Mobile Students for Academic Failure

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ABSTRACT

Katie A. Thompson. IDENTIFYING AT RISK MOBILE STUDENTS FOR ACADEMIC FAILURE. Under the direction of Judy Shoemaker, Ed.D School of Education, February 2011.

Student mobility can be described as movement from one school to another for any reason beyond grade promotion. Student mobility affects many areas of student learning. The causes of student mobility include disadvantages within the family unit, student behavior issues, and complicated school district initiatives. Research shows that student mobility issues affect all demographical areas; however, low-socioeconomic, urban areas have the highest percentage rate of movement. Student mobility negatively impacts student achievement in the areas of academics, social adjustment, and psychological well being. Although there is no overall solution to the mobility crisis, there are many strategies that can be implemented that will help decrease the number of transient students. The purpose of this study is create and utilize a predictive regression model in order to predict Criterion Reference Competency Test (CRCT) reading scores for at risk mobile students. Intense analysis of a valid prediction model by concentrated stakeholder collaboration can start a school district on a more successful path of addressing student mobility.

Key Words: predictive regression model, at-risk students, student mobility, family structure, academic achievement, student behavior, academic failure, socioeconomic status, social capital theory

Dedication

I dedicate this paper to my husband, Brad, who has provided me with love and support throughout this entire process, and to my parents who have always taught me that "I can do all things through Christ who strengthens me." Philippians 4:13

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CHAPTER ONE: INTRODUCTION TO THE STUDY

Student mobility, also known as student transiency, has been known to have negative consequences for academic and social development in the educational setting. According to Rumberger (1999), most students make one or more non-promotional school changes during their elementary and secondary careers. Mobility has been recognized in the educational arena as an impediment to educational growth (Rumberger, 2003**)**. A student's school attendance has been seen as a key factor in the effectiveness of the overall academic success of the student (Durante, Fisher, Matthews, Nakagawa, & Stafford, 2002; Kerbow, 1996; Reynolds & Temple, 1999). Research revealed that students who transfer schools have more academic, social, and behavioral issues than those students who do not transfer schools (General Accounting Office, 1994; Kirkpatrick & Lash, 1990).

There are various causes of student mobility, and with each cause there is no concrete solution. Since there is no way to end mobility, schools must examine ways to identify at risk students and support them academically. Student mobility has an adverse impact on the academic success of the mobile students. Reynolds and Temple (1999) stated that mobility disrupts the learning environment due to differences in curriculum mapping and school climate. The social, emotional, and psychological well being of our school students is at risk as well. Fowler and Simpson (1994) found that mobile students who moved three or more times are more likely to have emotional issues and behavior problems at school.

Rumberger (2002) discussed and stressed the consequences of student mobility; however, identifying its causes is equally important. Noteworthy, is the current economic

decline of our country and its future impact on these "students on the move." Unemployment, homelessness, and immigration are affecting the educating development of our students (Rumberger, 2002). Stakeholders at all educational levels, district, state, national, must aggressively collaborate and meticulously plan in order to successfully attack and correct this problem. Student mobility is a contributor to academic failure, behavior issues, and dropouts (Durante, Fisher, Matthews, Nakagawa, & Stafford, 2002).

Low socioeconomic status seems to be a characteristic to both residential mobility and school mobility for students. Mao, Mellar, & Whitsett (1998) stated that residential mobility of families is a key factor in the mobility of students. If families are forced to move, then the children will have to change schools. Consequently, frequent family relocations negatively impact student learning (Mao, Mellar, & Whitsett, 1998).

In addition to socioeconomic status, the structure of the family can contribute to mobility. Those students who live with two parents are often less mobile; however, if they are mobile, they are less likely to be affected academically and socially (Larson, Palardy, Ream, & Rumberger, 1999)

This study extended previous research by incorporating the demographic, academic, and social characteristics to identify academically at risk students. By creating a predictive model, administrators will be able to identify these students quicker. Once these mobile students are identified as "at risk", the administrators and teachers have the opportunity to implement interventions to help these students succeed academically and socially.

Statement of the Problem

The problem is mobile students demonstrate lower academic achievement and higher rates of behavior problems than the general school population. Mao et al. (1998)

found that students who are economically disadvantaged have higher mobility rates than those students who are not mobile. In their study, they found that 60% of students who were economically disadvantaged moved during the 1994-95 school year (Mao et al., 1998). Families in low-income homes often change residences due to lack of monthly funds, thus causing the children to change schools midyear. These frequent school changes were found to cause an increase in negative social behavior and a decrease in academic achievement in the school setting (Kirkpatrick & Lash, 1990).

There are factors that contribute to student mobility during the academic school year; for example, low-income housing, an unstable home life, academic failure, and behavior problems (Kirkpatrick & Lash, 1990). Student mobility varies among students, races, schools, and districts, but is often found in districts that have a high population of minority student populations (Rumberger, 2003). These students often experience problems adjusting to their new school environment. These mobile students do not experience the continuity of the curriculum and socialization process; hence, these students suffer academically, socially, and psychologically (Larson, Palardy, & Rumberger, 2003).

As for the negative impact of student mobility on academic achievement, each relocation causes students to miss classroom instruction (Rumberger, 2003). The adjustment period of a new school can cause mobile students to fall further behind in their academic work.

In addition to academic failure, psychological and behavioral issues are often found in mobile students. Fowler and Simpson (1994) found that students who move three or more times are prone to having emotional and behavioral problems Sanderson (2003) found through teacher interviews that mobile students have a negative attitude

regarding their frequent moves. These feelings can be a manifestation of losing their previous friends and having to adjust to their new environment (Fowler & Simpson, 1994).

Purpose Statement

The purpose of this study was to indentify mobile students who are at risk for academic failure. This was accomplished through the creation and utilization of a predictive regression model. Germane to the identification of at risk students is the difficulty schools have obtaining student records. This delay in identification often causes an interruption in the academic achievement of mobile students and could result in academic failure. With the utilization of a valid predictive model, administrators and teachers have the opportunity to identify which mobile students could be at risk academically. Once the administrators have identified these students as at risk, they will be able to help implement the requisite interventions to help them succeed academically.

Significance of the Study

The overall educational success of a student comes from a consistent, solid academic foundation. When students are frequently mobile, their academic foundation is comprised and they are beset with adjustment issues (Durante et. al, 2002). These mobile students miss out on academic instruction and relationship development with teachers and students (Paik & Phillips, 2002). These interruptions can cause academic failure and social distress in the educational setting. With delays in areas such as record keeping, administrators and teachers are unable to quickly identify at risk students, further delaying their educational success (Rhodes, 2007). After a single move, it takes four to six months for mobile students to recover academically (Black, 2006). This academic time is lost and cannot be regained; often these mobile students are situated at their new

school, then they move again.

By creating and utilizing a valid predictive model to identify mobile students who are at risk academically, administrators and teachers will be able to quickly identify newly enrolled mobile students who are at risk academically. Once these students are identified as at risk, the administrators and teachers can further assess these students and implement the needed interventions to succeed academically. Additionally, schools will have the opportunity to create policies and procedures for mobile students who are entering their schools. These policies and procedure will help these students adjust to their new school environment. If there is national uniformity in education, an at risk identification model would augment the success of a transient nation.

Research Questions and Hypotheses

After reviewing literature concerning the research topic of student mobility, the following research questions and hypotheses emerged:

Research question 1: *In what ways does the academic performance of those mobile students differ from the general population?*

HO1: There is no significant difference between the academic performance of those mobile students and the general population.

Poor academic performance is often found students who are considered mobile. There are many academic effects of student mobility, including: lower achievement levels and lower academic pacing (Hartman, 2004). By examining the connection between student mobility and poor academic achievement, the purpose of an identification system will be validated. Furthermore, there will be a better understanding of the connection between mobility and academic achievement.

Research question 2: *In what ways does the negative student behavior of those*

mobile students differ from the general population?

HO2: There is no significant difference between the negative student behavior of those mobile students and the general population.

The student behavior of mobile students often has negative consequences in the educational setting. Students who have behavior problems are more likely to change schools than those students who do not have behavior problems (Larson et al., 1999). Fowler and Simpson (1994) found that children who are mobile are more likely to have increased behavior problems. To increase the overall educational success of mobile students, it is important to determine if a relationship exists between mobile students and incidences of negative behavior of these students as determined by behavioral referrals.

Research question 3: *How can a valid predictive regression model be created and utilized in order to identify mobile students who are at risk for academic failure?*

HO3: There is no significant difference between the academic performance of those mobile students who live in at-risk family structures and those mobile students who do not live in a-risk family structures.

HO4: There is no significant difference between the academic performance of those mobile students who are economically disadvantaged and those mobile students who are not economically disadvantaged.

HO5: There is no significant difference between the academic performance of those mobile students who part of an at-risk race and those mobile students who are not part of an at-risk race.

HO6: There is no difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students.

In order to help at risk mobile students excel in the educational setting, it is vital for these students to be quickly identified upon their arrival at their new school. There has been a variety of researched conducted using predictive models on student mobility. Long, Marx, and Tucker (1998) used regression models to predict the academic and behavioral problems based on the effects of structural variables and the number of times a student moved. In order to predict negative student behavior, Fowler and Simpson (1994) completed their study by using multiple logic regression.

Identification of Variables

Research question 1: *In what ways does the academic performance of those mobile students differ from the general population?*

Dependent variables. The dependent variables that were considered in research question 1 were the CRCT Reading scores of mobile students and the general population.

Independent variables. The independent variables that were considered in research question 1 were mobile students and the general population in grades one through five at the target elementary school.

Research question 2: *In what ways does the negative student behavior of those mobile students differ from the general population?*

Dependent variables. The dependent variables that were considered in research question 2 were the number of behavior referrals of mobile students and the general population in grades one through five at the target elementary school.

Independent variables. The independent variables that were considered in research question 2 were mobile students and the general population in grades one through five at the target elementary school.

Research question 3: *How can a valid predictive regression model be created*

and utilized in order to identify mobile students who are at risk for academic failure?

Predictor variables. The predictor variables that were considered for research question 3 were family structure, negative student behavior, race, and socioeconomic status.

Criterion variables. The criterion variables that were considered for research question 3 were the CRCT Reading scores of mobile students and the general population.

Terminology and Definitions

Dichotomous dummy variables is defined as categorical variables with two categories that have been given a nominal value (Lewis-Beck, 1980).

Intra-district mobility is defined as the mobility of students within a district (Ligon & Paredes, 1992).

Inter-district mobility is defined as the mobility of students outside of a district (Ligon & Paredes, 1992).

A *mobile student* is defined as a student who transfers schools between the initial registration period and the end of the school year (Fowler-Finn, 2001).

A *non-mobile student* is defined as a student who does not transfer between the initial registration period and the end of the school year (Fowler-Finn, 2001).

Summary

The sample population for the creation of the predictive regression model in this study was the students in grades first through fifth at an elementary school in the southeast part of the United States. The sample population was divided into two categories: non-mobile students and mobile students. For the purpose of having a sufficient sample size, the entire population of students in grades first through fifth was used for the creation of the regression model. The researcher obtained the 2009-2010

historical data from the system's database, Infinite Campus.

In order to utilize the regression model in the study, the researcher only incorporated mobile student in grades third through fifth from the 2010-2011 school year. The exclusion of the first and second graders in this study was due to the state's decision to exclude these two grades from the CRCT for the 2010-2011 school year. Therefore, the researcher could not utilize the predictive regression model on these grade levels.

This was a quantitative study consisting of two designs. A causal comparative design was utilized for research questions 1 and 2. A correlational design was utilized for the remainder of the study. This correlational design includes a valid predictive regression model that was used to identify whether mobile students were at risk for academic failure. The regression model design was used to examine the relationships between two or more variables. The specific independent variables used in the predictive regression model were defined after the researcher determined whether there was a significant difference. "By weighting two or more independent variables to yield a maximum correlation with one dependent variable, researchers have the opportunity to find the best correlation" (Ary, 2006, p. 387). The researcher had no bias during the completion phase of this research study. The sample population included all students in grades first through fifth. This study did not contain interviews, surveys, or observations.

The analysis of this study was limited to the creation and utilization of a valid predictive regression model for mobile students who were at risk for academic failure. This study was limited to the creation and utilization of the predictive regression model. The creation and utilization of a valid predictive regression model for at risk mobile students provide a foundation for future research on interventions and orientation procedures for at risk students.

This study was a non-experimental research design that incorporated regression analysis. The data incorporated into the study was de-identified to ensure confidentiality and it existed prior to the study. The prior and de-identified data was employed to identify specific variables and create a valid predictive regression model. The researcher's demographic knowledge was restricted to the "mobile" students in grades third through fifth at the research site.

CHAPTER TWO: REVIEW OF LITERATURE

Introduction

Student mobility has been considered a factor in the decline of academic achievement and the social behaviors of at risk students. Although there are numerous ways to examine mobility, it is described as causing inconsistency in the overall educational experience of a student (Durante et al., 2002; Ligon & Paredes, 1992). In addition, mobility is best explained though multiple dimensions including different levels of analysis, time-span, type, frequency, and cause.

A time-span analysis is one tool that enables stakeholders to determine the rate of increase or decrease of mobility over multiple years. There are two types mobility: inter-district and intra-district. Inter-district examines mobility outside of a school district, and intra-district examines mobility within a school district. Examining mobility from these two viewpoints is critical to the success of a school district. District administrators have the opportunity to compare both the mobility data of their school district and the mobility data of other school districts (Ligon & Paredes, 1992).

Causes of Mobility

In addition to comparing student mobility data, it is incumbent upon schools to determine the causes of mobility. Mobility is divided into two sections: 1) mobility caused by the school system—safety issues, transfer protocol, academic difficulties; 2) mobility caused by family divisions—residency, family instability, employment, divorce (Durante et al., 2002; Kerbow, 1996; Kirkpatrick & Lash, 1990; Ligon & Paredes, 1992). Determining the root cause of mobility is the first step in solving this reoccurring problem.

In addition to determining if the cause is family related or school related, the

school's mobility rate provides a reference for framing the problem. The school mobility rate can be calculated by dividing the total number of student entries and withdrawals during the school year by the total number of students on the first official day of enrollment (Fowler-Finn, 2001).

Some schools' mobility rates exceed 100 % (Fowler-Finn, 2001). This occurs at schools due to the withdrawal of one student and the enrollment of a new student, although only one student chair may be emptied and then refilled. The mobility rate of a school begins at zero percent and increases based on the number of students that move in and out of the school during the current academic year. In contrast, student stability is the percent of students who remain in school for the entire year. Student stability begins with 100% and regresses based on the mobility rate. Black (2006) stated, "Those who stay in their home schools are considered stable, and those who move six or more times during K-12—often children from migrant, military, homeless, or low-income families—are labeled highly mobile"(pg. 47).

Types of Mobility

Urban mobility. Skandera and Sousa (2002) found that the mobility rate in inner-city schools is usually between 45% and 80%, while suburban schools experience a mobility rate between 25% and 40%. Although an increased rate of student mobility is associated with urban schools, it also has a profound effect on rural schools as well. Residential moves in rural school systems do not always mean a move to a new school. The larger geographic area allows families to move a number of miles and still be located in the same school district. According to the U.S. Government Accounting Office, students who reside in rural areas have a mobility rate of approximately 15 % (General Accounting Office, 1994). When the student mobility rates of rural and urban areas are

compared, there is one consistent factor between the two: poverty.

Kerbow (1996) founds student mobility in urban areas is proliferating; thus affecting all facets of the educational setting. In order to decrease the ambiguity associated with mobility calculation, Kerbow analyzed the stability rates for elementary schools**.** Kerbow found that 80% of the schools' students remained at the same school from year to year. In addition, 11% of the schools lose one-third or more of their student and approximately 10 students out of a class of 30 in a given year (Kerbow, 1996). During the spring of 1994, Kerbow examined mobility data of sixth-grade students over a two-year period. Thirty-six percent of the students experienced at least one school change during the two-year period. Despite the high percentages, multiple moves by the same children dominated the results. During the two-year period, Kerbow concluded that "13% of the students attended three or more schools' 5% attended four or more schools in the two-year period" (Kerbow, 1996, pg.151**)**. Kerbow found that 87% of the students who moved during the summer of 1993 transferred from one school to another.

The result of Kerbow's 1996 study revealed that there is a pattern of student mobility in schools. Kerbow found that these patterns are common in schools of similar characteristics. One of the major components of commonality is the racial make-up of the schools. Kerbow asserted that of the five clusters he compared, the dominant racial make-up of two clusters was African-American students; the other two clusters consisted of Latino students, and the last cluster consisted of Caucasian students. Kerbow found that in addition to race, achievement level and economic resources also contributed to student mobility. These mobile students often transferred to schools with similar demographics (Kerbow, 1996).

Rural mobility. While prevalent research in the area of urban mobility exists,

rural mobility remains unpredictable and insidious. Families in rural areas have an increased risk of becoming mobile, especially those families who migrate towards urban areas for employment. Paik and Phillips (2002) provided reasons why rural mobility has proliferated. First, the majority of managerial positions are located in urban areas. Second, the "single industry"—identified as agriculture—limits economic diversity. Third, there is a current trend to migrate to urban areas. Noteworthy, are the salary discrepancy between urban and rural workers. Rural workers earn approximately 80% of what urban workers earn (Paik & Phillips, 2002).

Mobility and the economy. The urban and rural mobility rate is affected by employment stability and the overall economic status of the United States. According to The General Accounting Office (GAO) "children who are from low-income families or attend inner city schools are more likely than others to have changed schools frequently" (General Accounting Office, 2004, p. 5). Thirty percent of third-grade students who changed schools were from low-income families; however, only 10% of third grade students who changed schools were from average or above-average income families (General Accounting Office, 2004).

In an effort to alleviate financial strain, low-income families seek apartment complexes that offer "move-in specials" (Durante et al., 2002; Mao, Whitsett, & Mellar, 1998). This briefly mitigates the financial strain. Unfortunately, the positive impact of the "move-in specials" is unsustainable and children transition to a new residence and school. Unfortunately each successive relocation has long-term academic effects for children.

Poverty-stricken areas where parents are continuously looking for employment and shelter are often found to have high rates of family relocation. Skandera and Sousa

(2002) stated that in lower-income families there is a higher rate of divorce, illegitimacy and single parent homes. These issues cause a greater need for extended family to care for the children in these families. These inconsistencies in the living arrangements of the low-income families effects all areas of a child's life, including school attendance, academic achievement, and negative behavior.

Further analysis of student mobility revealed a connection between mobility and the economy. Schachter (2004) revealed that 24.2% of people with incomes below the poverty line are mobile, whereas 12.8% of people above the poverty line are mobile. Locating affordable housing is problematic for families who are categorized as "below" the poverty line. Noteworthy, is families' tendency to move apartments and schools. In an effort to avoid paying rent—referred to as a "stealth move"—parents leave prior to paying overdue rent (Black, 2006; Kaplan & Valenti, 2005). To further illustrate the characteristics of mobile families, Schachter compared the mobility of families who rent homes and families who own homes. Schachter found 30.7% of families who rented homes were mobile; however, 7.4% of families who owned homes were mobile.

Similar to Kaplan and Valenti (2005) Kerbow (1996) found a lack of adequate and affordable low-income housing and instability in urban areas. Although a large percentage of the school changes were due to residential mobility, approximately 58% of these students cited "school issues" as an additional reason for their move.

Durante, Fisher, Matthews, Nakagawa, and Stafford (2002) reported that schools located in areas where rental houses and hotels are primary sources of housing have a higher rate of residential mobility. When a family's monthly rent increases, they relocate to another apartment or hotel. Although the relocation is a result of inadequate low-socioeconomic housing, upward mobility is an issue. Upward mobility occurs when a

family advances to a higher economic status and purchases a home in a community with improved demographics (Durante et. al, 2002).

Eckerling, Ingersoll, and Scamman (1989) found an inverse relationship in mobility across grade levels. The authors concluded that as students' advance in school, their mobility rate decreases. In their study, a 32% mobility rate was found in three first-grade groups. Subsequent comparison of the groups' mobility rates in the 12th grade revealed a decrease from 32% to 7.9%. Additional comparisons were conducted on the academic achievement levels of two stable groups and two mobile student groups. Eckerling et al. concluded that the stable group demonstrated higher academic achievement.

Larson, Palardy, Ream, and Rumberger (1999) investigated whether or not a family's socioeconomic status was associated with residential mobility and school mobility. Through a predictive regression model, the researchers attempted to determine the factors that predicted mobility. The authors independently analyzed a sample of students from the western part of the United States and the following groups: Asians, Latinos and non-Latino Whites. The results revealed that socioeconomic status was a predictor for Asians, but not for Latinos and non-Latino Whites. In addition, high rates of elementary school mobility were a predictor of high school mobility for the following groups: Asians and non-Latino Whites, but not for Latinos. The study further found a lower residential mobility rate for Asians and Latinos, which implied that the two groups did not change schools due to residential mobility (Larson et. al, 1999).

It is often believed that student mobility is a result of families continuously changing residences (Rumberger, 2003). Student mobility is generally believed to be a result of families changing residences (Rumberger, 2003). The author conducted a study

on 12th grade students and found three reasons for student mobility. First, over 58% of the mobility was due to relocation. Second, the parents requested that their children change schools.

The final stated reason for changing schools was initiated by the school (Rumberger, 2003). For example, Rumberger (2003) found a problematic situation occurred and the school requested a transfer for the student. Rumberger stated that the overall mobility rate in California dropped to 30%, and the mobility rate has dropped to 10% in other states.

Mobility and Title I schools. No Child Left Behind (NCLB), a federally funded program, has affected the rate of student mobility. NCLB mandates that each state adjust their accountability model based on mobility. It does not specify how mobility is measured or adjusted (Rhodes, 2007). This process varies from state to state. Although the main focus for mobility occurs at the local level, school districts often calculate the minimum student mobility rate (Rhodes, 2007).

The student mobility is pertinent due to federal education mandates. No Child Left Behind mandates that schools be placed on the "Needs Improvement" list if they fail to meet Adequate Yearly Progress. Rhodes (2007) stated that if a school is placed on the "Needs Improvement" list for two or more years, then the schools' students must be given a transfer option**.** Title I mandates that any student attending a "Needs Improvement" school be provided the school choice option of transferring to a school that is not on the Needs Improvement list and is not considered a underperforming school by the state. The student's original school district must either pay for or provide transportation to the new school district, thus increasing the rate of student mobility (NCLB, 2002 A school categorized as a "Needs Improvement" school district should

work cooperatively with other districts in order to meet the needs of these mobile students.

McEachin (2005) found through a regression model that mobile students in Title I schools were negatively impacted academically. The author concluded the more times a student transferred, the more it negatively impacted their academic achievement. The academic impact for this study was based on the Florida state reading assessment (FCAT). The negative academic impact of these transfers was significant for students who transfer during the school year and students who transfer during the summer.

Of particular interest to McEachin (2005), was the variance of the mobile students' reading texts. McEachin (2005) found as the diversity of the students' reading texts increased, students' scores on the reading assessments decreased. The author's finding underscores the importance of curriculum uniformity in school districts. The author stresses the importance of curriculum uniformity in school districts. If school districts have high mobility rates, McEachin encouraged them to create consistent curriculum maps. In creating these curriculum maps, students moving from one school to the next would find their new classroom on the same or very similar topics and concepts and thus not lose ground due to lack of exposure to the content in their previous school.

In Kansas, mobility appears seems to be one of the most important factors in evaluating school effectiveness and continuous school improvement. Wright (2004) stated that the Kansas Title I evaluation system understands and acknowledges that mobility has a disruption on education as they do not incorporate the state test results of those students that moved during the current school. Wright asserted that Title I schools are not statistically correct when finding school and state averages for academic achievement due to the exclusion of these students. Wright (2004) stated that policy

appears to reflect assumptions that mobility affects subsequent achievement, that population stability is the norm, and that mobility is unrelated to risk factors of direct relevance to the program" (pp.348).

Mobility of migrant families. Hartman (2004) stated that migrant families perform seasonal agricultural work, which often associates this population with student mobility. When the season changes, the migrant families move to find work that is related to the current season. Cities that draw migrant families in large numbers produce a consistent flow of children entering and exiting its schools. The children of migrant farm workers are known for arriving/leaving in large numbers and disrupting the harmonious flow the school environment (Hartman, 2004). These students are mobile and mobility is not conducive for consistent learning. Data revealed that there are more than 750,000 migrant children who live in the United States (Paik & Phillips, 2002). The National Association of State Directors of Migrant Education (1994) stated that the graduation rate of migrant students (50 %) is lower than the graduation rates of other mobile students.

Mobility and homeless families. Homeless families are another by-product of the declining American economy. As a part of the No Child Left Behind Act (2002), the McKinney-Vento Homeless Assistance Act stated that homeless children and youth have the right to equal access to free, appropriate, non-segregated public education as all children (McKinney-Vento, 1987). The law requires state and local agencies to remove barriers to enrollment in order to better serve the homeless population. The law was updated recently to help keep homeless students in their original school for the entire school year, even if the student is living outside of the school's parameters (McKinney-Vento, 1987).

The McKinney-Vento Act (1987) states that if a child is homeless, and the parents move the child to a more convenient school, the school must enroll the child (Hartman, 2003). This can be done without the student's registration information or proof of records. The law also requires local agencies to provide transportation to students who choose to move to a school in a more convenient location (Hartman, 2003). This federal law helps to reduce the mobility of homeless students as they can remain in their school of origin.

Mobility, race, and academic achievement. Lawson and Rumberger (1998) stated that creating a regression model can predict whether or not students change or drop out of school. They found that Black and Hispanic students were more likely to change schools than Asian, White, and Native American students; whereas Hispanic and Native American students were more likely to drop out of school (Lawson & Rumberger, 1998).

Expanding on race and its effect on student mobility, the General Accounting Office (1994) found that Native American, Black, and Hispanic children are more likely to change schools when compared with White or Asian children. The report stated that these findings could be income-related factors not race or ethnicity factors (General Accounting Office, 1994).

According to a study conducted by Kerbow (1996), White students are more likely have stability in their school membership and are often more economically advantaged. Of those students who attended only one school, the White students represented 15% of the population and only 6% of the white students went to four or more different schools. The African American students represented 53% of the stable students, but 75% of the frequent movers (Kerbow, 1996).

In 2009, Baker-Boudissa, Finch, and Lapsley conducted a study on student

mobility and race in Indiana Charter Schools. Subsequent analysis of data revealed that non-white students were more likely to leave an Indiana Charter School (ICS) than White students. In order to compare student mobility and academic achievement, the researchers divided the schools into two groups: Caucasian and non-Caucasian. The study found that the Caucasian group had a higher pass rate on the state proficiency exam (Baker-Boudissa, Finch & Lapsley, 2009).

In a 1999 study conducted by Schneider and Swanson, the researchers examined the two groups' mobility and academic achievement of its students during their early high school years. The researchers found that Asian students in grades 8 and 10 who came from higher socioeconomic backgrounds had higher academic gains in mathematic achievement. Schneider and Swanson further stated that Asian students had higher private school attendance rates and greater parental support for attending college. They also found that Hispanic and black students have lower academic gains in mathematic achievement, and Hispanic students have a higher dropout rate (Schneider & Swanson, 1999).

Despite the findings of Schneider and Swanson (1999), are student mobility rates different among demographic groups? Larson et al. (1999) found discrepancies in mobility rates. Larson et al. concluded that mobility decreased the probability of Latinos and non-Latinos completing high school. The authors asserted mobility did not decrease the probability that Asian students would finish high school. In summary, despite identical mobility rates, Asians were not affected by mobility. In addition to the mobility data, the authors found the following: Asian students were less likely to make two or more changes during their high school years; Latino and non-Latino white students were more likely to make two or more high school changes.

Of particular interest in Larson et al.'s (1999) study, were the parent and student interviews on the consequences of mobility. The interviews revealed that Non-Latino and Vietnamese-American families asserted there were negative connotations between the mobility and the psychological well being of their child. In the academic engagement category, Larson et al. stated that Latino families believed the negative impact was greatest for their children.

Larson et al. (1999) further stated the ethnic groups were concerned about their children's academic achievement. The non-Latino White families, however, stated that changing schools positively affected the academic achievement of their children (Larson et al, 1999). Larson et al. discussed another pertinent aspect of mobility: the ethnic groups' reasons for changing schools. The authors found African American, Latinos, and non-Latinos made reactive schools moves, although Asians made more family-initiated moves.

To further illustrate the discrepancy in academic achievement of one southeastern state's mobile and non-mobile ethnic groups, Engec (2006) compared both groups' index scores on the Iowa Test of Basic Skills. Engec found the following: (a) black non-mobile students had an average ITBS index score of 45.30; (b) obligatory mobile students had an average ITBS score of 44.16; (c) optional mobile students had an average ITBS score of 37.66; (d) the white non-mobile students had an average ITBS index score of 100.78; (e) white obligatory mobile students had an average ITBX index score of 98.08; (f) optional mobile students had an average ITBS index score of 90.01. For the remaining ethnic groups, the average ITBS index score was 82.1, the obligatory mobile index ITBS average was 86.58, and the optional mobility index ITBS average was 80.35 (Engec, 2006).

Engec (2006) also investigated potential differences among the ethnic groups in the areas of mobility rates and ITBS index scores. The researcher used the ANOVA as the statistical method. The ITBS index averages were as follows: (a) Black students who were non-mobile = 44.78; (b) Black students who moved once = 34.70; (c) Black students who moved two or more times= 31.76; (d) White students who moved zero times = 100.78; (e) White students who moved once = 74.66; (f) White students who moved two or more times = 59.98. For the remaining ethnic groups, the remaining ITBS index averages were as follows: (a) students who moved zero times = 85.12; (b) students who moved once = 61.71; (c) students who moved two or more times = 55.08.

Mobility and family structure. Despite the limited research on family structure and how it affects student mobility, it is a factor in student mobility. With the inclusion of the NHIS data, Long (1992) examined high levels of mobility among U.S. students who came from a high percentage of poverty and unstable family structures. Long found that children who had moved multiple times were less likely to be living with both parents.

In a later study that examined the relationship between family structure and mobility, Long, Marx, and Tucker (1998) found a high mobility rate does not affect children if both biological parents are in the home. While these children have minimal problems, children in other environments have a high percentage of issues (Long et al, 1998). Long et al. stated that over 20% of the students in the study had one or more problems in school. Long et al. (1998) further stressed that children who were raised by both biological parents were in a more advantageous position—educationally, professionally. In school, these children do not have behavioral issues. The above stated positive results may be due to the low percentage of children living with both biological

parents (Long, Marx, & Tucker, 1998).

Long, Marx, and Tucker (1998) also concluded that there is a positive correlation between the number of times a student moves and the probability the student will have behavioral issues in school. When comparing the effect of their family structure, the authors found that for mobile students there was a negative effect on academic achievement; yet for non-mobile students there was not an effect on academic achievement. The non-mobility may negate the effects of the mobility on school performance for the stable children. Larson et al. (1999) also found that students who live in two-parent homes are less likely to be as mobile when compared to students who live in single-parent and non-traditional family homes.

Kerbow (1996) found that of the students who had moved once over a two-year period, 46.8 % lived with both their father and mother, 10.3% lived with a parent and a stepparent, 33.5 % lived with a mother only, and 9.4% lived with other types of family structures. Conversely, Kerbow (1996) found that of the students who moved 4 or more times, 21.8 % lived with both their father and mother, 15.1% lived with a parent and a stepparent, 39.9% lived only with their mother, and 24.5% lived with other types of family structures. Overall, Kerbow's study stressed that students who lived with their mother and father had a greater degree of positive outcomes.

Comparatively, students who lived with stepfamilies are most likely to have issues in the school setting. Astone and McLanahan (1994) discussed the district challenges of these students. The authors found students who live with stepfamilies are more likely to change schools than children whose family is in-tact. For example, the authors found that 73% of the students living in two-parent homes never moved between fifth and tenth grade. Conversely, students who live with stepfamilies move two or more

times during a single-school year.

While residential changes do make up an enormous percentage of student mobility, it is not the only contributing factor. Research revealed that between 30 % and 40 % of schools changes are not associated with residential changes (Rumberger, 2003). Rumberger found overcrowding, class reduction, suspension, and expulsion contributed to student mobility. The author stressed that parents, frustrated by a teacher or administrator's decision, will transfer their child to another school. Unfortunately, the parent's reaction can negatively impact the academic achievement of their child (Rumberger, 2003).

The Department of Defense. Larson and Rumberger (1998) stated that school mobility can be associated with academic failure; in contrast, the Department of Defense Education Activity (DoDEA) provided a contrasting viewpoint. Owens and Smrekar (2003) found that students who attend DoDEA schools are "high achievers" on reading and writing achievement tests. Even though the DoDEA students have high rates of mobility, most times, they are not at risk for academic failure (Larson & Rumberger, 1998). The authors stated the DoDEA students who participate in the National Assessment of Educational Progress (NAEP) scored higher in reading and writing than students who were not part of the DoDEA. In particular, Black and Hispanic DoDEA students' achievement scores were the highest in the nation based on NAEP scores (Owens & Smrekar, 2003). The high achievement scores were not the only validation for DoDEA schools. Owens and Smrekar (2003) further stated that comparisons of the NAEP reading and writing scores of the DoDEA racial groups revealed only small differences in achievement.

In addition to DoDEA's high rate of student mobility and high scores on

standardized tests, the DoDEA has a high-quality teaching staff. Owens and Smrekar (2003) found that every DoDEA school/classroom has a licensed, experience, and educated teacher. Owens and Smrekar stated that "73% of the teaching force in the DoDEA has over 10 years of experience, while only 10% of teachers have fewer than three years of experience. Sixty-four percent of the teachers hold masters degrees and 2.5% have doctorates" (p.171). Similar to military organizations, the DoDEA is very structured and holds high expectations for its students. Moreover, administrators, faculty, and staff identify students who are at risk academically and socially (Owens and Smrekar, 2003).

Along with the academic success of its students, Owen and Smrekar (2003) noted that the DoDEA does not delay the educational process of mobile students. Obtaining the academic records of mobile students can be a lengthy process--weeks, months; the delay leads to instructional and service interruptions for mobile students. The authors found the DoDEA does not wait for the student's information to arrive. If records do not arrive, they begin informal student testing (Owens & Smrekar, 2003).

The smaller school sizes further illustrated the DoDEA commitment to education. There smaller population of students usually runs as follows: elementary school < 300 students, middle school < 600 students, and high school < 900 students (Owens & Smrekar, 2003). The DoDEA enrollments are conducive to more individual instruction, greater familiarity with students, and more comprehensive knowledge of students' strengths and weaknesses (Owens & Smrekar, 2003).

The DoDEA also requires parents to have a "corporate commitment" to the education of their children. There is an understanding at the DoDEA that parents are responsible for their children and that children are the future of our country (Owens &

Smrekar, 2003). Parents are released from their military duties once a month in order to volunteer at their child's school. As with all military actions, there is a sense of honor, respect, and ownership when it comes to the education of military children (Owens & Smrekar, 2003).

Social Capital Theory

Although the causes of mobility are stated, its consequences warrant further investigation (Kerbow, 1996; Rumberger, 2003). The consequences of mobility are understood through the social capital theory. Coleman (1988), a leading researcher on the topic of social capital, stated that social capital is best defined by its function. Coleman stated that social capital is entities that have two elements in common. Coleman also stated, "Like other forms of capital, social capital is productive, making possible the achievement of certain ends that in its absence would not be possible" (p. 98). Farr (2004) stated, "Like any other form of capital—namely, physical or human—social capital aids future productivity of individuals and groups of civil society, though mainly economically" (p. 9).

Theorists also stress the importance of social capital and its positive effect on education. For example, Parr (2004) found that John Dewey' theory stressed community involvement in the educational process. The author found that Dewey supported an action-oriented pedagogy for schools and this was best accomplished when schools and the community work cooperatively. The understanding of social capital and community is often apparent in schools today. Parr stated that Dewey's educational philosophy is evident as schools are incorporating a sense of belonging and real-life learning into their curriculum. Students who are mobile miss out on this social capital experience and can feel disconnected from their social learning environment.

In summary, social capital initiatives will not be successful unless the child's stakeholders (parents, teachers, and classmates) collaborate. The social network breaks down each time a student changes schools. Parents who are active or inactive determine the success or failure of the social network. Similarly, Coleman (1988) and Hagen, MacMillan, and Wheaton (1996) asserted that if families move, then the social relationships are broken. These broken relationships cause academic and social failure

Student Mobility and Academic Failure

Unfortunately, students who attend highly mobile schools suffer academically. Student mobility interrupts regular attendance, curriculum instruction, and relationship building with teachers and peers (Paik & Phillips, 2002). Black (2006) stated that highly mobile students take four to six months to recover academically.

To counter the negative impact of mobility on academic achievement, school districts and their schools are developing uniform curriculums. Hartman (2004) found school systems are utilizing curriculum maps. The author stated that curriculum uniformity enables mobile students to receive consistent instruction. As previously stated, the use of curriculum maps can assist students who are moving from county to county or state to state, by reducing the likelihood of missing critical content learning. The academic effects of student mobility include lower achievement levels and lower completion rates (Hartman, 2004).

Hartman's (2004) finding regarding the academic achievement of mobile students was found in other studies (Paik & Phillips, 2002). For example, Paik and Phillips (2002) stated that "41 % of highly mobile students are low-achievers, compared with twenty-six percent of stable students" (p 8). Kerbow (1996) found that continuous school mobility results in a cumulative academic lag—defined as students who move more than three

times in a six-year period. Fowler-Finn (2001) also found that student mobility negatively impacted academic achievement. The author stressed the school's instructional effectiveness did not counter the negative effects of student mobility (Fowler-Finn, 2001).

Besides the low academic achievement of mobile students (Paik & Phillips, 2002), the academic expectations of these students also determines their academic success. Larson et al. (1999) found that academic factors predict student mobility. Larson et al. study utilized a survey and categorized 8th grade students with low expectations as those who did not expect to attend college. The authors found that 8th grade students with low expectations (students who did not plan to attend college) were 77% more likely to change high schools than those students with high expectations (students who planned to attend college). They also found that 8th grade students with lower grades were more likely to change high schools than those students with higher grades. The GAO (1994) found that 41 % of the nation's third graders who changed schools frequently were below grade level in reading, whereas the percentage of third-grade students who never changed schools was 26%.

The findings of Larson et al. (1999) could have long-term effects for mobile students. In fact, there is evidence that student mobility during elementary school and high school decreases the probability of high school graduation (Rumberger, 2003). Larson and Rumberger (1998) confirmed in a research study that mobile high school students who change schools are affected academically. The authors stated that mobile students were more likely to drop out of school or enter an alternative educational program than those students who were not mobile. In addition to these findings, Larson and Rumberger (1998) also found a positive correlation between the amount of times a

student moved and the negative effects; the authors found as the amount of moves increased, the negative effects also increased. Larson and Rumberger stated:

> Almost one-quarter of all students who changed schools two more times over this period had dropped out by twelfth grade, while only a little over half were still enrolled in a regular high school program. In contrast, only 8% of students who had not changed schools had dropped out by the twelfth grade, while almost 90% were enrolled in a regular high school program (p. 21).

Larson and Rumberger's (1998) correlational study found a positive connection between student mobility and high school drop-out rates.

Schneider and Swanson (1999) conducted a logistic regression study on students prior to the 8th grade that had transferred schools. Their study revealed that students who have transferred schools one or more times prior to the 8th grade have a greater chance of dropping out of school between the 8th and 10th grade than non-mobile students. Early movers, students who move between the 9th and 10th grades and students who transfer between the 8th and 10 grade, are more likely to drop out of school than students who move in the later part of high school (11th and 12th grade).

Schneider and Swanson (1999) stated that students who do not experience mobility during their high school years have about a 5 % dropout rate. The results of this study underscore the importance of time immediately following a student's transfer. The authors concluded that mobile students who are unaffected by transition issues are more likely to obtain their high school diploma. In addition, these mobile students are more likely to benefit in their post-secondary professions (Schneider & Swanson, 1999).

Mao et al. (1998) found that students who are identified as for dropping out of school also have a high mobility rate. Their study further stated that students who

received career and technology education had a high rate of mobility. Although this is significant data, it is noteworthy that these students often have lower academic achievement as well as standardized test scores than students who are not at risk for dropping out of school; furthermore, do not participate in the career and technology education courses (Mao et al., 1998).

Negative Behavior and the Mobile Student

Rumberger (2002) stated that the psychological and social adjustment that a student experiences while changing schools has an overall effect on the academic success of the student. In addition to the academic challenges they encounter, mobile students have to adjust to new peers**.** During their interpersonal interactions with peers, mobile students experience both hostility and isolation. To prove they are not weak and inadequate, mobile students retaliate against the hostility. The mobile students' action lead to school discipline and further polarizes their relationships with classmates**.** These students are found to be recluses, not participating in group or extracurricular activities (Rumberger, 2002).

Fowler and Simpson (1994) identified and described the reasons mobile students feel disconnected from their new environments. They theorize that highly mobile students report feeling confused, overwhelmed, and isolated in new school settings. Fowler and Simpson concluded the loss of friendships and the fear of having to make new ones cause conflicting emotions. Younger children, who are in the early stages of social development, struggle to adjust to the new environment; older children struggle to break established relationships from their prior schools (Fowler & Simpson, 1994). Larson et al. (1999) compared two groups of 8th students: 1) students who did not have "behavior problems"; 2) students who had "behavior problems". Larson et al.'s

subsequent analysis found the students who were identified as "behavior problems" were 40% more likely to change high schools. Larson et al.'s finding revealed a potential link between student mobility and negative student behavior (1999).

Relevant to the mobile student's ability to adjust in their new school setting, is the relationship that exists between the child and parent. This relationship plays a pivotal role in the child's psychological and emotional development. Unfortunately, many mobile children feel left out or not supported by their parents. Fowler and Simpson (1994) stated that parents are preoccupied with the moving process—new home, new school, new medical facilities—and its logistics. As a result, children perceive neglect (Fowler & Simpson, 1994).

In a study conducted by Halfon, Newacheck, Nessim, and Wood (1993), children in the 90th percentile or higher for mobility were found to have a variety of behavioral problems. By conducting these surveys, the researchers also found that extremely mobile children were found to having four or more behavioral problems during their school career (Halfon et al., 1993).

In a related study conducted by Fowler and Simpson (1994), the researchers found subsequent moves have negative implications on mobile student's behavior. These authors used a trichotomous scale to measure the mobility levels of the students. The students were divided into three categories: a) never moved, b) one or two moves, and c) three plus moves. The authors examined the number of moves based on the trichotomous scale while focusing on the 28-question behavioral problem survey and its subscales. Fowler and Simpson found that children in the three or more moves range had twice the risk of emotional-behavioral problems when compared to students who had never moved (Fowler & Simpson, 1994). In a 1988 National Health Interview of Child Health, Fowler

and Simpson investigated the potential for a relationship between the number of times children move and the percentage of emotional/behavior issues experienced by the children. They concluded that

> Using multiple logistic regression to control for important demographic variables, children who moved three or more times were 2.3 times more likely to have had emotional/behavioral problems, 2.2 times more likely to have received psychological help, 1.7 times more likely to have repeated a grade, and 1.9 times more likely to have been suspended or expelled from school compared with children who had never moved (Fowler & Simpson, 1994, p. 303).

Fowler and Simpson (1994) also analyzed the relationship between the rate of mobility and the rate of negative student behavior based on a Behavior Problem Index. The authors reported that "children who moved three or more times were 1.6 times more likely to be in the top-tenth percentile of scores on the Behavior Problem Index compared with children who had never moved" (Fowler & Simpson, 1994, p. 303). These multiple regression studies revealed that mobile children are at increased risk for behavior issues at school. Fowler and Simpson advised educators to be cognizant of psychological and behavior problems due to mobility.

Expanding on Fowler and Simpson (1994), Larson et al. (1999) examined the psychological well being of stable students and found that stable students in grades 8th-12th had a higher level of psychological well being, including locus of self control and self-concept. Conversely, the authors found mobile students demonstrated an increase in behavior problems and lower rates of extracurricular activity participation when compared to non-mobile students (Larson et al., 1999). Larson et al. also found that the lack of social engagement and the increase of behavior issues can contribute to student

mobility. They further stated that an increase of negative student behavior in 8th graders increased the possibility of changing schools by 40%.

Regressions Models in Student Mobility Research

Valid regression models have been utilized to examine the characteristics of mobile students and predict the outcomes that are caused by mobility. Larson and Rumberger (1998) used a regression model to predict whether or not students will change schools or drop out of school between 8th and 12th grade. In another regression model, Larson and Rumberger (1998) examined specific characteristics and whether these characteristics could predict if a student would graduate high school or obtain a GED. They found that mobility was a factor as to whether or not a student would graduate high school or obtain a GED. They also found that mobility was not the only contributing factor. In fact, both student and family characteristics can determine if a student graduates from high school (Larson & Rumberger, 1998).

Long, Marx, and Tucker (1998) utilized structural variables and mobility rates to predict academic and behavior problems. The authors found that students who were living with both biological parents were more likely to be successful academically and behaviorally—irrespective of residential moves. The only mobility that made an impact was the hypermobile students (defined as students who had moved eight or more times in their life) (Long, Marx, & Tucker, 1998).

Regression models were also used by Schneider and Swanson (1999) to predict gains in mathematic achievement, changes in behavioral problems, and high school dropouts. The authors found that student mobility during the first two years of high school is less likely to result in negative student outcomes. Students who are highly mobile during the later part of their high school career have a higher rate of behavior

issues. Schneider and Swanson (1999) also concluded that students who are mobile during their first couple of years in high school have higher gains in mathematics during the later part of high school; whereas, students who move during the last two years of high school are lower.

Role of Schools

Unfortunately, there is no solution for student mobility; yet schools are capable of reducing student mobility and its consequences. School level resolution practices consist of the following: "Registration/enrollment; School orientation; Classroom induction; Instructional practices; Information/communication systems; Records transfer; Attendance/grade processes" (Rhodes, 2007, p. 2). Solutions for the district level are divided into six categories: "Transportation; Pupil assignment; Student transfer; Student information/record transfer; Data collection/analysis; Staff training" (Rhodes, 2007, p. 2).

Student transfers and student records. Further examination of Rhodes (2007) revealed an emphasis for both schools and school districts to solve issues related to record transfer and student information/record transfer. Teachers are unable to meet the needs of mobile students if their records are delayed, lost, or misplaced. The author stated the delay leads to educational service delays as teachers are unable to access academic information that address the specific needs of the mobile students. This issue impacts all mobile students, but migrant and homeless students are highly affected. It is common for mobile students to have transferred to another school when their records arrive at their school; therefore, perpetuating the cycle of instability. Dual school enrollment is causing a financial problem with schools as these students are counted as absent, despite their current enrollment in another school district. (The Educational Resources Information Center, 1991).

Rhodes (2007) stated that in order to counter the issues associated with mobile students' records, it is important for schools to establish a mobility committee. This group should be comprised of teachers, administrative representatives, and the clerical staff that work with records and enrollment. The primary responsibility of this committee is to gather school-level data that may not be recorded at the district level and formulate strategies to decrease student mobility and its impact on academic achievement (Rhodes, 2007).

Rhodes (2007) provided schools with suggestions for mitigating student mobility. For example, the author found that holding pre-enrollment parent conferences at the start of the school year and parent exit conferences at the start of the school year and parent exit conferences as a student transfers. In addition, this could reduce behavioral issues that result in a future student transfer. Rhodes (2007) asserted that parent exit conferences provide the administration with a rational for the student's transfer to another district, while communicating empathy to the parent regarding their child.

A protocol sheet is also an important to tool to access when a child is either enrolling or transferring to another school (Rhodes, 2007). The author found these students generally arrive with a large folder of educational information, and it is critical that a streamlined organizational process be used in order to maintain accuracy and accountability.

Schools assert that if a child with a behavior problem transfers, then the school will be more successful (Rhodes, 2007). Rhodes (2007) stated that a school that adopts this belief pertaining to problem children is incorrect. In fact, the author found that when a problem student transfers schools, there is a possibility that he/she will be replaced by another problem student. As a result, the school will encounter similar behavior

problems.

Unfortunately, Rhodes (2007) found that some administrators encourage students with behavior problems to transfer. The phrase "dumping" is often used when such a technique is used. In an effort to avoid this practice, the author provided schools with suggestions for welcoming transfer students into the school. The author stated that transfer students should tour the school and meet the administration, counselors, and teachers. Enlisting a peer student (the buddy system) to take the new student through a short orientation and tour of the school is a good way to familiarize new students with the facility (Rhodes, 2007). Rhodes stated that due to the increased risk of behavioral, emotional, and social issues of mobile students, it is important for the counselor to be involved with the enrollment process. The counselor should meet both the student and his or her parents within the first couple of days of attendance. Following this protocol helps ensure that the student will access the counselor if personal issues arise (Rhodes, 2007).

In a qualitative research study conducted by (Durante et al., 2002), personnel perceptions were examined to determine the effectiveness of school programs and interventions that address mobility. Durante et al. chose to use the most recognized formula for calculating student mobility: "the sum of late enrollments and the number of early withdrawals, divided by the total school enrollment" (Durante et al., 2002, p. 323). The schools represented a wide variety of ethnic groups.

There were several categories in which all participants found issues with mobile students, including inaccurate academic placement of mobile students, disruption of class instruction, and problems with record-keepings (Durante et al., 2002). In addition to the previous list, the participants all stated that their mobile students had a hard time adapting

social and academic development. Although there was consensus on the antecedents, processes, and consequences of student mobility, how to address these issues were unclear. There were several school level domains that the research reported that needed to be addressed in order to lower the high mobility rate. These include: the causes of mobility, the results of high mobility on school processes, and the results of school mobility (Durante et al., 2002).

In order to improve the academic achievement of mobile students, many schools have transitioned to year-round schooling in order to assist mobile students. A year-round school calendar would enable mobile students to different cycles of classes (Durante et al., 2002; Vail, 1996). This process allows mobile students to enter quickly and limits their loss of instructional time.

Kerbow (1996) stated that some districts find relief from the consequences of mobility by implementing standardized curriculum maps for all schools in the district. A curriculum map would ensure uniformity for students who transfer within the school district. This process creates a sense of ownership for all stakeholders and establishes an accountability factor among the schools (Kerbow, 1996).

Durante et al., (2002) stated that student mobility is of found to be disturbance in the overall academic success of the mobile student. The consequences of student mobility are unlimited and have detrimental effects for the overall educational success of the mobile student. The researcher found that regression models have been previously used to predict academic failure in mobile students.

In order to proactively and successfully assist elementary mobile students, it is vital to promptly identify theses mobile students who are at risk academically and socially. A student's education at the elementary level is the foundation for his or her

entire educational career. By creating a valid model for identifying these at risk elementary students, educators can quickly intervene and help these students succeed. If these interventions are implemented at the elementary level, a mobile student will have academic and social success throughout his or her educational career. Furthermore, the student will have the requisite skills to succeed educationally and professionally.

Summary

The negative impact of student mobility on academic achievement was established in the review of the literature (Fowler and Finn, 2001; Hartman 2004; Larson and Rumberger, 1998). Paik and Phillips (2002) stated that mobile students have a higher percentage of low-achieving students when compared to the general population. Kerbow (1996) found that students who move more than three times in a six-year period have a higher risk of academic failure. The GAO (1994) found that 3rd grade students who move frequently have lower reading levels than 3rd graders who did not move frequently.

In addition to mobility affecting academic achievement, student behavior is also affected. Fowler and Simpson (2004) found students who moved more than three times were more likely to have social/emotional problems and were more likely to have repeated a grade. Larson et al. (1999) compared the behavior of 8th grade students who were not behavior problems and 8th grade student who were behavior problems. The author found the students who were behavior problems were 40% more likely to change high schools. Halfon, Newacheck, Nessim, and Wood (1993) concluded that children in the 90th percentile or higher for mobility were found to have behavioral problems.

To counter the negative impact of mobility on student's academic achievement, researchers have created and predictive regression models in order predict academic failure of mobile students. In their regression model, Larson and Rumberger (1998)

examined specific characteristics and whether these characteristics could predict if a student would graduate high school or obtain a GED. They found that mobile students had a lower graduation. Long, Marx, and Tucker (1998) found students have an increased rate of academic and behavioral success when they live with two biological parents.

CHAPTER THREE: METHODOLOGY

Introduction

In recent years, student mobility has been linked to both academic failure and negative student behavior. Mobility was found to cause an inconsistency in the overall academic success of students (Durante et al., 2002; Ligon & Paredes, 1992). The purpose of this study was to create and utilize a valid predictive regression model to identify academically at risk students. If a valid predictive regression model could be created and utilized to identify these at risk students, administrators and teachers could implement interventions to assist at risk students in the areas of academic achievement and negative student behavior. This chapter will include a description of the population, setting, data collection, participation, procedures, data analysis, and design.

Design

A casual comparative research design was utilized to conduct research questions 1 and 2 of this study. A correlational research design was utilized to conduct research question 3 of this study. Charles and Mertler (2002) stated that discovering relationships between variables is the purpose of correlational research. These relationships were investigated through the creation and utilization of the predictive regression model. By creating and utilizing this model, the researcher analyzed historical data and multiple variables in order to predict future academic failure. By predicting future conditions in one variable based on present knowledge of other variables, correlational research determines the relationships between variables. However, caution must be exercised when labeling a research study as correlational as it is about investigating and determining relationships between variables, not the cause and effect of one variable

upon another (Charles & Mertler, 2002). This research study analyzed the relationships between multiple student demographics, and the ability for relationships to predict academic failure through a regression model.

Population

As an administrator of the research site, the researcher had full access to the data through the school's database, Infinite Campus. The researcher was able to deidentify the data through a data filter on Infinite Campus.

Participants. For the creation of the predictive regression model, the participants included in this research study were the students in grades first through fifth at an elementary school in the western part of Georgia. For the purpose of utilizing the predictive regression model, the participants included mobile students in grades third through fifth. After the researcher obtained local and school system approval, the researcher collected data for the study. For the purpose of creating and utilizing the regression model, 2009-2010 data was collected for all students, both mobile and the general population, from the system's database, Infinite Campus.

In order to utilize the predictive regression model, the researcher collected demographic information from mobile students in grades third through fifth who were enrolled in the research site from September 2010 to May 2011. This data was limited to students in grades third through fifth as the CRCT was only given to students in these grades.

The 2009-10 data for the study was obtained from the school system's database, Infinite Campus. The total population of students included in the creation of the regression model included 373 students—295 from the general population and 78 mobile students. The general population included all students who did not move schools during

the 2009-2010 school year. The mobile population included all students who moved schools one or more times during the 2009-2010 school year. The racial demographics for the students were as follows: White = 46%, Black = 37%, Hispanic = 9%, Multiracial = 6% and Asian = 2%. Fifty-three percent of the total population was male, while 47% was female. Eighty-three percent of the total population received free or reduced lunch. Seventy-six percent of the total population did not move schools during the 2009-2010 school year, 17% moved once, and 7% moved two or more times.

Determining the 2009-2010 demographic data for the general population and the mobile students provided a foundation for answering the three research questions. The demographic information for the general population was as follows: White = 47%, Black = 37%, Hispanic = 8%, Multiracial = 6% and Asian = 2%. Fifty-six percent of the general population was male and 44% was female. A total of 70% of the general population had either free or reduced lunch. The demographics of the mobile population and the general population were similar. Initially, there were 84 students in the mobile population, but six outliers with 40± error points between the predicted score and the actual score were removed. The demographics for the 78 students in the study were as follows: Black = 50%, White = 33%, Multiracial = 10%, Hispanic = 2% and Asian = 4%. Fifty-one percent of the mobile population was female and 49% was male, and 87% percent were on either free or reduced lunch. The demographics of the mobile population supported the creation of the regression model found in chapter three.

Twenty-five mobile students entered the research site between September 2009 and May 2010. The demographics of the mobile population that was considered for the utilization of the predictive regression model was different from the demographics of the school and school district. The racial demographics for the 25 mobile students were as

follows: Black = 64%, White = 28%, Asian = 0% and Hispanic = 8%.

For the demographic of socioeconomic status, 92% percent of the mobile students utilized in the predictive regression model were considered low socioeconomic status based on their qualification for free or reduced lunch. The socioeconomic status of this mobile student group was higher than that of the school and the district general population and was supported by the literature. The GAO (2004) stated that 30% of third-grade students who changed schools came from low-income families; whereas, 10% of third graders came from average or above-average income families. The gender breakdown of the mobile students considered for the predictive regression model was as follows: female = 40% and Male = 60%.

Setting

The research for this study occurred in the southeast part of the United States in a rural school district in a community with a population of 63,536. The median income for households in the community is $35,469, with 15% of the population living below the poverty line. The county's racial demographics are white = 66%, black =32%, and other ethnic groups = 2%.

The school district is comprised of 14 elementary schools, three middle schools, three high schools, two magnet schools, and one alternative facility. One hundred percent of the elementary schools receive Title I funding, and approximately 70% of the county's schools receive Title 1 funding. The system is accredited by the Southern Association of College and Schools (SACS). The district is comprised of 23 schools with 12,069 students. Sixty percent of the students in the district are economically disadvantaged, 8% of the students in the district are students with disabilities, and 1% of the students are English Language Learners. The racial demographics of both the school

district and the county align: White = 54%, Black = 40%, Multi-Racial = 3%, Hispanic = 2% and Asian = 1%**.** The racial demographics of the county are as follows: White = 54%, Black = 40%, Multi-Racial = 3%, Hispanic = 2% and Asian = 1%

The school system has well-maintained facilities with state-of-the-art technology in every classroom. Strong partnerships among all stakeholders in the school district, as well as the community, play a vital role in the success of the school district. The professional staff consists of 1,057 employees, 99% are highly qualified and 69.4% hold advanced degrees.

The research study occurred at one of the Title I elementary schools in the school district. The demographics of the research site were very similar to the demographics of the county. The research site consisted of approximately 500 students during the 2009-2010 school year. At the research site, all 35 teachers (100%) are highly qualified. The racial makeup of the student body at the research site was White = 47%, Black = 38%, Hispanic = 7%, Multi-Racial = 6%, and Asian = 2%. Approximately 75% of the school was considered economically disadvantaged based on the percentage of free and reduced lunch information.

The 2009-10 student mobility rate at the research site was 21.71%. The research site's mobility rate was higher than the school district's mobility rate. Despite yielding a percentage that exceeded the school district, the researcher concludes the percentage is below the majority of highly-mobile schools discussed in the review of literature.

Instrumentation

The Georgia Criterion Reference Competency Test (CRCT) was used to compare the 2010 Georgia CRCT of mobile students and the general population. The Georgia CRCT was mandated as a result of the NCLB Act of 2001. In order for the state to be

accountable for academic achievement, the CRCT is given to measure student knowledge of the state curriculum. For the 2009-10 school year, the CRCT was given to students in grades first through fifth. For the 2010-11 school year, the CRCT was given to students in grades third through fifth (Georgia Department of Education, 2011).

Reliability and validity (CRCT). The reliability of the 2004 CRCT ranged from 0.79 to 0.86 for reading. For the purpose of validity, testing includes assessment item writing and review. The CRCT test items are written and reviewed by highly qualified Georgia educators. The questions align to the state curriculum and emphasized higher-order thinking skills. All of the test items are multiple-choice. The tests are free from bias toward any person or persons. The CRCT is held to the highest standards for technical quality through Georgia's Technical Advisory Committee (TAC). The Georgia Department of Education is confident that the CRCT is highly reliable and valid (Georgia Department of Education, 2011).

Creation of regression model. Triola (2004) defines a multiple regression equation as, "a linear relationship between a dependent variable y and two or more independent variables. The formula suggested by Triola (2004) and that was used for the creation of the multiple regression model for this study is $y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4$. In order to find how well the predictive regression model equation fit the sample data, the researcher found the multiple coefficient of determination of the models that were being tested (Triola, 2004). All data analyzing for the creation of this regression model was completed through the Microsoft Excel program.

Validity of the regression model. In order to validate the regression model, the researcher conducted a Correlation Coefficient between the predicted 2010 CRCT Reading scores and the actual 2010 CRCT scores, resulting in $r = 0.47$.

Utilization of the predictive regression model. After creating the predictive regression model and checking for validity through the results of a correlation coefficient between the 2010 predicted CRCT Reading scores and the actual 2010 CRCT Reading scores, the researcher began the implementation of the model. As mobile students enrolled in the research site beginning September 7, 2010, the researcher entered their information into the Infinite Campus database for later use in the regression analysis.

Procedures

Prior to collecting the student data, the researcher completed the requisite paperwork for both the Internal Review Board (IRB) at school system (Appendix A) and Liberty University (Appendix B). The IRB paper work was submitted and permission was granted to conduct the study. For the school system, the researcher completed an application to collect student data. Once the study was approved by the IRB department at Liberty University, the researcher provided the school system with IRB approval documentation. Next, the researcher's study was approved by the school system and permission was granted to collect student data.

Regression Model Development

The first procedure conducted by the researcher was the creation of the regression model. The creation of the regression model provided the variables for the utilization of the regression model. The data for the model was retrieved from the system's database, Infinite Campus. The researcher removed the pre-kindergarten and kindergarten students from the data. In addition, the researcher removed any students who did not have a 2010 CRCT Reading score. The students who did not have 2010 CRCT Reading scores are students who transferred to the research site from out of state. The CRCT is Georgia specific and is not given in other states; therefore, these students could not be included in

the research. In total, there were 23 students removed from the study. Once these students were removed, the general population group had 295 students and the mobile population had 78 students.

The researcher collected the target school's data for students in grades first through fifth for the following areas: 1) behavior referrals, 2) free and reduced lunch status, 3) 2009-10 CRCT Reading scores, 4) family structure, and 5) student mobility. The preceding data were utilized for the creation of the regression model. This provided a model for identifying at risk students for academic failure.

The second procedure conducted by the researcher was to utilize the student mobility data that stated whether the student was mobile or non-mobile and ran an Independent T-Test for Unequal Variances and a Cohen's Standard Effect Size d that determined if there was a significant difference in the Reading CRCT scores of mobile students and the general population. Prior to conducting all Independent T-Tests in this study, the researcher conducted a Levene's Test for Equality of Variances between the two sets of data The results of this test concluded that the two sets of data had unequal variances, thus concluding that the researcher must run an Independent T-Test for Unequal Variances.

The third procedure conducted by the researcher was to identify the variables that the researcher would incorporate into the regression model. The researcher completed this by identifying the characteristics of at risk mobile students. The researcher utilized the review of the literature to identify the characteristics of at risk mobile students. The researcher identified the following characteristics: 1) family structure, 2) socioeconomic status, 3) race and 4) behavioral referrals. Long, Marx, and Tucker found that family structure causes student mobility. The authors stated that students from other family

structures had higher mobility rates. Mao et al. (1998) concluded that students who are from economically disadvantaged homes had higher mobility rates. Larson and Rumberger (1998) found that Black and Hispanic students were more likely to change schools than Asian, White, Native Americans. Larson et al. (1999) concluded that students with behavior problems were 40% more likely to change schools. By conducting these surveys, the researchers also found that extremely mobile children were found to having four or more behavioral problems during their school career (Halfon et al., 1993).

Prior to comparing the characteristics of the mobile and non-mobile students, the researcher created a series of "dichotomous variables" for the categories of family structure, socioeconomic status, and race. These non-numerical variables can be considered dichotomies (Lewis-Beck, 1980). Interval variables are encouraged in the creation of regression models, but often times there are variables that need to be included but do not have numeric value. For the variables included in this study, the researcher used dichotomous "dummy variables".

The first variable compared by the researcher was "family structure". Long, Marx, and Tucker (1998) discussed family structure and stated that students who live with both biological parents were unaffected by mobility. In contrast, students who live in other family structures were affected by mobility. For the variable "family structure", mobile students who lived with two biological parents were coded with a "zero". Mobile students who lived in all "other family structures", single parent, one biological parent, one stepparent, and extended family, were coded with a "one".

The second variable the researcher compared was socioeconomic status. The General Accounting Office (2004) found that 30% of third graders who transferred

schools were from low-income families, and 10% of third graders who transferred schools were from average-above average families. The socioeconomic status of the students was divided into dichotomous dummy variables based on whether the students received free and reduced lunch or not. Those students who received free or reduced lunch were coded with a "one", and those students who did not receive free or reduced lunch were coded with a "zero".

The third variable the researcher compared was race. Kerbow (1996) found that White students have more stability in their school membership and are more economically advantaged, yet African-American students represented 75% of the frequent movers. Dichotomy within the regression model was determined in the following manner: students in "At risk" race = Black, Hispanic, and Multi-Racial were coded with a "one"; students not considered in "At risk" race = White Asian = were coded with a "zero". After determining the "at risk" races, the researcher conducted an ANOVA among the "at risk" races to confirm the review of literature (Kerbow).

The fourth variable the researcher compared was behavioral referrals. Fowler and Simpson (1994) stated that students who moved 3 or more times are two times more likely to have behavioral problems. Since behavior referrals have a numerical value, there was no need to create dichotomous dummy variables for this characteristic. The researcher included the total number of behavior referrals of the mobile student into the predictive regression model. If the student had three behavior referrals, then the student would have a "three" entered in the behavior category of the predictive regression model. If a student had five behavior referrals, then the student would have a "five" entered in the behavior category of the predictive regression model. If the student had zero behavior referrals, then the student would have a "zero" entered in the behavior category

of the predictive regression model.

The researcher compared the 2010 CRCT scores of mobile and non-mobile students for the variables of race, family structure, and socioeconomic status. For the variable of behavior, the researcher compared the number of behavior referrals of mobile students with the number of behavior referrals for non-mobile students. To conduct the comparisons, the researcher utilized the Independent T-Test and Cohen's Standard Effect Size d between the variables.

The researcher created an initial regression model where each of the four variables was independent of each other. The mean of family structure was utilized for the slope. Once this model was created, the researcher determined that it was necessary to test for multicollinearity. There are several issues that arise when multicollinearity is present between the variables within a regression model. Lewis-Beck (1980) stated that high multicollinearity often creates estimation problems because it produces large variances for the slope estimates and increases the standard error. Thome (1991) stated that increased standard errors give adequate warning of collinearity. The researcher compared the standard error of the result's original additive regression model resulting in 28.65 with the average of errors being 40.52. The results of the interactive regression model resulted in 17.67 with the average of errors being 0.62. The researcher determined that the interactive model had a lower standard error and also a lower average of errors.

In order to create the most effective and reliable regression model, a researcher must assess for multicollinearity. In order to reduce the risk of multicollinearity and determine as to whether to create an additive or interactive regression model, the researcher conducted Phi Coefficient between the variables of race and income.

The results of the independent t-test, $t_{(24)} = -8.54$, $p = 9.29E-10$, 95% CIs[776,

785] and [817. 837], and Cohen's Standard Effect Size d of -2.43, 87.5% non-overlap of the initial additive regression model thus required the researcher to create an interactive model where race, family structure, and income were interactive and behavior was left additive. Keeping the variables additive, or independent of each other, raises the risk of multicollinearity. If the variables are interactive, points are taken away twice for individuals that have more than one characteristic, when creating regression models. The review of literature concluded that socioeconomic status, race, and family structure are all similar characteristics found in mobile students (Larson et al. 1999).

The mean of the family structure was the slope of the regression model. Long (1992) found that children who do not live with both parents often have a high rate of mobility. In a study conducted by Larson et al. (1999), the researchers found that children who live in non-traditional homes are more likely to more mobile than those children who live in two-parent homes. Therefore, the researcher created an interactive regression model in which race and income were added into the slope of family structure.

After the predictive regression model was created, the researcher validated the model by entering in the characteristics of the mobile students during the 2010 school year and producing a predicted 2010 CRCT Reading score. Once the predicted score was produced, the researcher ran a Correlation Coefficient between the predicted scores and the actual scores.

For the utilization of the predictive regression model, the researcher incorporated the demographic information of mobile students who were enrolled at the research site between September 2010 and May 2011. The researcher was predicting the mobile students' 2011 CRCT Reading scores. Once the student's individual mobile scores were predicted, the students were placed into one of the following categories: "At risk" and

"Not At risk". Students with a score below 820 were placed in the "At-Risk" category. Students with a score above 820 were placed in the "Not At-Risk" category.

Once the mobile student had their information entered in the predictive regression model, a 2011 predicted CRCT Reading score was produced. From there, the researcher placed the mobile student into one of four groups based on the student's CRCT score. To determine student proficiency, the state's CRCT scores are placed into one of three levels. Students who receive a level one on the CRCT, scores a "Does Not Meet", which when numerically represented is a 799 or below. Students who score from 800-849 are placed in the "Meets" category, or the level two category. Students whose category is above 850 are placed in the 'Exceeds" category, or the level three category. In order to remain aligned with the category grouping of the CRCT, the researcher grouped students into two groups based on their predicted 2011 CRCT Reading score.

To ensure the finding were precise, the researcher adjusted the four groups by analyzing and adjusting for two components. First, the researcher made adjustments to the levels based on the 17.67 standard error of measure (SE = 17.67) that was found in the creation of the predictive regression model.

Once the 2011 CRCT Reading scores were determined, the researcher entered each mobile student's actual 2011 CRCT Reading score next to their predicted 2011 CRCT Reading. In the creation of the predictive regression model, students who had a difference of ± 47 points between their predicted score and their actual score were considered outliers and were removed from the data. Since this process was done for the creation of the regression model, the researcher concluded a similar process for the utilization of the predictive regression model was appropriate. Student number three was removed before the Independent T-Test and effect size (ES) was calculated. An

Independent T-Test was conducted between the predicted and actual 2011 CRCT Reading scores of the mobile students. The mobile student's predicted 2011 CRCT Reading score along with their actual 2011 CRCT Reading score can be found in Appendix D.

After the researcher entered all of the actual 2011 CRCT Reading, an Independent T-Test and Cohen's Standard Effect Size d was conducted between the predicted 2011 CRCT Reading scores and the actual 2011 CRCT Reading scores. The Independent T-Test determined if there was a relationship in the predictive regression model and the identification of at risk mobile students $t_{(24)} = 3.13, p = .004$, 95% CIs [805.4, 814.6], and [816.8, 810.0]. The Cohen's Standard Effect Size d determined the magnitude of the difference between the predicted 2011 CRCT Reading scores and the actual 2011 CRCT Reading scores.

The researcher further analyzed research question 6 by running a Chi Square between the predicted at risk categories and the actual at risk categories. Initially, the researcher labeled the mobile students as "At risk" and "Not At risk based on their predicted 2011 CRCT Reading score.

The first category was mobile students who received below an 820 on their predicted 2011 CRCT Reading score. These mobile students were placed in the "At risk" category. The next category was mobile students who received an 820 or above on their predicted 2011 CRCT Reading score. These mobile students were placed in the "Not At Risk" category. Appendix E displays the predicted at risk categories for each mobile student and the actual at risk category for each mobile student once the 2011 CRCT Reading scores were received.

Data Collection

After receiving school system approval, the researcher gathered the de-identified historical 2009-10 data for grades first through fifth. The de-identification process was performed through a filtering process available through the Infinite Campus database. The de-identified historical data included the following categories: age, race, grade, discipline referrals, socioeconomic status—based on free and reduced lunch information, number of school transfers, and 2010 Georgia CRCT Reading scores.

For purpose of the utilization of the predictive regression model, the researcher collected the following demographic information on mobile students who entered the research site from September 2010 to May 2011: 1) race, 2) grade, 3) discipline referrals, and 4) socioeconomic status—based on free and reduced lunch information, 5) mobility rate, 6) and the student's actual 2011 CRCT Reading score.

Research question 1: *In what ways does the academic performance of those mobile students differ from the general population?*

The researcher answered research question 1 by gathering the 2010 CRCT Reading scores of mobile students in grades first through fifth and the 2010 CRCT Reading scores of the general population from the system's database, Infinite Campus. The researcher analyzed this data by conducting an Independent T-Test and Cohen's Standard Effect Size d.

Research question 2: *In what ways does the negative student behavior of those mobile students differ from the general population?*

In order to quantitatively determine the negative behaviors of mobile students, the researcher looked at the behavior referrals of the mobile students. Often times, when misbehavior occurs, the student is referred to the office for this behavior. The researcher

answered research question two by collecting the behavioral referrals of both mobile students and the general student population for the 2009-10 school year. Once this information was gathered, the researcher completed an Independent T-Test and a Cohen's Standard Effect Size d.

Research question 3: *How can a valid predictive regression model be created and utilized in order to identify mobile students who are at risk for academic failure?*

The researcher answered research question three by creating and utilizing a predictive regression model that was developed by the researcher in order to predict the CRCT Reading scores of mobile students. Once the predictive regression model was created and utilized, the researcher conducted an Independent T-Test along with an Cohen's Standard Effect Size d between the 2011 predicted and actual CRCT Reading scores. The researcher extended the study by conducting a Chi Square between the at risk categories.

Data Analysis

Research Question 1: *In what ways does the academic performance of those mobile students differ from the general population?*

HO1: There is no significant difference between the academic performance of those mobile students and the general population.

In order to answer research question1, the researcher conducted an Independent T-Test and Cohen's Standard Effect Size d between the 2009-2010 mobile students and the general population.

Research Question 2: *In what ways does the negative student behavior of those mobile students differ from the general population?*

HO2: There is no significant difference between the negative student behavior of

those mobile students and the general population.

In order to answer research question 2, the researcher conducted an Independent T-Test and Cohen's Standard Effect Size d between the 2009-2010 mobile students and the general population.

Research Question 3: *How can a valid predictive regression model be created and utilized in order to identify mobile students who are at risk for academic failure?*

HO3: There is no significant difference between the academic performance of those mobile students who live in at-risk family structures and those mobile students who do not live in a-risk family structures.

HO4: There is no significant difference between the academic performance of those mobile students who are economically disadvantaged and those mobile students who are not economically disadvantaged.

HO5: There is no significant difference between the academic performance of those mobile students who part of an at-risk race and those mobile students who are not part of an at-risk race.

HO6: There is no difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students.

In order to answer research question 3, the researcher began by creating a predictive regression model. Once the predictive regression model was created, the researcher utilized the predictive regression model by incorporating the 2010-2011 mobile students' demographics into the predictive regression model and predicting the mobile students' 2011 CRCT Reading score. Once the researcher had a predicted 2011 CRCT Reading score for the mobile students and obtained the actual 2011 CRCT

Reading score, the researcher ran an Independent T-Test and between the two scores. The researcher also conducted a Cohen's Standard Effect Size d to determine the magnitude of the difference between the two scores.

The researcher continued the study by analyzing the difference between the predicted at risk categories and the actual at risk categories. In order to come to a conclusion, the researcher conducted a Chi Square Test between the predicted at risk categories and the actual at risk categories.

CHAPTER FOUR: RESULTS OF THE STUDY

Introduction

Student mobility has a negative impact on the overall educational success of mobile students. This impact includes, but is not limited to academic failure, behavior problems, and socialization issues. Without identification and intervention, mobile students are at risk of falling behind educationally and having behavioral issues in their new school setting. Kirkpatrick and Lash (1990) stated that mobility causes an increase in negative student behavior and decrease in academic achievement. The identification of these at risk mobile students and the implementation of various interventions is vital to these students overall academic success.

The purpose of this study was to identify mobile students who are at risk for academic failure. The following research questions and hypotheses guided the data collection and analyzing of this study.

Research question 1. *In what ways does the academic performance of those mobile students differ from the general population?*

HO1: There is no significant difference between the academic performance of those mobile students and the general population.

Research question 2. *In what ways does the negative student behavior of those mobile students differ from the general population?*

HO2: There is no significant difference between the negative student behavior of those mobile students and the general population.

Research question 3. *How can a valid predictive regression model be created and utilized in order to identify mobile students who are at risk for academic failure?*

HO3: There is no significant difference between the academic performance of those mobile students who live in at-risk family structures and those mobile students who do not live in a-risk family structures.

HO4: There is no significant difference between the academic performance of those mobile students who are economically disadvantaged and those mobile students who are not economically disadvantaged.

HO5: There is no significant difference between the academic performance of those mobile students who part of an at-risk race and those mobile students who are not part of an at-risk race.

HO6: There is no difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students.

Research Questions and Results

Research question 1. *In what ways does the academic performance of those mobile students differ from the general population?* In order to answer research question 1, the researcher retrieved the 2010 CRCT Reading scores of the general population and the mobile population of students. The information was pulled from the system's database, Infinite Campus. The researcher went through and removed student's data in grades Pre-Kindergarten and Kindergarten because these students were not required to take the CRCT during the 2009-2010 school year.

After retrieving this information, the researcher took the 2010 CRCT Reading of the general population and the CRCT Reading scores of the mobile population and conducted an Independent T-Test. The results of the Independent T-test showed $t_{(371)} = 2.98$, $p = .002$, 95% CIs [824.8, 837.5], and [838.6, 845.3]. Next, the researcher

conducted Cohen's Standard Effect Size d to find the magnitude of the difference. The Cohen's Standard Effect Size d resulted in .94, 51.6% nonoverlap.

Table 1 displays the results of the Independent T-Test as previously discussed. After analyzing the results of the Independent T –Test, the researcher rejected the null hypothesis 3 and concluded that there is a significant difference in the academic performance of mobile students and the general population.

Table 1

2010 Reading CRCT Scores of Mobile and Non-Mobile Students

Group	*n*	*M*	*t*	*p*
Mobile Students	78	831.15		
			2.98	.002
Non-Mobile Students	295	841.98		

Research question 2: *In what ways does the negative student behavior of those mobile students differ from the general population?* In order to answer research question 2, the researcher pulled the 2010 behavior referrals for students in grades third through fifth for both the general population and the mobile population from the school database, Infinite Campus. In order to keep the data consistent with research question 1, the researcher removed students in Pre-K and Kindergarten. Once these students were removed, the researcher went through and removed any students who did not have 2010 CRCT scores.

After the data was organized, the researcher conducted an Independent T-Test between the general population and the mobile population along with a Cohen's Standard Effect size d to determine if there was a significant different in the negative student behaviors of the general population and the mobile population based on the 2009-2010

behavior referrals. The Independent T-Test showed $t_{(371)} = 2.03, p = .02$, 95% CIs [0.3617, 0.7267], and [0.5902, 1.516]. The information from this Independent T-Test is displayed below in Table 2. The Cohen's Standard Effect Size d resulted in .28, 21.3% nonoverlap. After collecting and analyzing the data, the researcher rejected the null hypothesis, stating that there is a significant difference between the negative student behavior of the general population and the mobile population.

Table 2

Negative Student Behavior of Mobile and Non-Mobile Students

Group	*n*	*M*	*t*	*p*
Mobile Students	*78*	*831.15*	*2.98*	
Non-Mobile Students	*295*	*841.98*		

Research Question 3: *How can a valid predictive regression model be created and utilized in order to identify mobile students who are at risk for academic failure?* In order to answer research question three, the researcher began by creating a predictive regression model.

Table 3

2010 CRCT of Mobile and Non-Mobile Students

Group	*n*	*M*	*t*	*p*
Mobile Students	78	1.05	2.03	.02
Non-Mobile Students	295	.54		

The review of the literature revealed that mobile students demonstrated lower academic achievement when compared to non-mobile students. Paik and Phillips (2002),

found when mobile students were compared with stable students, mobile students exhibited a higher percentage for academic failure. Researchers Larson and Rumberger (1998) also determined that mobility can have a long-lasting effect on the academic achievement of these students, including the percentage of mobile students who graduate. In order to confirm the researcher compared the CRCT scores of two groups (1) mobile students; (2) non-mobile students. To determine if there was a difference between the CRCT Reading scores of the mobile and non-mobile students, the researcher utilized the Independent T-Test. The results of the Independent T-Test showed $t_{(371)} = 2.98, p = .002$, 95% CIs [824.8, 837.5], and [838.6, 845.3]. Table 3 displays the results from this Independent T-Test. The researcher also conducted Cohen's Standard Effect Size d, resulting in .94, 51.6% nonoverlap. The researcher rejected null hypothesis 1 and stated there is a significant difference between the CRCT of mobile students and non-mobile students.

Once the researcher established that there was a significant difference in the CRCT Reading scores of mobile and non-mobile students, the researcher began investigating potential causes. A review of Long et al. (1998) revealed that the family structure is a cause of student mobility. They found that when both biological parents were present in the home, the family was less likely to be mobile. In other family structures, such a single-parent homes and homes were children who living with extended family members and guardians, there was a higher mobility rate (Long, et al., 1998).

To verify that different family structures affect the academic success of mobile students, the researcher conducted an Independent T-test between the two groups (1) students who live with two biological parents and (2) students who lived with other types of family structures. The other types of family structures included mobile students who

lived with one biological parent, one biological parent and a step-parent, an extended family member, or a guardian. The results showed $t_{(76)} = 3.47, p < .001$, 95% CIs [834.7, 859.1], and [816.6, 829.9]. Table 4 displays the results from this Independent T-Test. The researcher also conducted a Cohen's Standard Effect Size d. The results of Cohen's Standard Effect Size d resulted in .87, 47.4% nonoverlap. As part of the regression model the researcher rejected null hypothesis three asserting that there is significant difference in CRCT scores between mobile students who live with at-risk family structure and mobile students who do not live with at-risk family structures. The characteristic of family structure was included in the regression model.

Table 4

Family Structures of Mobile Students

Group	n	M	t	p<.001
Two Biological Parents	24	846.88		
			3.47	.0006
Other Family Structures	52	823.28		

The review of literature revealed that mobile students from disadvantaged backgrounds were at risk for academic failure. Mao et al. (1998) confirmed that students from economically disadvantaged homes are often more mobile. In a research study conducted by Larson and Rumberger (1998), the authors found changing schools has a negative effect on the academic achievement of highly mobile high school students. The authors stated the negative effect causes academic delays. Larson and Rumberger found that the academic delay of these economically disadvantaged mobile students often has a long lasting effect on their academic achievement, decreasing the likelihood of high

school graduation.

The researcher conducted an Independent T-Test to determine if there was a differences in the CRCT Reading scores of the two groups (1) economically disadvantaged mobile students; (2) mobile students. The results of the Independent T-Test concluded $t_{(76)} = 2.69$, $p = .009$, 95% CIs [832.9, 979.1], and 820.7, 832.6]. The researcher also conducted Cohen's Standard Effect Size d, resulting in .94, 51.6% nonoverlap. The researcher rejected null hypothesis three stating that there was a significant difference in CRCT Reading scores of those mobile students who were economically disadvantaged and those mobile students who were not economically disadvantaged. The characteristic of socioeconomic status was included into the creation of the regression model.

Table 5

Socioeconomic Status of Mobile Students

Groups	*n*	*M*	*t*	*p*
No Free and Reduced Lunch	12	826.64		
			2.69	.009
Free and Reduced Lunch	66	856		

The review of literature found a difference in the mobility and academic achievement of different races. Baker-Boudissa, Finch and Lapsley (2009) found that when compared to all other races, Caucasian students scored higher on the state proficiency exam. The study found that the Caucasian group had a higher pass rate on the state proficiency exam (Baker-Boudissa, Finch & Lapsley, 2009). In 1998, there was a difference in the average 8th grade reading score on the NAEP among races, leaving a

large gap between White and Black scores (31 point difference), and a large gap between the White and Hispanic scores (33 point difference). On the 1998 8th grade Reading NAEP, nationwide, the average scores were 1) White-270, 2) Black-241, and 3) Hispanic-243 (Owens & Smrekar, 2003).

To confirm the similarities between the "At risk" races found in the review of literature, the researcher conducted an ANOVA among the CRCT Reading scores of Black, Hispanic and Multi-Racial mobile students, resulting in $F_{(2, 46)} = .61$, $p = .55$. There is no difference in the CRCT Reading scores among the at risk races.

Table 6

ANOVA among At Risk Races of Mobile Students

Groups	*df*	*M*	*F*	*p*
Black	39	823.15		
Hispanic	2	841.5		
Multi-racial	8	824.63		
			.61	.55

An Independent T-Test was conducted between the mobile students who were (1) considered an at risk race and (2) the mobile students who were not considered as an at risk race, resulting in $t_{(76)} = 2.68$, $p = .005$, 95% CIs [817.4, 831.1], and [830.5, 855.5]. The researcher also conducted Cohen's Standard Effect Size d, resulting in .66, 38.2% nonoverlap.

The researcher rejected null hypothesis 5 and asserted that there was a "significant difference" between the CRCT Reading scores of races that were found to be at risk for academic failure and races that were found to be not at risk for academic failure. After this analysis, the variable race was included in the predictive regression model.

Table 7

At Risk Races and Not At Risk Races of Mobile Students

Group	*n*	*M*	*t*	*p*
At risk Races	49	824.26		
			2.68	.005
Not At risk Races	29	843		

Negative student behavior is often seen as a characteristic of both mobile students and of students at risk for academic failure. In order to consider behavior as a characteristic in the predictive regression model, the researcher conducted an Independent T-Test between the negative student behavior of (1) mobile students (based on the number of behavior referrals the students received during the year) and (2) non-mobile students (based on the number of behavior referrals the students received during the year). The researcher found that there was a significant difference in the behavior of mobile students and non-mobile students $t_{(371)} = 2.03$, $p = .02$, 95% CIs [0.3617, 0.7267], and [0.5902, 1.516]. The researcher also conducted a Cohen's Standard Effect Size d, resulting in .28, 21.3% nonoverlap. The researcher rejected null hypothesis 2. The variable behavior was included in the predictive regression model.

Table 8

Negative Student Behavior of Mobile and Non-Mobile Students

Group	*n*	*M*	*t*	*p*
Mobile Students	78	1.05		
			2.03	.02
Non-Mobile Students	295	.54		

Once the characteristics of family structure, race, socioeconomic status, and behavior were determined to be significant to the success of the model, the researcher used the variables to create the predictive regression model. The slope of the family structure variable was used to create the predictive regression model due to the findings of Kerbow (1996) and Astone and McLanahan (1994) that found that the family structure is the most impactful variable for determining the academic success of mobile students. These researchers found that students who live with both biological parents are less mobile than those students who live in all other family structures, resulting in higher academic achievement.

The researcher first created a predictive regression model that incorporated the four variables into the model additively. The predictive regression model resulted in SD=40.52, SE=28.65, M=811. The researcher ran a Correlation Coefficient between the predicted 2010 CRCT Reading scores and the actual 2010 CRCT Reading scores. The Correlation Coefficient between the predicted and actual scores resulted in r = .50.

To determine if these characteristics impact multicollinearity, the researcher ran the Phi Coefficient correlation between the three independent variables. First, the researcher conducted a Phi Coefficient test between race and family structure and found that $\varphi = .33$, $p < .01$. Second, the researcher ran a correlation test between race and income, and found that $\varphi = .31$, $p < .01$. Third, the researcher ran a correlation test between race and income and found that $\varphi = .28$, $p < .05$. Because there was a correlation between these three variables, it was vital for the researcher to create an interactive regression model. Although this was not a high correlation, it was significant correlation for the sample size.

Table 9

Correlations between Variables

Groups	Family Structure	Income
Race	.33	.31
Family Structure	-	.28

Six outliers with a difference between the predicted and the actual CRCT scores of ±47 were removed from the analysis of the interactive regression model. The interactive predictive regression model resulted in SD=22.59, SE=17.67, M=831.

The researcher ran a Correlation Coefficient between the predicted 2010 CRCT Reading scores and the actual 2010 Reading scores of the interactive predictive regression model. The Correlation Coefficient between the predicted 2010 CRCT Reading sores and the actual 2010 Reading scores resulted in r = .41.

Although the researcher found that the interactive regression model had a lower standard deviation and a lower standard of measure, the researcher utilized both regression models to determine which model had the best results. The researcher ran an Independent T-Test for Unequal Variances and a Cohen's Standard Effect Size d utilizing the initial predictive model where the variables were additive. The results of the Independent T-Test utilizing the initial predictive regression in $t_{(24)}$ = -8.54, p = 9.29E-10, 95% CIs [776, 785], and [817, 837]. The results of the Independent T-Test showed that there was a significance difference between the predicted and actual 2011 CRCT Reading scores when utilizing the initial predictive regression model. The Cohen's Standard Effect Size d between the predicted and actual 2011 CRCT Reading scores when utilizing the initial predictive regression model resulted in -2.43, 87.5% non-overlap. The results of these two tests verify that the initial additive predictive regression

model could not be utilized in order to identify mobile students who were at-risk for academic failure.

The results of the Independent T-Test between the predicted and actual 2011 CRCT Reading scores when utilizing the interactive predictive regression model resulted in $t_{(24)} = .25, p = .40$, 95% CIs [805.4, 814.6], and [816.8, 837.4]. The results of the Independent T-Test showed that there is no difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students. The Independent T-Test (Table 10) shows the results of the Independent T-Test between the predicted scores and the actual CRCT Reading scores.

Table 10

Independent T-Test between Predicted and Actual 2011 CRCT Reading Scores

	Predicted Scores	*Actual Scores*
Mean	828.41	827.08
Variance	110.86	597.73
Df	46	
t Stat	0.25	
P(T<=t) one-tail	0.40	
t Critical one-tail	1.67	

After the researcher found that there was a relationship between the predicted scores and the actual scores, the researcher found the Cohen's Standard Effect Size d to be .05, 7.7% nonoverlap. The magnitude of the difference between predicted scores and the actual scores was minimal based on the Cohen's Standard Effect Size d.

Once the total of the individual categories was calculated, the researcher conducted a Chi Square between predicted categories and the at risk categories. The Chi

Square test resulted in $\chi^2(3) = 5.23$, $p = .15$. The results of this Chi Square showed that there was no difference between the predicted at risk categories and the actual at risk categories and are shown in Table 11.

Table 11

Results of Chi Square between Predicted At Risk Categories and Actual At Risk Categories

Category	*Predicted Scores*	*Actual Scores*
Extremely At risk	0	1
At risk	17	13
Not At risk	7	7
Extremely not At risk	0	3
Chi Square	5.23	
Chi Dist (Probability)	0.15	

Based on the results of the Independent T-Test between the predicted and actual 2011 CRCT Reading scores and the Cohen's Standard Effect Size d results, along with the results of the Chi Square results between the predicted and actual at risk categories, the researcher accepted null hypothesis 6 stating that there is no difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students.

CHAPTER FIVE: DISCUSSION OF RESULTS AND IMPLICATIONS FOR FUTURE RESEARCH

Introduction

Student mobility has always been known for the negative impacts that it has on the overall academic achievement of a mobile student. In this study, *Identifying At risk Mobile Students of Academic Failure*, the researcher took specific characteristics found in mobile students, created a predictive regression model. The researcher continued the research project by utilizing the predictive model in order to identify mobile students who were at risk for academic failure.

In order to utilize the predictive regression model, the researcher first created the model through research found in the review of literature and also specific tests that were conducted. Historical data from the 2010 CRCT Reading was used to create the predictive regression model. After the creation of the predictive regression model, the researcher utilized the model in order to find out academic failure of mobile students by predicting their 2011 CRCT Reading score.

Restatement of the Problem

The problem is mobile students demonstrate lower academic achievement and higher rates of behavior problems than the general school population. First, the academic achievement of a mobile student is adversely impacted due to the loss of instructional time, discontinuity in curriculum changes, and teacher and classmate adjustment (Paik & Phillips, 2002). Mobile students are not learning the content material they need to succeed in school. These continuous changes result in a lack of self esteem and motivation for the mobile student. Often times, mobility has a negative effect on

achievement levels and increasing academic achievement (Hartman, 2004). Students achieve academically when they have stability in the home, continuity in instruction, and a solid social foundation in which the student feels comfortable and content, and where the student feels a sense of belonging and ownership in his or her school.

Research Questions

Research question 1: *In what ways does the academic performance of those mobile students differ from the general population?* The researcher confirmed that there is a significant difference between the academic performance of mobile students and the general population. Through an Independent T-Test between the 2011 CRCT Reading scores between the mobile students and the general population, resulting in $t_{(371)} = 2.98, p = .002$, the researcher rejected null hypothesis one stating that there is a significant difference between the academic performance of the mobile students and the general population.

Through the results of the Independent T-Test and the supporting information received in the Review of Literature researcher concludes that there is a significant difference between the academic performance of mobile students and the general population. The researcher concurs with Kerbow (1996) who stated inconsistency in curriculum, loss of instructional days, and adjustments to a new school setting all support the rejection of the null hypothesis and therefore a decrease in the academic achievement among mobile students was observed in the data. These educational interruptions not only have an immediate impact, but also a long-term impact (Larson & Rumberger, 1998). Larson and Rumberger (1998) stated the long-term effect of education interruptions could negatively impact high school graduation for mobile students. These educational interruptions not only have an immediate impact but also long-term impact

(Larson & Rumberger). Larson and Rumberger (1998) stated the long-term effect of educational interruptions could negatively impact high school graduation for mobile students.

Research question 2: *In what ways does the negative student behavior of those mobile students differ from the general population?* The researcher confirmed that there is a significant difference between the negative student behavior of the mobile students and the general population. The researcher utilized student behavioral referrals and conducted an Independent T-Test that compared the negative student behavior of mobile students and the negative student behavior of the general population. Subsequent analysis of the results enabled the researcher to reject null hypothesis two and conclude that there is a significant difference between the negative student behavior of the mobile students and the general population. The Independent T-Test between the mobile students and the general population resulted in $t_{(371)} = 2.03, p = .02$.

The researcher concludes that there is a significant difference in the negative behavior of mobile students when compared to the general population. The researcher found that mobile students are more likely to have behavioral issues as measured by increased behavioral referrals. The research of Fowler and Simpson (1994) and Larson et al. (1999) support the researcher's conclusion as both authors found that a result of student mobility is negative student behavior.

Research question 3: *How can a valid predictive regression model be utilized in order to identify mobile students who are at risk for academic failure?* The results of the Independent-Test $t_{(24)} = .25, p = .40$ and the Cohen's Standard Effect Size d .05 between the predicted 2011 CRCT Reading scores, and the 2011 actual CRCT Reading scores of 2010-11 mobile students the researcher accepted null hypothesis 6 stating that there is no

difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students. Regression models have been used in past research to predict academic success. Swanson and Schneider (1999) used a predictive regression model in order to predict gains in mathematic achievement

The researcher continued the study by running a Chi Square test between the predicted at risk categories and the actual at risk categories resulting in $\chi^2(3) = 5.23$, $p = .15$. The researcher accepted the null hypothesis 6 stating that there is no difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students.

Discussion

The three research questions were the foundation for this project. The researcher was intrigued with the topic of student mobility and its negative impact on the educational success of mobile students. Although the researcher investigated several studies that utilized regression models to predict outcomes Larson and Rumberger (1998) Long et al. (1998), there were no studies that were similar to this one. The researcher created and utilized a predictive regression model that was specific to predicting the CRCT Reading scores of mobile students.

Due to an inability to prevent student mobility, the researcher recognized the importance of proactively addressing the ramifications of this phenomenon. The three research questions provided the requisite framework for identifying the causes of student mobility and addressing its effect on the academic achievement for at risk mobile students. These three research questions guided the research discussion.

Research question 1: *In what ways does the academic performance of those*

mobile students differ from the general population? The stated impact on the academic performance of mobile students was discussed in the review of the literature. Paik and Phillips (2002) stated that student mobility effects academic achievement by interrupting regular attendance, disrupting curriculum instruction, and breaking vital relationship development with teachers and peers. This researcher concurs with researchers Paik and Phillips (2002), Rumberger (2003), and Kerbow (1996) who concluded that mobile students are at risk of experiencing academic difficulties; however, their non-mobile peers are less likely to suffer academically

The researcher rejected null hypothesis 1 that stated there was a significant difference between the academic performance of mobile students and the general population. The difference between the academic performance of mobile students and the general population has significance on the culmination of this research project. Determining that student mobility negatively impacts academic success validates the importance of proactively addressing the consequences of student mobility (Rumberger, 2003).

The researcher asserts that student mobility has a negative impact on the overall academic success of mobile students. Although a resolution for students mobility does not exist, the researcher assets that acknowledging that there is significant difference in the academic performance of mobile students and the general population. By acknowledging this, further assessment can occur and interventions can be put into place as soon as the mobile student is labeled at risk for academic failure. The researcher concurs with Mao et al. (1998), students who are mobile are at higher risk for academic failure. Often times, these academic failures are long lasting, including dropping out of high school (Mao et al., 1998).

Research question 2: *In what ways does the negative student behavior of those mobile students differ from the general population?* In the review of the literature, the researcher found that negative student behavior was a result of mobility. Multiple transitions and the disruption to the learning environment caused mobile students psychological distress and feelings of seclusion from peers (Halfon et al., 1993). Through a survey conducted by Halfon et al. (1993), the researchers found that a high percentage of mobile students had a variety of behavioral problems. The authors found a positive correlation between student mobility rates and behavior issues.

The conclusion of Fowler and Simpson (1994) discussed and stressed the connection between negative student behavior and highly mobile students. Fowler and Simpson (1994) found that children who had moved multiple times had a higher risk of emotional-behavioral problems than those students who had never moved (Simpson & Fowler, 1994). The researcher is in agreement with the finding of this study, concluding that negative student behavior is a result of student mobility, particularly high student mobility.

The researcher rejected null hypothesis two, which stated there is a difference in the negative student behavior of the general population and the mobile students. Along with the authors Nessim et al. (1993) and Larson et al (1999) the researcher confirms that mobile students have an increased rate of behavior problems at school. The researcher concludes that there is a difference in the negative student behavior of the general population and the mobile students. Fowler and Simpson (1994) found that mobile students have an increased rate of negative student behavior. For this study, the researcher confirmed this by analyzing and comparing the number of behavior referrals of the general population and the mobile students.

As stated earlier, by determining that negative student behavior is a result of student mobility—especially extremely high student mobility—further implications can be addressed. First, quick identification of these students with behavior issues is vital to their overall school success. Second, orientation programs, counseling programs, and peer groups can be developed to help students adjust to their new school and avert potential behavior issues.

Research question 3: *How can a valid predictive regression model be utilized in order to identify mobile students who are at risk for academic failure?* The placement of research question three was intentional as it provides a climax for the entire study. From research questions one and two, the researcher found that student mobility caused negative results: academically and behaviorally. The GAO (1994) found that third grade students who changed schools frequently were reading at a lower reading level than those students who never changed schools. Rumberger (2003) stated that negative student behavior and academic failure was a continuous pattern, with both resulting from student mobility.

Predictive regression models in the past have been used to predict academic failure, behavior problems, and graduation rates. In the utilization of a predictive regression model, Larson and Rumberger (1996) found that academic performance and graduation rates could be predicted. The researcher studied different regression models including Larson and Rumberger's and Long et al. (1998) models in order to create a valid, distinct, specific regression model. This self-created model utilized student demographics to identify students at risk for failure. The students were divided into four categories based on their academic success or failure score received from the predictive regression model.

The researcher utilized the predictive regression model, and the Independent T-Test and Cohen's Standard Effect Size d was run between the predicted and actual 2011 CRCT Reading scores. In addition, a Chi Square was run between the predicted and actual 2011 CRCT Reading at risk categories. The results of these tests confirmed that the researcher should accept null hypothesis 6 stating that there is no difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students. Answering research question 6 three enabled the provided a seamless transition into the research study's culmination. Through the creation and utilization of the predictive research model and an understanding of the consequences of student mobility, the researcher created a foundation for future research.

There are numerous opportunities for similar regression models to be created and tested for the purpose of identifying at risk mobile students for academic failure. This study was limited to the creation and utilization of a predictive regression model to indentify mobile students for academic failure. Long, Marx, and Tucker (1998) utilized a multiple regression model in order to analyze the effects of specific variables and mobility on children's school lives. Once the mobile students are identified as at risk; orientation programs, policies and procedures, and support are needed for these at risk mobile students. Rhodes (2007) discussed the importance of the implementation of transfer policies and orientations at both the school and district level.

Next, the predictive regression model that was created and utilized for this research study can be used for similar studies to counter the negative impact of academic failure as measured by national and state test scores and graduation rates. Noteworthy, is the model's ability to predict graduation probability for school systems across the

country. Since this study was limited to a rural school in the southeast part of the United States, there are multiple studies that can be accomplished through the same process but in a different location.

Limitations of the Study

The researcher found that there were limitations to this study. Despite the limitations, the researcher confirms that they had little effect on the overall outcome of the study. The first limitation was the rural location of the research site. Although high rates of student mobility are found in both rural and urban areas, Kerbow (1996) found that the urban student mobility rate is higher and is increasing at an alarming rate.

The number of mobile students utilized in the predictive regression model can be considered a limitation. While the number of mobile students utilized in the regression model was sufficient for this study, additional mobile students would have expanded the study. Germane to the size of the population was the continuous transfers of the mobile students. There were several mobile students that were initially considered for the population, but their continuous mobility precluded them for inclusion into the study and resulting in a lower population for the study due to their relocation outside the district.

In addition to the population, the continuous mobility of some of the students was a limitation. Mobile students removed from the historical data to create the regression model, were subsequently removed because they did not have a 2010 CRCT Reading score.

Multiple moves within one school year were common among mobile students. This limitation reduced size of the population that was used in predicting the academic failure of mobile students was caused due to the multiple moves of these students. The researcher found that a few of the students who entered the research site between

September 2010 and May 2011 and moved prior to taking the Reading portion of the 2011 CRCT. Therefore, the researcher did not include those students in the correlation coefficient that compared the 2011 predicted CRCT Reading scores and the actual 2011 CRCT Reading scores of the mobile population.

Implications for Future Research

Although student mobility cannot be resolved, there are numerous consequences that can be minimized by quickly identifying at risk mobile students as they enter the research site. This research study was purposefully limited to the creation and utilization of a predictive regression model to identify at risk students.

Similar to the predictive regression model utilized by Larson and Rumberger (1998), the statistical formula for predictive regression models can remain constant based on the variables needed for the model. Based on the research questions created by the researcher, there are predictive regression models that can be created.

The identification of the academically at risk mobile students is important, but minimizing the consequences that arise is vital to the overall academic success of these mobile students. This research study was created so that at risk mobile students could be identified for academic failure. By limiting this study to the creation and utilization of a predictive regression model in order to identify at risk mobile students for academic failure, future researchers have options for extending this study. There are numerous ways that researchers can extend or expand this study including creating similar predictive regression models, generating new transfer policies and procedure for mobile students, and setting up new orientation programs for schools.

The Educational Resources Information Center (1991) stated that insufficient records are a continuous issue when it comes to student mobility. There are numerous

opportunities for future research concerning student mobility, academic achievement, and student record procedures including but not limited to the creation of further alternative assessments in lieu of late or lost student records. There are opportunities for researchers to implement procedures for mobile students who are identified as at risk for academic failure.

Some opportunities include, but are not limited to analyzing orientation programs for mobile students, counseling and support programs for mobile students, and peer support programs for mobile students. Rhodes (2007) suggested that pre-enrollment conferences along with counseling conferences with both the mobile student and the parents of the mobile students are vital to the overall academic success of the mobile student. By creating and analyzing the progress of programs, researchers will minimize the negative connotations that come with student mobility. Future quantitative, qualitative, and mixed method studies can be derived from this study.

Further implications for future research include examining school districts intra-district student transfer policies. In particular, the practice of school administrators moving problem students to another school can be extended for future research. Rhodes (2007) stated the practice of moving students with behavioral issues to another school causes problems for the receiving school**.** Future researchers would have an opportunity to extend this research study by utilizing this predictive regression model and predicting at-risk mobile students for academic failure. By doing this, the researcher would be able to identify at-risk students immediately and put interventions in place to help these mobile at-risk students.

By first utilizing this predictive regression model, researchers will have an understanding that there are serious academic consequences that result from intra-district

student mobility. Researchers may find it important to extend this research study by analyzing curriculum mapping within a system. By having a system-wide curriculum map, intra-district mobile students will have access to the curriculum no matter where they transfer within the county. Kerbow (1996) stated that districts that create standardized curriculum maps enable intra-district students to be exposed to a standard curriculum. By creating and implementing standardized curriculum maps within a district, mobile students are less likely to miss important content material.

Conclusion

Student mobility and its negative effect on the academic success of mobile students has been established. Larson and Rumberger (1998) found that student who are highly mobile often suffer academically. Mobile students who change schools miss curriculum instruction and as a result lack the requisite skills to achieve academically (Rumberger, 2003). Through the rejection of null hypotheses one and two the researcher concludes that there is a difference in the academic failure and negative student behavior of mobile and non-mobile students. Generally, mobile students are at a higher risk for academic failure, and often these mobile students have a higher rate of negative behavior. Hartman (2004) asserted that the academic effects of student mobility include higher dropout rates and lower levels of academic achievement.

By accepting null hypothesis 6, there is no difference in the predicted CRCT Reading scores of mobile students made through a valid predictive regression model and the actual CRCT Reading scores of mobile students. By running an Independent T-Test and effect size calculation between the 2011 CRCT Reading predicted scores found through the predictive regression model and actual CRCT Reading scores and finding that there is no difference in the predicted CRCT Reading scores of mobile students made

through a valid predictive regression model and the actual CRCT Reading scores of mobile students and also finding the effect size magnitude being minimal, along with the results of the Chi Square between the at risk category that the was found between the predicted at risk categories and the actual at risk categories the researcher asserts that the predictive regression model created by the researcher can be utilized in order to identify at risk mobile students for academic failure.

In summary, student mobility does impact academic failure and negative student achievement. While it is not possible to completely eliminate student mobility, there are some ways to lower the negative effects that student mobility has on academic achievement and student behavior. By identifying at-risk mobile students for academic failure through a predictive regression model, educators can quickly implement strategies to support these students and thus have a positive impact on student achievement.

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Appendix A

Local System Approval

Appendix A: Local System Approval

March 24, 2011

Katie Thompson
1655 Big Springs-Mountville Road
LaGrange, GA 30241

Dear Mrs. Thompson,

After reviewing your application for research study, I have granted permission for the study to be conducted.

Based on your application, I expect that the entire project will end no later than August 1, 201 1. Your signature on the application signifies that you understand that no participant(s) or school(s) will be identifiable through this research project. Additionally, your signature indicates that you understand that the research is not complete until a copy of the results is sent to my office.

If you have additional concerns or questions please contact me.

Sincerely,

School Improvement Specialist & Assessment Coordinator

Appendix B

Liberty IRB Approval

Appendix B: Liberty IRB Approval

APPLICATION TO USE HUMAN RESEARCH SUBJECTS

Liberty University

Committee on The Use of Human Research Subjects

1. Project Title: Identifying At risk Mobile Students for Academic Failure
2. Full Review ☐ Expedited Review ☒
3. Funding Source (State N/A if not applicable): N/A
4. Principal Investigator:
   Katie Thompson, Researcher

   1655 Big Springs-Mountville Rd
   LaGrange, GA 30241
   kathompson5@liberty.edu
   706-957-1522
5. Faculty Sponsor (if student is PI), also list co-investigators below Faculty Sponsor, and key personnel:

   Judy Shoemaker, Ed.D

   Education Department
   1971 University Blvd.
   Lynchburg, VA
   jshoemaker@liberty.edu
   1-863-326-6208
6. Consultants:

   Judy Shoemaker, Ed.D

   Education Department
   1971 University Blvd.
   Lynchburg, VA
   jshoemaker@liberty.edu
   1-863-326-6208

8. The principal investigator agrees to carry out the proposed project as stated in the application and to promptly report to the Human Subjects Committee any proposed changes and/or unanticipated problems involving risks to subjects or others participating in approved project in accordance with the Liberty Way and the Confidentiality Statement. The principal investigator has access to copies of 45 CFR 46 and the Belmont Report. The principal investigator agrees to inform the Human Subjects Committee and complete all necessary reports should the principal investigator terminate University association. Additionally s/he agrees to maintain records and keep informed consent documents for three years after completion of the project even if the principal investigator terminates association with the University.

_____ _____

Principal Investigator Signature Date

_____ _____

Faculty Sponsor (If applicable) Date

APPLICATION TO USE HUMAN RESEARCH SUBJECTS

10. This project will be conducted at the following location(s): (please indicate city & state)

☐ Liberty University Campus

☒ Other (Specify): This project will be conducted at an elementary school in west Georgia.

11. This project will involve the following subject types: (check-mark types to be studied)

☐ Normal Volunteers (Age 18-65)

☐ In Patients

☐ Out Patients

☐ Patient Controls

☐ Fetuses

☐ Cognitively Disabled

☐ Physically Disabled

☐ Pregnant Women

☐ Subjects Incapable Of Giving Consent

☐ Prisoners Or Institutionalized Individuals

☒ Minors (Under Age 18)

☐ Over Age 65

☐ University Students (PSYC Dept. subject pool ___)

☐ Other Potentially Elevated Risk Populations_____

12. Do you intend to use LU students, staff or faculty as participants in your study? If you do not intend to use LU participants in your study, please check "no" and proceed directly to item 13.

YES ☐ NO ☒

13. Estimated number of subjects to be enrolled in this protocol: _____

14. Does this project call for: (check-mark all that apply to this study)

☐ Use of Voice, Video, Digital, or Image Recordings?
☐ Subject Compensation? Patients $_____ Volunteers $_____
Participant Payment Disclosure Form
☐ Advertising For Subjects? ☐ More Than Minimal Risk?
☐ More Than Minimal Psychological Stress? ☐ Alcohol Consumption?
☐ Confidential Material (questionnaires, photos, etc.)? ☐ Waiver of Informed Consent?
☐ Extra Costs To The Subjects (tests, hospitalization, etc.)? ☐ VO2 Max Exercise?
☐ The Exclusion of Pregnant Women?
☐ The Use of Blood? Total Amount of Blood _____
Over Time Period (days) _____
☐ The Use of DNA or Biohazardous materials?
☐ The Use of Human Tissue or Cell Lines?
☐ The Use of Other Fluids that Could Mask the Presence of Blood (Including Urine and Feces)?
☐ The Use of Protected Health Information (Obtained from Healthcare Practitioners or Institutions)?

15. This project involves the use of an **Investigational New Drug** (IND) or an **Approved Drug For An Unapproved Use**.

☐ YES ☒ NO

Drug name, IND number and company:

16. This project involves the use of an **Investigational Medical Device** or an **Approved Medical Device For An Unapproved Use**.

☐ YES ☒ NO

Device name, IDE number and company:

17. The project involves the use of **Radiation or Radioisotopes**:

☐ YES ☒ NO

18. Does investigator or key personnel have a potential conflict of interest in this study?

☐ YES ☒ NO

EXPEDITED/FULL REVIEW APPLICATION NARRATIVE

A. PROPOSED RESEARCH RATIONALE (Why are you doing this study?

[Excluding degree requirement])

The purpose of this study is to indentify mobile students who are at risk for academic failure. This will be accomplished by the creation and utilization of a predictive regression model. There is often a delay in the identification of these students as they entire their new school environment. Often times, it takes weeks or even months for schools to obtain the proper records on mobile students, further delaying their educational success. This delay in identification often causes an interruption in the academic achievement of the mobile student, causing further academic failure.

With the utilization of a valid predictive model, administrators and teachers will be able to see which mobile students are at risk academically as soon as they enroll in their new school. Once the administrators have identified these students as at risk, they will be able to quickly assess the students and implement interventions to help them adjust and succeed in their new educational atmosphere.

B. SPECIFIC PROCEDURES TO BE FOLLOWED

- In a step-by-step manner, using simple, nonscientific language, provide a description of the procedures of the study and data collection process. Also, describe what your subjects will be required to do. (Note: Sections C and D deal with type of subjects and their recruitment. That information does not need to be included here.)

The purpose of this study is to utilize a predictive regression model in order to identify at risk mobile students. In order to utilize the predictive regression model for this study, first I had to create the model. I received local school system permission to retrieve the data from the system's database, Infinite Campus and use it for research purposes. Although, as an administrator, I have access to this information at all times, I felt that it was pertinent to receive permission from the system to access the information for this study. Now that I have data and system approval, and once I have IRB approval I will use the regression model that I previously created to identify mobile students as at risk for academic failure. I will compile a list of mobile students who have entered the school from September 2010-May 2011. I will take each individual student's demographic characteristic and put it into the regression model, thus predicting whether the student is at risk by their predicted CRCT Reading score. Once the 2011 CRCT scores come in, I will take the scores that were predicted through the regression model and the actual scores and run a coefficient of correlation between the two sets of data.

C. SUBJECTS

The subjects will consist of the 2009-2010 mobile and non-mobile students in grades first through fifth at a targeted elementary school in the southeast part of the United States. The subjects will include all students in these grade levels, whether mobile or non-mobile. In order to have an adequate sample size, it is important to include all students in these grade levels. Due to the fact that all students in the grades first through fifth will be part of the sample population, there will not be any bias in the way that the sample population is selected. Upon approval of the research study by the school system, the historical data of these participants will be collected.

D. RECRUITMENT OF SUBJECTS AND OBTAINING INFORMED CONSENT

All students within the research site will be part of the research study. The students that enroll from January to May 2011 will be included in the predictive regression model, and their CRCT Reading score will be predicted. Since this study only uses historical data and current data and there is no contact with subjects, there is no need for consent from the parents of the subjects. This study has been approved by the local school system.

E. PROCEDURES FOR PAYMENT OF SUBJECTS

There will be not any payment for this study.

F. CONFIDENTIALITY

All historical data was received coded, which makes the information anonymous to both the researcher as well as all other parties involved. The characteristics of the students who enroll between January 2011 and May 2011 will only be known by the researcher. The information will be coded for Chapter 4 and 5 of the dissertation. Once the study is completed, all information pertaining to the mobile students in the study will be deleted from the researcher's computer. I will maintain the data for a minimum of 3 years, as required by federal regulations. The researcher will be the only individual who will have access to this information saved on a hard drive. The computer will be password protected, but there is always the risk of someone obtaining the characteristic information from the computer.

G. POTENTIAL RISKS TO SUBJECTS

The risks to this subject are minimal. Due to the fact that the historical data received for the creation of the regression model was pulled anonymously, there is no risk to the subjects. The only risk to the subjects is the characteristics of those students who enroll in the research site between January and May 2011.

H. BENEFITS TO BE GAINED BY THE INDIVIDUAL AND/OR SOCIETY

This study will benefit the subjects that are enrolled in the research site between January and May 2011. As these students enroll in the research site, the researcher will put their characteristics into the regression model, producing a predicted CRCT Reading score for the individual. If the student is at risk for academic failure based on their predicted CRCT Reading score, the teachers will be able to do further testing to help meet the academic needs of the students.

I. INVESTIGATOR'S EVALUATION OF THE RISK-BENEFIT RATIO

This study will have a enormous impact to the field of education. By identifying mobile students who are at risk for academic failure, schools will be able to quickly to further assessments on these at risk students as well as address their academic needs with interventions. There are very few risks involved in this study.

J. WRITTEN INFORMED CONSENT FORM

Non-applicable

K. WAIVER OF INFORMED CONSENT OR SIGNED CONSENT

1. For a Waiver of Signed Consent, address the following:

   a. Does the research pose greater than minimal risk to subjects (greater than everyday activities)? No
   b. Does a breech of confidentiality constitute the principal risk to subjects? No
   c. Would the signed consent form be the only record linking the subject and the research? No
   d. Does the research include any activities that would require signed consent in a non-research context? No
   e. Will you provide the subjects with a written statement about the research (an information sheet that contains all the elements of the consent form but without the signature lines)? No

2. For a Waiver of Consent Request, address the following:
   a. Does the research pose greater than minimal risk to subjects (greater than everyday activities)? No
   b. Will the waiver adversely affect subjects' rights and welfare? Please justify? No. All demographical information of the subjects is coded and anonymous. It should not have any effect on the rights and welfare of the students.
   c. Why would the research be impracticable without the waiver? The consent request is not pertinent for this study. It would not be impracticable to complete the study without it.
   d. How will subject debriefing occur (i.e., how will pertinent information about the real purposes of the study be reported to subjects, if appropriate, at a later date?) It is not vital to report the research information to the subjects.

Appendix C

Enrolled Mobile Population from September 2010 to May 2011

Appendix C:

Enrolled Mobile Population from September 2010 to May 2011

Student	Grade	Race	Number of Referrals	Free and Reduced Status	Family Structure	Predicted CRCT Reading	Predicted At risk Category
Student 1	3rd	1	0	1	1	822	At risk
Student 2	3rd	0	0	1	1	844	Not At risk
Student 3	4th	1	0	1	0	847	Not At risk
Student 4	5th	1	0	1	1	822	At risk
Student 5	3rd	1	0	1	1	822	At risk
Student 6	5th	1	0	1	1	822	At risk
Student 7	5th	1	0	1	1	822	At risk
Student 8	5th	1	0	1	1	822	At risk
Student 9	5th	0	0	1	1	844	Not At risk
Student 10	5th	0	0	1	1	844	Not At risk
Student 11	5th	1	0	1	1	822	At risk
Student 12	5th	1	0	1	1	822	At risk
Student 13	5th	0	0	1	1	844	Not At risk
Student 14	3rd	1	1	1	1	819	At risk
Student 15	3rd	1	0	1	1	822	At risk
Student 16	5th	0	0	1	1	844	Not At risk
Student 17	5th	0	1	0	0	847	Not At risk
Student 18	3rd	1	0	1	1	822	At risk
Student 19	4th	1	0	1	1	822	At risk
Student 20	5th	1	0	1	1	822	At risk
Student 21	3rd	1	0	1	1	822	At risk
Student 22	3rd	1	0	1	1	822	At risk
Student 23	4^{th}	1	0	1	1	822	At risk
Student 24	4^{th}	1	0	1	1	822	At risk
Student 25	4^{th}	0	0	1	1	844	Not At risk

Appendix D

2011 Mobile Students Predicted and Actual 2011 Georgia

Appendix D:

2011 Mobile Students Predicted and Actual 2011 Georgia

Student	Predicted CRCT Reading	Actual CRCT Reading
Student 1	822	823
Student 2	847	854
Student 3	847	Removed 775
Student 4	822	850
Student 5	822	817
Student 6	822	802
Student 7	822	825
Student 8	822	833
Student 9	847	800
Student 10	844	881
Student 11	847	805
Student 12	822	816
Student 13	822	800
Student 14	819	837
Student 15	822	840
Student 16	822	802
Student 17	847	881
Student 18	822	820
Student 19	822	820
Student 20	822	835
Student 21	822	854
Student 22	822	793
Student 23	822	811
Student 24	822	808
Student 25	844	843

Appendix E

Predicted and Actual At risk Categories for the 2011 CRCT Reading

Appendix E:

Predicted and Actual At risk Categories for the 2011 CRCT Reading

	At risk Category	Actual At risk Category
Student 1	At risk	At risk
Student 2	Not At risk	Extremely not At risk
Student 3	Not At risk	Removed Extremely At risk
Student 4	At risk	Not At risk
Student 5	At risk	At risk
Student 6	At risk	At risk
Student 7	At risk	At risk
Student 8	At risk	Not At risk
Student 9	Not At risk	At risk
Student 10	Not At risk	At risk
Student 11	At risk	At risk
Student 12	At risk	At risk
Student 13	Not At risk	Extremely not At risk
Student 14	At risk	Not At risk
Student 15	At risk	Not At risk
Student 16	Not At risk	At risk
Student 17	Not At risk	Extremely not At risk
Student 18	At risk	At risk
Student 19	At risk	At risk
Student 20	At risk	Not At risk
Student 21	At risk	Not At risk
Student 22	At risk	Extremely At risk
Student 23	At risk	At risk
Student 24	At risk	At risk
Student 25	Not At risk	Not At risk

Appendix F

Terms

Appendix F:

Terms

1. Criterion Reference Competency Test (CRCT)
2. According to the General Accounting Office (GAO)
3. No Child Left Behind (NCLB)
4. Adequate Yearly Progress (AYP)
5. Florida State Reading Assessment (FCAT)
6. Indiana Charter School (ICS)
7. Iowa Test of Basic Skills (ITBS)
8. Analysis of Variance (ANOVA)
9. National Health Interview Survey (NHIS)
10. Department of Defense Education Activity (DoDEA)
11. National Assessment of Educational Progress (NAEP)
12. General Accounting Office (GAO)
13. General Educational Development (GED)
14. Internal Review Board (IRB)