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A CLOSER LOOK AT EIGHTH GRADE SPECIAL EDUCATION STUDENTS'  
PERFORMANCE ON HIGH STAKES TESTING: EXAMINING THE COMPOUNDING  
EFFECTS OF SOCIOECONOMIC STATUS AND MOBILITY RATE ON TEST SCORES

By

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## Abstract

Despite the fact that the US spends millions of dollars on testing and instructional resources for students with exceptionalities (SWE) to participate on state tests, performance continues to be significantly below their general education peers. In an effort to determine if any additional factors may play a role in the performance discrepancy, two other factors, socio-economic status (SES) and mobility rate, were analyzed. Data from the Florida State Department of Education was used because of the public availability, the proposed generalizability of such a diverse state, and Florida being one of three states with the largest population of public education students in the United States. Socio-economic status was represented by free and reduced lunch (FRL). The FRL data was distributed among 4 groups (25% or less, between 25% and 50%, between 50% and 75%, and greater than 75%). The results of the one-way ANOVAs showed mean scale scores for SWEs in FRL group 2 (between 25% and 50%) in reading ( $M = 308.79$ ,  $SD = 6.37$ ,  $p < .05$ ) and math ( $M = 306.85$ ,  $SD = 6.43$ ,  $p < .05$ ) were significantly higher than the other groups. Mobility rate was distributed into 6 groups from highest to lowest. The group with the lowest mobility rate (group 6) ( $M = 307.73$ ,  $SD = 6.08$ ,  $p < .05$ ) had a significantly higher reading mean scale for SWEs than the other mobility groups. Mobility rate was not significant on SWE math scores. Implications for future research are discussed.

*Keywords:* Achievement, Mobility, Socioeconomic, Exceptionalities, Standardized Testing

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## **Introduction**

Schifter, Grindal, Schwartz, and Hehir's (2019) research on special education students from low income families found that children from low income families are likely to experience disability due to greater exposure to environmental and educational experiences. Additionally, there is little research that identifies placement in special education for students from low-income families, and are limited by focus on community-based factors instead of student level-data (Schifter, Grindal, Schwartz, & Hehir, 2019). Dotson (2016) acknowledges that low-SES students are at greater risk to be placed in special education based on environment, acquisition of language, and mental and physical health of parents and the children. To provide optimal educational services for students with exceptionalities (SWE) research opportunities exist to expand research focus on factors that are beyond their exceptionality. This research investigated whether socio-economic status made a significant difference in academic performance on state standardized test. Specifically, the research looked at data provided by the Florida State Department of Education state test titled, the Florida State Assessment.

Florida is one of three states including California and Texas that has the largest population of public education students in the United States (National Center for Educational Statistics, 2019). The National Education Association (2019) reported that 2018 Florida public school enrollment was 2.8 million students with an average daily attendance of 2.6 million. Florida students with exceptionalities was around 300 to 400 thousand in 2016, 2017, and 2018. In 2019, over 500 thousand students with exceptionalities were enrolled (Florida Department of Education, 2019) . Public schools in the state of Florida received per-student funding in the amount of \$10,296 in 2016-17, and \$10,633 in 2018-2019, but spent \$9,579 in 2016-17, and 9,901 in 2018-2019 per student (National Education Association, 2019). Compared to other

states, Florida expenditures per student was lower than 43 other states including California and Texas, and only slightly above other states in the Southeast such as Tennessee (National Education Association, 2019). The Florida Department of Education was only one of a few states that provided public access to aggregated sub-group student data along with socio-economic and mobility data.

### **The Importance of Eighth Grade**

The educational access and academic success that students receive in the eighth grade is pivotal to their academic success in high school, and even in college. Eighth grade students who do not academically succeed in the eighth grade are more likely to drop out of high school. ACT (2012) conducted a study on eighth grade students who participated in the EXPLORE test and found that student academic preparation in the eighth grade was important in high school and college readiness. The timing of school mobility and the effect's on academic achievement and attainment in the eighth grade was pivotal to student achievement, compared to movement in earlier grades (Anderson, 2017). Anderson (2017) found that youth who changed middle schools had lower math GPA, and that low-income students were directly associated with mobility. Around 60 percent of mobility recorded in research in the United States was determined to come from the fifth and eighth grade (Spencer, 2017). Spencer (2017) attributed this percentage to changes in school quality, school structure including schools that are not meeting academic needs of students, and schools that have K-5 structure.

### **State Standardize Testing and Funding**

Each year, according to federal guidelines, states conduct standardized testing to determine academic achievement of students. For the most part, state and district funding were allocated for operating expenses, and with grants such as Race To The Top (RTTT) states were

able to spend money towards improving student outcomes. Weiss (2015) argued that economic and educational funding such as RTTT, to increase student achievement, made states willing to make concessions to receive additional funding for student improvement. The requirements attached to the additional state funding determined that state educational standards and assessments were inadequate and needed to be more rigorous. Major decisions concerning standards and assessments were made by groups associated with testing with little input from teachers and educational reform experts (Weis, 2015). Standardized testing in the United States is a multimillion-dollar operation that has caused great debate in the education community (Ujifusa, 2012). Chingos (2015) found that in 2012 estimated total spending on state standardized tests was \$1.7 billion which averaged \$34 dollars per student, and additional spending to improve public education averaged \$600 billion in the United States. An investigation from the POLITICO organization found that one major educational resource corporation benefited in the billions of dollars from the purchase of state testing, and that many states spent hundreds of millions of dollars on standardized testing (Simon, 2015).

### **Accountability of State Testing and Students with Exceptionalities**

Forte's (2010) examination on the assumptions of accountability and the policies from the No Child Left Behind Act (NCLB) determined that the ability for states to meet the 95% proficient criterion on their state standardized test is flawed in a school's ability to make Annual Yearly Progress (AYP). One flaw of the NCLB accountability system is the requirement of high performance of students on a single measure. Additionally, the federal government's accountability system did not account for the needs of each state which includes public school systems and those receiving federal monies. Both systems were required to meet identical levels of proficiency (Forte, 2010). For example, the criteria for students with exceptionalities (SWE)



to meet AYP within NCLB, was identical to criteria measuring proficiency for their typically developing peers, and, if they were not met, schools failed to meet the requirements from the NCLB (Eckes & Swando, 2009). Significantly, AYP has perpetually remained a requirement of all public schools to meet specific criteria for students (including SWE) on state tests when NCLB was replaced with new legislation (Ladd, 2017).

According to Stevens, Schulte, Elliot, Nese, & Tindal (2015) schools where 70 percent of SWE tested below proficiency on their reading and mathematics state test across the nation were determined to have failed to meet AYP. Martin (2012), found that along with SWE, students with economic disadvantages and an exceptionality (e.g., students dually impacted) also had a profound effect on the schools' ability to make AYP and made a negative impact on the testing profile of entire districts. The implementation of accountability measures such as policies to raise subgroup student achievement, and the adoption of rigorous teaching practices by states to meet state standards, only resulted in SWE continuing to underperform on state testing (Ladd, 2017). Eckes and Swando (2009) found that SWE were at a disadvantage under the high accountability standards outlined by the NCLB. Schulte, Stevens, Elliot, Tindal, and Nese (2016) found significant gaps between students with exceptionalities (SWE) and general education students when held to the same academic reading standards on state assessments. Legislation, including the Individuals with Disabilities Education Act (IDEA), required educational agencies to provide aids, services, and support for the use of accommodations on state testing (United States Department of Education, 2019). However, research found that accommodations were not consistent and did not always translate to increased scores on state testing for SWE who were being held to the same standards as non-disabled peers (Eckes & Swando, 2009).

There is strong controversy regarding state testing and the use of standardized tests. Trends in federal, state, and local education policy require more standardized exams to find common benchmarks in achievement and holding schools accountable (Edwards, 2015). In his discussion on the rationale for high stakes testing, Berliner (2011) found that a great deal of learning is focused on tested subjects. Students with exceptionalities (SWE) continually struggle to maintain the same proficiency and academic success as their general education peers. Eckes & Swando (2009) found that 80% of students with exceptionalities on the Indiana state assessment did not meet Annual Yearly Progress because they did not reach proficient scores on state assessments. The National Center for Fair and Open Testing (2017) found that barriers to SWE testing included the overreliance on state testing results to make important educational decisions including placement and services. Ritt (2016) argued that state testing created power imbalances for students with exceptionalities. Testing is leaving students with special needs feeling defeated (Ritt, 2016). State testing is only looking at what the child does not know, not what the child knows (Ritt, 2016).

### **IDEA and Accommodations on State Testing**

Individuals with Disabilities Education Act (IDEA) (2004) aligned specific provisions of the No Child Left Behind (NCLB) Act by implementing accountability for all states' testing programs by requiring appropriate accommodations for students with exceptionalities (SWE) during testing and mandated the inclusion of participation by SWE in all reporting of state testing records including rates and percentages of those who tested (Schultz, Stevens, Elliot, Tindal, & Nese, 2016). These rates had to include at least 95 percent of the SWE student population, but were allowed to provide alternate testing and/or accommodations for a small percentage of the population (Schultz, Stevens, Elliot, Tindal, & Nese, 2016). There is evidence

that the use of accommodations does not improve the outcome on testing for SWE students. Katsiyannis, Zhang, Ryan, and Jones (2007) found that the use of accommodations did not necessarily have a positive effect on achievement scores, and that they inadequately benefited students on state assessments. Fuchs et al. (2015) compared general education students and SWE who were receiving specialized interventions versus inclusive instruction with accommodations and found the gaps were higher for SWE who were in inclusive settings compared to the intervention group. They also concluded that students who were given multiple accommodations showed no evidence of effectiveness on test results (Fuchs, et al., 2015). The research suggests that accommodations, supports, and services that have been implemented for over a decade have not made a difference in the academic achievement of SWE.

Research conducted by Martin (2012) suggests that additional factors, such as socio-economic status (SES), may have negatively influenced SWE performance on state testing. Hanover research group (2014) conducted a study on free and reduced lunch as a factor of low SES, the research showed that students intelligence quotient on cognitive tests and low achievement levels have a strong correlation to SES. The following research selected for this study includes SES as stated in Martin's 2012 publication but sought to expand to other possible co-existing and influencing variables, such as SES and mobility rate when combined with a disability which add an extra layer of difficulty potentially impacting the student's ability to perform to the level of the non-disabled peer on state testing.

### **ESSA and Florida State Assessment**

Every Student Succeeds Act (ESSA) was built on key areas of progress including testing and the achievement of all students, including students with exceptionalities (SWE) (United States Department of Education, 2018). Title 1 34 CFR Part 200 of the ESSA states that local

education agencies administer to select nationally recognized high school academic assessments, to reduce the burden of unnecessary testing, and to allow a State to avoid double-testing eighth graders. The ESSA reduced the role the federal government has over educational policies, and allowed states to follow their own guidelines regarding testing (Alvarez, 2016). This freedom resulted in many states moving to a more stringent/less flexible accountability/testing model, including Florida. Florida cited problems with the alignment of the state test and college preparation exams as a justification for the more stringent measures (Gewertz, 2018). Under ESSA guidelines and indicators, the state of Florida implemented a continued commitment to change and updated academic progress. Under the annual measurement of achievement guidelines of the 2016 ESSA (*section 1111(c)(4)(E)(iii)*) the Florida Department of Education required at least 95 percent participation on state testing, including participation from subgroups (Florida Department of Education, 2018). To meet the ESSA achievement requirements for subgroups, including SWE, for the 2018-2019 school year, Florida implemented plans to increase graduation rates, and to increase proficiency on state testing (Florida Department of Education, 2018). To meet the requirements of the ESSA, Florida committed to include extra supports for the lowest performing subgroups including, 25% of SWE in 368 Florida schools (Florida Department of Education, 2018).

### **History of the Florida State Assessments**

Florida state assessments began in the 1970's. In 1976 Florida enacted the use of the state assessment as their competency exam for graduation requirements (DuBose, 2015). The Florida Commissioner of Education played a major role in outlining state assessments to include state educational objectives, provisions for financial support, minimum standards of achievement, evaluation of results, technology, and efficient use of funds (Florida Department of Education,

2019). The priority was to increase students reading, writing, and mathematics scores, and to establish accountability within the districts of Florida (Florida Department of Education, 2019). Not only were districts held accountable, but students were required to meet certain requirements in passing the Florida state assessments in order to graduate from school (DuBose, 2015). The accountability for testing was challenged in the Florida court case of *Debra vs Turlington* as a civil rights violation, when a subgroup of students did not pass the Florida State Student Assessment Test, claiming a violation of due process and equal protection (DuBose, 2015). However, the court ruled that the school district had met all the requirements of the Florida State standards and that students in the 21<sup>st</sup> century were no longer segregated (DuBose, 2015).

## **Independent Variables**

### **Socioeconomic status.**

There are different views on the definitions and indicators of socio-economic status (SES), and over the decades there have been various interpretations. Lee, Zhang, and Stankov's (2019) research used ten SES measures to determine predictive validity in SES and student achievement. They found that economic, social and cultural status, and home possessions had the strongest correlations with student achievement (Lee, Zhang, & Stankov, 2019). Low SES household students demonstrate a negative effect on human functioning, including lower academic development compared to children from high SES backgrounds (Cowan, et al., 2012). The American Psychological Association (2017) research on SES and education found that low SES student factors included poor cognitive development, language, memory, socioemotional processing, and lower income as they move to adulthood. SES was not just a measure of the income of families, but also the opportunities that are afforded to individuals including education, family structure, social status, and finances (Quagliata, 2008).

Florida has the third largest population in the United States. The population includes 28.5 percent of individuals who have at least a bachelor's degree in college. Individuals living in Florida that have a high school diploma is approximately 87.6 percent. In 2018, Florida reported that 14.6 percent of the 21.3 million individuals were living below poverty (U.S. Census Bureau, 2018). Children in the age range of 12 to 17 living in Florida averaged 19.9 percent below poverty, and 20.6 percent of the 22.5 percent of students enrolled in public schools were below poverty, which was slightly higher than the national average of 20.1 percent (Welfare Info, 2019).

Students at different SES levels have different levels of exposure to experiences and events, and low SES students do not necessarily have positive experiences. Access to local libraries, museums, and educational centers in the community are commodities that students from low SES homes may not have, which can lead to less time for students to spend working on the demanding schoolwork (Milne & Plourde, 2006). Dotson (2016) found that low SES had a direct influence on students' academic, social, and emotional outcomes and influenced placement of many such students within special education programs. With regard to SES attainment, families who have members with exceptionalities are at a greater disadvantage than families who do not have a family member with an exceptionality (Dotson, 2016). Szumski & Karwowski (2012) conducted an investigation that found one-third of children identified with a learning disability came from low income families, and despite changes in educational policies, low achievement remained unchanged. Schifter, Grindal, Schwartz, and Hehir (2019) showed that students from low income families were twice as likely to be identified with an emotional or intellectual disability compared to non-low income students.

Barry (2005) researched student role performance (SRP) factors and how they affected achievement for low socio economic status individuals. According to Barry (2005), factors that

affected SRP were school, family, and peer factors which apply to how well students fulfill the role. Barry (2005) found that students with exceptionalities (SWE) had an influence on SRP, had lower test scores, were not given adequate educational opportunities, and were not exposed to positive experiences. The research showed that test scores increased by .118 points as SES increased, and that SWE scored 3.529 points less than students without exceptionalities (Barry, 2005). Dailey (2004) found an association between low SES and the placement of students with learning, mental and physical exceptionalities, which resulted in limited educational opportunities for these students. Additionally, the study revealed that the students lacked background experiences and support from home that additionally affected their achievement (Dailey, 2004).

### **Free and Reduced Lunch**

Eligibility for Free and Reduced Lunch (FRL) has commonly been used in the United States for research purposes to represent socio-economic status (SES), because the information is easily obtainable, and is difficult to defend (Harwell & LeBeau, 2010). Harwell and LeBeau (2010) found that most research defining poverty levels in education is retrieved through FRL, which was issued by the federal government as a legitimate variable to use to measure SES. Greenburg (2018) argued that reporting student poverty is changing, and that FRL is not the only way to determine poverty level. Domina et al. (2018) investigated the validity of FRL as a measure of student socioeconomic disadvantage, comparing FRL reports from the Internal Revenue Service (IRS) on poverty. The investigation concluded that, although FRL was not perfect, the data does appear to capture aspects of a disadvantage not reported by the IRS income reports (Domina T. , et al., 2018). The number of students that received FRL in the state of Florida in 2019, numbered 1.8 million which was 63 percent of the student population (Florida Department of Education, 2019). This included the number of students who received free lunch

and reduced prices based on income standards from the United States Department of Agriculture (Florida Department of Education, 2019).

### **Effect of Free and Reduced Lunch on Achievement**

Student poverty affects many aspects of student achievement. The National Free and Reduced Lunch (FRL) program is an effort to provide students who qualify as low income with meals to improve student outcomes academically and socially. However, research reiterates that the school systems that have high participation in FRL programs have consistent low achievement scores. A study on FRL and achievement on assessments of North Carolina students found that there was a strong correlation between FRL and low student achievement on math, reading, and biology (Morales & Charles, 2014). The study of North Carolina districts on the End-of-Course (EOC) exam scores of both 2011-2012 and 2013-2014 EOC exams found that the scores for students (SWE and general education students) in districts with higher percentages of students receiving FRL were lower than students in districts with lower FRL percentages (Morales & Charles, 2014). The students in districts that were 20 percent or less FRL scored an 80 to 100 on the English I EOC, and students in districts that were 40 percent or more FRL scored a 40 to 80 on the assessment (Morales & Charles, 2014). The study also found that graduation rates decreased as the percentage of students receiving FRL increased, and that dropout rates increased as students receiving FRL increased (Morales & Charles, 2014).

The FRL program had a role in the provision of funds that were targeted at schools to educate economically disadvantaged students (Domina, et al., 2018). School districts however, had broad discretion over the use of the funds they receive from FRL and can spend the money on nonprofit schools that the district operates or various aspects of the school food program (Nuberger & Namain, 2010). Research has found that FRL had both positive and negative effects on achievement, and that there was data that showed that districts with both high and low FRL



across the nation had mixed results on achievement. Harwell, and Lebeau (2010) found that students who were identified as eligible for FRL had an increased chance of performing better than their peers based on their ability to access resources even though they had different SES status. Hanover (2013) found that schools that had fewer than 50 percent participation in FRL were 22 times more likely to perform higher than schools with 50 percent or greater FRL.

### **Mobility Effect on Assessment Performance**

The disruption of schooling for students had a significant impact on a student's performance. Spencer (2017) defines mobility as the event of students moving into and out of schools. Florida tracks the stability of students between the months of October and January each school year (Richards, 2018) (National Center for Educational Statistics, 2019). The factors that have an effect on the mobility rate of students includes: low income, residential movement, or individuals that are in foster care. Placement in special education has been linked with student mobility, and was more common in urban school settings (Herbers, Reynolds, & Chen, 2013). In 2015, a study found that out of 381 low-income students that were considered minority students, 327 changed schools at least once from kindergarten to 4<sup>th</sup> grade, and that 40 students transferred three or more times (Sparks, 2016). Spencer (2017) found that a student's movement from school district to school district in the nations school systems varied based on socio-economic status (SES). Students at different SES levels had different levels of exposure to experiences and events, and those students who were identified as low SES did not necessarily have positive experiences (Cowan, et al., 2012). Students identified as having higher SES students were more likely to stay in the same school compared to low SES student population (Spencer, 2017). Cordes, Schwartz, and Stiefel (2019) found that mobility had several costs including interrupting the continuity of students' learning process. According to Cordes, Schwartz, & Stiefel (2019), the movement of students from school system to school system created a "little fish, big pond"

effect that had reduced student academic self-concept. Studies showed that mobility not only can affect students socially, but can also reduce student motivation, where students are less likely want to participate in their education (Isernhagen & Bulkin, 2011).

There is limited amount of research on the mobility of students in public education. According to Beatty (2010), changes from school system to school system had a greater impact for children receiving special education services. Also, Beatty (2010) found that students with exceptionalities (SWE's) had lower achievement levels in both mathematics and reading. Inserhagen and Bulkin (2011) found that the mobility of SWE students were a systemic concern for school districts across the nation as students moved from state to state and records were not transferred. A study of Florida's SWE in 2009 found that 32 percent of the state's third graders moved at least one time, 20 percent moved more than once, and half of all of the state's students had at least one non-instructional move between kindergarten and third grade (Beatty, 2010).

Engec (2006) compared the effect of student movement and state test scores and found that students in middle school and high school who were suspended or frequently changed schools in one school year performed poorly on state tests. An analysis of students taking the Iowa Test of Basic Skills found that non-mobile students' scores were higher than students who were mobile because of negative situations or families simply moved homes (Engec, 2006).

Selya et.al (2016) reviewed the responses on the Connecticut State Writing exam of suburban high school students who had high mobility and found that their performance was consistently poor in basic language skills, comprehension, and critical thinking. When comparing scores on the Nebraska End-of-Course exam on reading, math, science, and writing of the state's fourth, eighth, and eleventh grade students the findings were that students with high mobility scored an average of 5 to 15 points below students that were not mobile (Isernhagen & Bulkin, 2011).

Florida's state test (FCAT) study found that students who had moved more than three times in a school year score significantly lower (Beatty, 2010).

### **Rationale for Study and Research Questions**

To extend the current literature and seek answers to better assist states with accommodating students with exceptionalities (SWE), this study examined the effect that socio-economic status (SES) and mobility rate had on eighth grade SWE using mean scale score (achievement) on the Florida State Assessment (FSA) in both reading and mathematics. The rationale for using the FSA for this study was due to the data being easily obtained and well documented in the areas of interest. For the purposes of this study, the Florida State Department of Education provides public access to state proficiency scores for all subgroups so the dataset provided was used for the current investigation. After researching other states to determine if secondary data was available, Florida was identified as having sufficient data to support the research questions. Secondly, Florida is one of thirteen states that required passing of State assessments as graduation requirement (Center on Educational Policy, 2008). Whitehurst, Chingos, Gallaher (2013) found in 2009 that only 10 percent of Florida districts were statistically above average when student achievement was measured. Finally, after the review of the data, very few SWE received accommodations on the Florida Comprehensive Achievement Test.

This investigation first examined if there was a relationship between SES represented by the United States national Free and Reduced Lunch (FRL) program, and eighth grade SWE proficiency on reading and mathematics on the Florida State Assessment (FSA). Students who qualify for the FRL program are students whose household income is between 1.3 percent and 1.85 percent below the poverty line (Domina T. , et al., 2018). Next, the current study examined

the mobility rate of SWE who have started in one district in Florida but did not finish within that district, and the effect on the proficiency of SWE in reading and mathematics.

### **Research Questions**

1. Is there a significant difference in reading and mathematics mean scores on the Florida State Assessment (FSA) of students with exceptionalities (SWE) that did or did not receive Free and Reduced Lunch (FRL)?
2. Is there a significant difference in reading and mathematics mean scores on the Florida State Assessment (FSA) of students with exceptionalities (SWE) that did or did not have high mobility rate?

### **Method**

#### **Data Collection**

Data was collected to examine the effects that socioeconomic status (SES) and mobility had on Florida's eighth grade students with exceptionalities (SWE) scores on achievement (mean scale score) from the Florida State Assessment (FSA). The Florida State Department of Education is one of the few states that publishes educational data by subgroups. The mean scale score (proficiency indicator) of SWE on the FSA in reading and mathematics, and data from the Florida State Department of Education (FSDOE) on mobility rate was collected from Florida's online public data repository. The sample data was an aggregated collection of each Florida school district separated into reading (N = 205) and math (N = 206) data, grade level, and year (2016, 2017, and 2018 for this study). Eighth grade data was selected since eighth grade is a transition grade when students are regularly tested. DiPrete and Buchmann (2014) report on middle school success and college completion, found that educational experiences that students have in the eighth grade may be pivotal in determining success in their high school and beyond.

The challenges faced by SWE students makes the chances of college and career readiness more challenging.

The data used to determine how SES effected SWE (with and without accommodations) was based on the free and reduced lunch (FRL) information and retrieved from the Florida Department of Education. The data was grouped into four categories based on the number of students who received FRL as reported in each district. Group 1 was districts with 25 percent or less FRL. Group 2 was districts greater than 25 percent but less than or equal to 50 percent FRL. Group 3 was districts greater than 50 percent but less than or equal to 75 percent FRL. Group 4 was districts with FRL greater than 75 percent.

To determine mobility, FSDOE reported the stability rate of public-school students by the enrollment statistics provided by each district. The stability rate was the number of students who remained in the school district for the entire school year. For the purposes of this research, to determine mobility rate the stability rate percentage was subtracted from 100. The mobility factor values were divided into similarly equal size groups, however, the range of numbers were not equally dispersed. Equal mobility values were kept in the same group, even if the group became larger or smaller than the other groups. Therefore, using the 3-year combined dataset, the 6 groups were made up of 27, 26, 29, 41, 34, and 48 districts, respectively. The mobility rate percentage data was a district-wide number, so the SWE specific mobility rate was not available. In Therefore, the 6 groups were like the groups formed from the FRL data.

## **Data Analysis**

### **Results from Reading Analysis**

A one-way ANOVA was conducted to determine if there was significant difference in the number of students receiving free and reduced lunch (FRL) quartile and whether socio-economic

status (SES) had an effect on students with exceptionalities (SWE) reading scores on the Florida State Assessment (FSA). The dependent variable on determining the impact of FRL on student achievement was the reading mean score on the FSA for each district. Test of homogeneity of variance (HOV) and multiple comparisons table using the Tukey HSD method were included in the output. According to the Levene’s statistic, the test indicated significance for variance between groups, so a Welch equality of means test was added (see table 1). Using the Welch statistic [ $F(3,71.046) = 5.062, p = .003$ ], we would reject the null hypothesis and continue with the comparison of means. According to the ANOVA output table (see table 2), there was a significant effect of FRL quartile groups on median scale score at the  $p < .05$  level [ $F(3,201) = 6.944, p < .001$ ].

Table 1  
*Welch Test of 8th Grade FSA Reading for FRL*

	Statistic <sup>a</sup>	df1	df2	Sig.
Welch	5.062	3	71.046	.003

*Note:* This table presents the Welch Test of Equality of Means table of 8th grade FSA reading scores for percentage of students on free-and-reduced lunch and students with exceptionalities (SWE).

Table 2  
*ANOVA Table of 8<sup>th</sup> Grade FSA Reading for FRL*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	544.850	3	181.617	6.944	.000
Within Groups	5256.711	201	26.153		
Total	5801.561	204			

*Note:* This table presents the ANOVA table of 8<sup>th</sup> grade FSA reading scores for percentage of students on free-and-reduced lunch and students with exceptionalities (SWE).

Post hoc comparisons for FRL quartile using the Tukey HSD test (see table 3) indicated that the mean scale score for FRL group 1 ( $M = 304.15, SD = 6.28, p < .05$ ) was significantly different from the mean scale score of the FRL Group 2 ( $M = 308.79, SD = 6.37, p < .05$ ), but

was not significantly different from FRL group 3 and FRL Group 4. The mean scale score for FRL group 2 ( $M = 308.79$ ,  $SD = 6.37$ ,  $p < .05$ ) was significantly different from the mean scale score of FRL group 3 ( $M = 305.97$ ,  $SD = 3.81$ ,  $p < .05$ ) and FRL group 4 ( $M = 304.18$ ,  $SD = 5.26$ ,  $p < .05$ ). According to this data FRL does have an effect on the mean scale score reading scores for students with exceptionalities.

The pairwise comparisons for FRL quartile showed that students in districts in quartile 1 (less than 25% of students on FRL) were found to have a mean scale score 4.640 points lower than students in FRL quartile 2 (between 25% and 50% of students on FRL). Students in FRL quartile 2 were had a significant mean scale score 2.819 points higher than students in FRL quartile 3 (between 50% and 75% of students on FRL) and a mean scale score 4.612 points higher that students in FRL quartile 4 (between 75% and 100% of students on FRL). The pairwise comparison also revealed that FRL does have a significant effect (see figure 1) on the mean scale reading scores for SWE (see Appendix, table 10 for full pairwise report).

Table 3  
*Significant Multiple Comparisons of 8<sup>th</sup> grade FSA Reading on FRL*

(I) FRL_Quartile	(J) FRL_Quartile	Mean		Sig.	95% Confidence Interval	
		Difference (I-J)	Std. Error		Lower Bound	Upper Bound
1	2	-4.640*	1.332	.003	-8.09	-1.19
2	1	4.640*	1.332	.003	1.19	8.09
	3	2.819*	1.049	.039	.10	5.54
	4	4.612*	1.080	.000	1.82	7.41
3	2	-2.819*	1.049	.039	-5.54	-.10
4	2	-4.612*	1.080	.000	-7.41	-1.82

*Note:* The table presents the significant multiple comparisons output of 8<sup>th</sup> grade FSA reading scores on free-and reduced lunch and students with exceptionalities.

\*. The mean difference is significant at the  $p < .05$

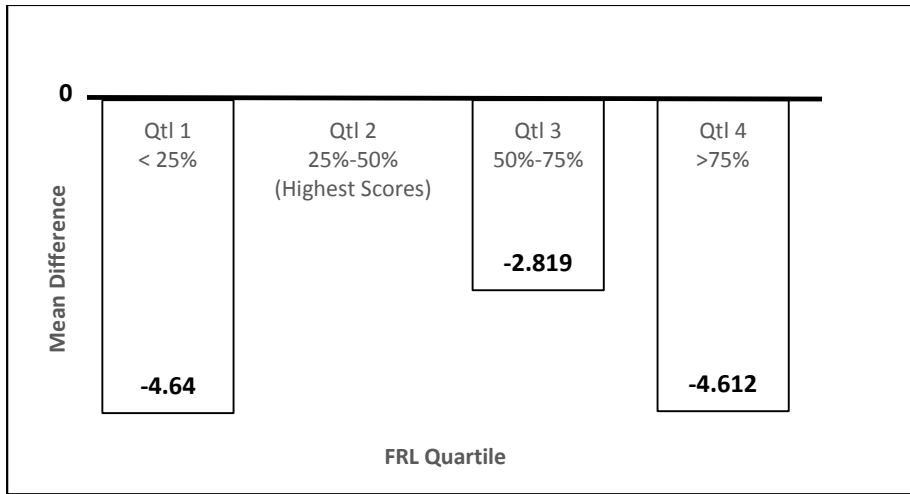


Figure 1: FRL Quartile Mean Difference – FSA Reading

*This figure shows the significant mean differences of FRL Quartiles for FSA reading scores for Students with Exceptionalities.*

A second one-way ANOVA was conducted to determine if a district’s mobility rate had a significant effect on students’ mean scale scores on the reading scores on the Florida State Assessment (FSA). The reading mean scale score on the FSA for each district was the dependent variable, and the mobility rate groups was the independent variable. Test of homogeneity of variance (HOV) and multiple comparisons table using the Tukey HSD method were included in the output. According to the Levene’s statistic [ $F(5,199) = 1.006, p = .415$ ], HOV variance in data between the groups was not significant, so we rejected the null hypothesis and continued the comparison of means. The ANOVA output table (see table 4), showed significant effect of mobility rate groups mean scale score at the  $p < .05$  level [ $F(5,199) = 2.85, p = .017$ ]. The data showed an effect on SWE mean scale scores and the mobility rate of students by district who took the reading Florida State Assessment.



Table 4

*ANOVA table of 8<sup>th</sup> grade FSA Reading for Mobility Rate Groups*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	387.275	5	77.455	2.847	.017
Within Groups	5414.286	199	27.207		
Total	5801.561	204			

*Note:* This table presents the ANOVA table of 8<sup>th</sup> grade FSA reading scores for mobility rate groups and SWE students.

Post hoc comparisons for mobility rate groups using the Tukey HSD test (see table 5) indicated that the mean scale score for mobility rate group 1 ( $M=303.78$ ,  $SD = 4.60$ ,  $p < .05$ ) was significantly different from the mean scale of mobility rate group 6 ( $M=307.73$ ,  $SD = 6.08$ ,  $p < .05$ ), but was not significantly different from any of the other groups. The mean scale score for mobility rate group 5 ( $M=304.32$ ,  $SD = 4.98$ ,  $p < .05$ ) was significantly different from the mean scale score at the  $p < .05$  level of mobility rate group 6 ( $M=307.73$ ,  $SD = 6.08$ ,  $p < .05$ ). The significant pairwise comparisons (see table 5 and figure 2) for mobility rate showed that students in districts in mobility group 1 (highest percentage of mobility rate) had a significant mean scale score 3.951 points lower than students in mobility rate group 6 (lowest percentage of mobility rate). Students in mobility rate group 5 (second lowest percentage of mobility rate) had a significant mean scale score 3.406 points lower than students in mobility rate 6 (lowest percentage of mobility rate). (See Appendix, table 11 for full pairwise report).

Table 5

*Multiple Comparisons of 8<sup>th</sup> Grade FSA Reading Mobility Rates*

(I) Mobility_ GRP	(J) Mobility_ GRP	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	6	-3.951*	1.255	.023	-7.56	-.34
5	6	-3.406*	1.169	.045	-6.77	-.04
6	1	3.951*	1.255	.023	.34	7.56
	5	3.406*	1.169	.045	.04	6.77

*Note:* This table presents the multiple comparisons output of 8<sup>th</sup> grade FSA reading scores and mobility rates of students with exceptionalities (SWE).

\*. The mean difference is significant at the  $p < .05$ .

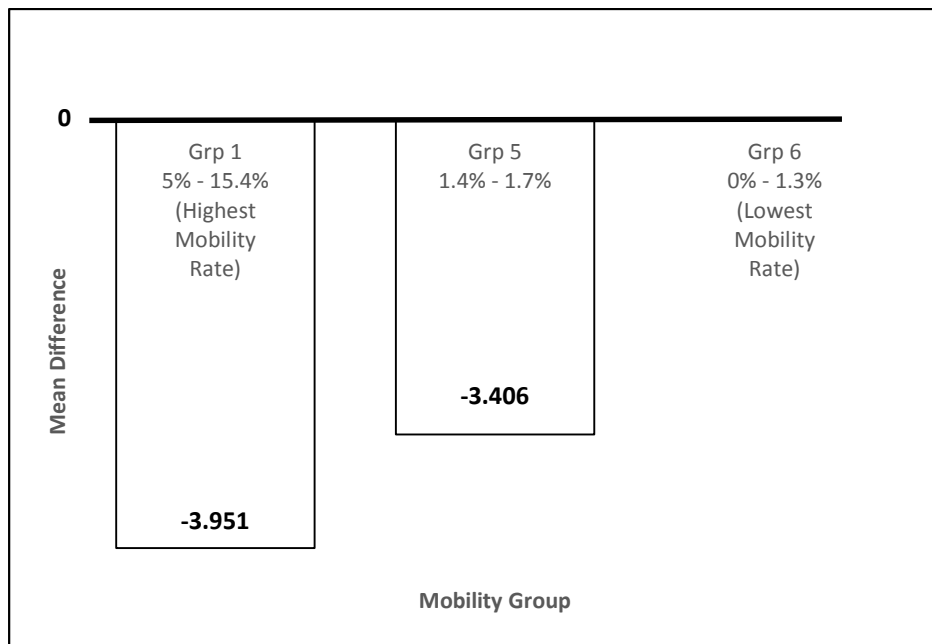


Figure 2: Mobility Rate Mean Difference – FSA Reading

*This figure shows the significant mean differences of mobility groups for FSA reading scores for Students with Exceptionalities.*

## Results of the Math Analysis

A one-way ANOVA was conducted to determine if the number of students receiving free and reduced lunch (FRL) quartile predicted whether socio-economic status (SES) had an effect on students with exceptionalities (SWE) math scores on the Florida State Assessment (FSA). The math mean scale score on the FSA for each district was the dependent variable to determine impact of FRL on student achievement. Test of homogeneity of variance (HOV) and multiple comparisons table using the Tukey HSD method were included in the output. According to the Levene's statistic, the test indicated a significant variance between groups so a Welch equality of means test was added. Using the Welch statistic (See table 6) [ $F(3,73.102) = 7.653, p < .001$ ], we would reject the null hypothesis and continue with the comparison of means. According to the ANOVA output table (see table 7), there was a significant effect of FRL quartile groups on math mean scale scores at the  $p < .05$  level [ $F(3,202) = 10.024, p < .001$ ]. It can be concluded that FRL does have a significant effect on SWE math scores on the Florida State Assessment.

Table 6  
*Welch Test of 8<sup>th</sup> Grade FSA Math for FRL*

	Statistic <sup>a</sup>	df1	df2	Sig.
Welch	7.653	3	73.102	.000

*Note:* This table presents the Welch Test of Equality of Means table of 8<sup>th</sup> grade FSA math scores percentage of students on free-and-reduced lunch and students with exceptionalities (SWE).

Table 7  
*ANOVA Table of 8<sup>th</sup> Grade FSA Math Scores for FRL*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	870.084	3	290.028	10.024	.000
Within Groups	5844.770	202	28.935		
Total	6714.854	205			

*Note:* This table presents the ANOVA table of 8<sup>th</sup> grade FSA math scores for percentage of students on free-and-reduced lunch and students with exceptionalities (SWE).

Post hoc comparisons using the Tukey HSD test (see table 8) indicated that the mean scale score at for FRL group 2 ( $M = 306.85$ ,  $SD = 6.43$ ,  $p < .05$ ) was significantly different from the mean scale score at the  $p < .05$  level of FRL group 1 ( $M = 301.48$ ,  $SD = 6.87$ ,  $p < .05$ ), FRL group 3 ( $M = 302.87$ ,  $SD = 4.18$ ,  $p < .05$ ), and FRL group 4 ( $M = 300.79$ ,  $SD = 5.39$ ,  $p < .05$ ). The significant pairwise comparisons for FRL quartile (see table 8 and figure 3) showed that students in districts in quartile 1 (less than 25% of students on FRL) had a significant mean scale score 5.371 points lower than students in FRL quartile 2 (between 25% and 50% of students on FRL). Students in FRL quartile 2 had a significant mean scale score 3.980 points higher than students in FRL quartile 3 (between 50% and 75% of students on FRL) and a mean scale score 6.065 points higher than students in FRL quartile 4 (between 75% and 100% of students on FRL). (See Appendix, table 12 for full pairwise report).

Table 8  
*Multiple Comparisons 8<sup>th</sup> Grade FSA Math for FRL*

(I) FRL_ Quartile	(J) FRL_ Quartile	Mean Difference (I-J) Std. Error		Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-5.371*	1.387	.001	-8.96	-1.78
2	1	5.371*	1.387	.001	1.78	8.96
	3	3.980*	1.103	.002	1.12	6.84
	4	6.065*	1.136	.000	3.12	9.01
3	2	-3.980*	1.103	.002	-6.84	-1.12
4	2	-6.065*	1.136	.000	-9.01	-3.12

*Note:* This table presents the significant multiple comparisons table of 8<sup>th</sup> grade FSA math scores for percentage of students on free-and-reduced lunch and students with exceptionalities (SWE).

\*. The mean difference is significant at the  $p < .05$

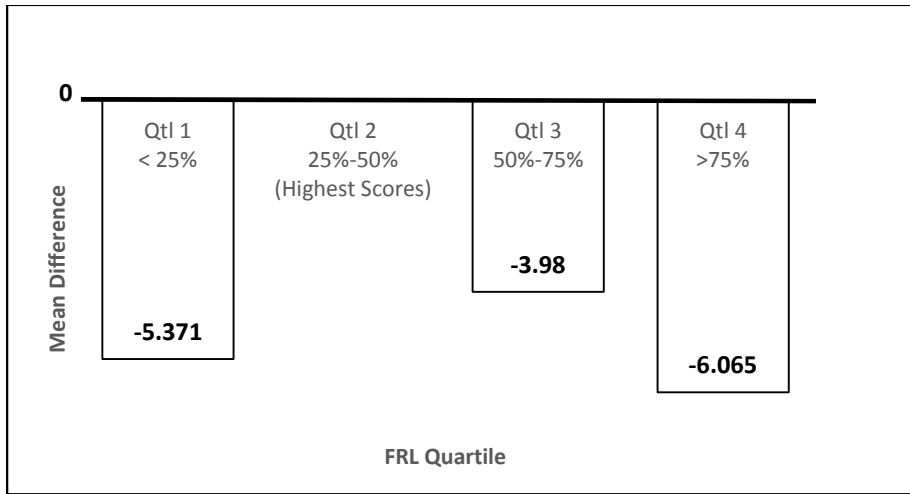


Figure 3: FRL Quartile Mean Difference – FSA Math

*This figure shows the significant mean differences of FRL Quartiles for FSA reading scores for Students with Exceptionalities.*

A second one-way ANOVA was conducted to determine if a district’s mobility rate had a significant effect on students’ mean scale scores on the math scores on the Florida State Assessment (FSA). The math mean scale score on the FSA for each district was the dependent variable, and the mobility rate groups was the independent variable. Test of homogeneity of variance (HOV) (see table 9) and multiple comparisons table using the Tukey HSD method were included in the output. According to the Levene’s statistic [ $F(5,200) = 2.006, p = .087$ ], variance between groups was not significant, so we rejected the null hypothesis and continued the comparison of means. However, the ANOVA table showed there was no significant effect of mobility rate groups on math mean scale score at the  $p < .05$  level. (See Appendix, table 13 for full pairwise report).

Table 9

*ANOVA Table of 8<sup>th</sup> Grade FSA Math for Mobility Rate Groups.*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	88.149	5	17.630	.532	.752
Within Groups	6626.706	200	33.134		
Total	6714.854	205			

*Note:* This table presents the ANOVA table of 8<sup>th</sup> grade FSA math scores for mobility rate groups and students with exceptionalities (SWE).

### **Discussion and Contributions to the Field**

The findings from this research suggested the importance of not excluding specific factors when identifying causal relationships in achievement of eighth grade students with exceptionalities (SWE). The opportunity to receive effective instruction and educational experiences affects all students, and for SWE the chances of attainment is higher. Educational attainment for SWE, as this research indicates, was significantly influenced by a schools status in the areas of socio-economic status and mobility rates. Florida had one of the largest student populations in the United States, one of the most diverse populations, and the only state that is narrowing the achievement gap between subgroups (Roberts, 2019). There was evidence in empirical research that indicates SES had a relationship to student achievement. Both Cowan (2012), and Dotson (2016) discussed the impact that SES had on students overall educational attainment and achievement. Cowan and Dotson (2016) found that students with low SES do not have access to academic experiences then that of children of high SES. This was supported by the evidence from this research indicating lower SES, using free and reduced lunch (FRL) variables, had a significant impact on achievement. The results indicated districts that report eighth grade students receiving FRL at 25 percent or lower scored 4.640 points lower than students who were 25 to 50 percent FRL in reading. The group at 25 percent or lower scored 5.371 points lower than those districts reporting 25 to 50 percent FRL in mathematics. Overall,

the results indicated that specific school districts with higher FRL percentages may make higher investments in SWE performance, but there is an opportunity for continued research in how districts with higher FRL percentages provide additional resources. The Florida data for FRL was aggregated by district, so actual SWE affects may vary from these results and is an opportunity for future research.

There was limited research on mobility rate of eighth grade SWE students and the effect mobility has on SWE students' achievement. Isernhagen and Bulkin (2011) quantitative study on mobility effect on achievement revealed that there was a large discrepancy between low mobile students and high mobile students. Also, students who were highly mobile in certain states scored 5 -10 percentile points below their non-highly mobile peers. Florida State Department of Education did not report the stability rate of subgroups, so the rate for the entire district had to be used. To find the mobility rate the stability rate was subtracted from 100 percent.

For the purposes of this research the mobility rate of all students was compared to the mean score of students with exceptionalities on the Florida State Assessment (FSA) in reading and mathematics. The findings in this research showed significance between the mobility rate and eighth grade SWE mean scale scores ( $p < .05$ ) between all groups in reading. The analysis did find that eighth grade SWE students in districts with a high mobility rate scored lower ( $M = 3.951$ ) on average on the FSA reading exam than eighth grade SWE students in district with the lowest mobility rate. In mathematics, there was no significance to report. Interruptions in education had a significant impact on student's ability to learn new information and perform to the best of their abilities (Isernhagen & Bulkin, 2011). Students that moved from school district to school district frequently were highly susceptible to poor academic achievement, and public school systems must research solutions to better serve these students. There was a greater concern for SWE students who already score significantly lower than their peers, and the need

for research on how mobility rates can affect their educational performance. Like FRL, the Florida data for mobility was aggregated by district, so actual SWE affects may vary from these results and is an opportunity for future research.

### **Limitations**

Every research study must consider its limitations. Limitations identify gaps in the study that the author and reader must consider when trying to expand the study to a larger population sample. Equal data points and access to data forced the study to be more focused. Lack of information on district or state procedures left questions unanswerable. Lack of student detail makes inferences to the data more difficult. Multiple limitations of this study left room for further research.

The first limitation was the data and focus of the study. Many states do not publish their data and achievement procedures on public-accessible websites. States used different measures on student achievement and accommodations for students with exceptionalities (SWE) for assessments. When trying to define a focus of the study and obtaining a functional dataset, fully available data was key. Trying to expand this study to multiple states or nationwide was difficult because gaining access to the data required to ensure all data points were equal was not practical for this study. The expectation was that, given equal data points and full data access, the results of the Florida analysis would be expandable to other states or possibly nationwide.

The data retrieved from the State of Florida did not include the specific individual scores of students (primary data) for FRL or mobility. Therefore the individual scores were not used in defining groups that were analyzed for differences. Due to the aggregated nature of the data, it is possible (though highly unlikely) that no SWE were in FRL group 2. It is also possible (though highly unlikely) that the highest SWE mobility group were actually not mobile at all. The



analysis showed that SWE may have been affected by differing SES statuses and differing mobility rates, but the results are more school-based than specific to students with exceptionalities. Future research could obtain actual student data representing FRL and mobility for students with exceptionalities to further refine the results of this work.

Analysis of the data made it clear that expanding the scope of this study would require information about how the state and districts distributed and used funding for SWE to support their needs academically. Accessing that data to examine the underlying factors that may have led to the results of this study was outside the scope of this study. However, knowing how the state and districts used federal funding from Title I (based on free and reduced lunch) towards math and reading curriculum and interventions could explain some aspects of this study. In addition, understanding the funding of small to very large districts may explain differences in achievement.

Some of the results of the study were difficult to explain with aggregated data. So many individual student factors likely affect high-stakes testing results. Two of those factors, free and reduced lunch and student mobility, were analyzed in this study, but a deeper understanding of why students are economically disadvantaged or change schools could provide more insight. The other unknown factor is student backgrounds. Knowing that a student had a disability, but not being able to determine how that disability could affect achievement, made the results more generic. Categorical information about the SWE could provide more insight on how disability subcategories influence these results.

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October 17, 2019

PI Name: Mary Brewer

Co-Investigators:

Advisor and/or Co-PI: Laura Casey

Submission Type: Admin Withdrawal

Title: STATE TESTING ON FLORIDA EIGHTH GRADE SPECIAL EDUCATION STUDENTS:  
EXAMINATION OF FREE AND REDUCED LUNCH, MOBILITY, AND DISTRICT SIZE EFFECT ON  
ACHIEVEMENT

IRB ID: PRO-FY2020-180

From the information provided on your determination review request for "STATE TESTING ON FLORIDA EIGHTH GRADE SPECIAL EDUCATION STUDENTS: EXAMINATION OF FREE AND REDUCED LUNCH, MOBILITY, AND DISTRICT SIZE EFFECT ON ACHIEVEMENT", the IRB has determined that your activity does not meet the Office of Human Subjects Research Protections definition of human subjects research and 45 CFR part 46 does not apply.

This study does not require IRB approval nor review. Your determination will be administratively withdrawn from Cayuse IRB and you will receive an email similar to this correspondence from [irb@memphis.edu](mailto:irb@memphis.edu). This submission will be archived in Cayuse IRB.

Thanks,

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