

DIFFERENCES IN DROPOUT RATES, GENERAL EDUCATION DEVELOPMENT
RECIPIENT RATES, HIGH SCHOOL GRADUATION RATES AS A FUNCTION OF
SCHOOL SIZE FOR STUDENTS IN POVERTY: A TEXAS MULTIYEAR
STATEWIDE STUDY

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Amy Renee Ambrose

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Amy Renee Ambrose

APPROVED:

Dr. George W. Moore
Dissertation Chair

Dr. John R. Slate
Committee Member

Dr. Cynthia Martinez-Garcia
Committee Member

Approved:

Dr. Stacey L. Edmonson
Dean, College of Education

DEDICATION

I first dedicate this dissertation to my mom and my dad, Anthony and Bonnie Craver. Through my entire life my mother has shown me what hard work looks like. From her, I learned that nothing is ever handed to anyone, but with diligence and enthusiasm, anything is possible. Even as a little girl my dad encouraged me to follow my dreams of being an educator. I appreciate him for recognizing my desire and supporting me through all my educational endeavors. My parents instilled a passion for learning within me that made it possible to fulfill this dream, and I appreciate their guidance. I would not be the person I am or the person I am still becoming without my mom and my dad.

I also dedicate this dissertation to Benny Garcia. His continued belief in me, even in the times I didn't believe in myself. When I wanted to give up, he encouraged me to keep going. Benny made sacrifices without hesitation, so that I could accomplish my goals. His contributions to my success are endless.

ABSTRACT

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Purpose

The purpose of this journal-ready dissertation was to examine the extent to which poverty is related to dropout rates, GED recipient rates, and graduation rates as a function of high school size. The purpose of the first investigation was to determine the degree to which differences might be present by school size on the dropout rates of students who were economically disadvantaged. With regard to the second study, the purpose was to determine the extent to which differences are present by school size on the GED recipient rates of students who were economically disadvantaged. The final purpose was to ascertain the degree which differences might exist by school size on the graduation rates of students who were economically disadvantaged.

Method

In this causal comparative study, archival data were analyzed. Participants in this study were students who were economically disadvantaged and enrolled in traditional Grade 9 through Grade 12 Texas high schools. To determine if differences were present in graduation rates and in GED rates by high school size, three student enrollment definitions were used: Greeney and Slate (2012), Perez and Slate (2015), and University Interscholastic League Classifications (2014). Annual graduation rates were analyzed for the 2012-2013 and 2013-2014 school years. With respect to the 4-year longitudinal

graduation rates, data on two 4-year cohorts, 2009-2010 to 2012-2013 and 2010-2011 to 2013-2014, were analyzed.

Findings

Archival data from the Texas Education Agency Academic Performance Report were analyzed to examine the relationships between high school enrollment size and dropout rates, GED recipient rates, and graduation rates for students in poverty. Statistically significant differences were determined in dropout rates and graduation rates for students in poverty as a function of high school size. In both school years, high schools with lower student enrollment had higher dropout rates and lower graduation rates for student in poverty than high schools with higher numbers of students enrolled. Only for 2014, were the 4-year longitudinal GED recipient rates the highest in small size high schools when the UIL classifications were used. Implications of these results for policy and for practice are provided.

KEY WORDS: Dropout rates, GED, Graduation rates, Poverty, Economically disadvantaged, School size

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CHAPTER I

Introduction

One requirement of No Child Left Behind Act was the establishment of *Adequate Yearly Progress* (AYP). Each state was required to measure AYP on state level standardized tests for subgroups by ethnicity, race, poverty, and special. Further outlined was the clear expectation that high schools in the United States were to have a 100% graduation rate by the 2014 school year. However, only 81% of high school students were graduating on time as of the 2011-2012 school year (National Center for Education Statistics, 2015). Regardless of the intents of the No Child Left Behind Act and Adequate Yearly Progress, students are still dropping out.

Although many factors may contribute to a student not obtaining a high school diploma, two influential contributors to high school dropouts are poverty and school size (Cox, Hopkins, & Buckman, 2015). Students from ages 16-24 who are poverty stricken, are seven times more likely to dropout than their more affluent peers (Chapman, Laird, Ifill, & KewalRamani, 2011). More support for students in poverty is needed for students to persist and obtain a high school diploma.

Method Used to Search the Literature

In this journal-ready dissertation, the literature for dropout, General Educational Development, Graduation rates, as well as poverty and school size were examined. Searches were processed through the Education Source database. Phrases that were used in the search for literature were: *high school dropout*, *GED*, *high school graduation*, *school size*, *economically disadvantaged*, and *poverty*.

Review of Relevant Literature

Related research on dropout rates, General Education Development, and graduation rates has been reviewed and discussed in this journal ready dissertation. In all three studies commonalities exist in the literature review in the variables of high school size and students in poverty. Literature related to this investigation was reviewed and analyzed to determine any noticeable similarities and variances that were apparent prior to conducting this study.

Review of the Literature for Dropout Rates and High School Size

In 2014, approximately 10.9 million children, age 5 to 17, lived in poverty (National Center for Education Statistics, 2016). Despite educational reforms such as the No Child Left Behind Act of 2002, students in poverty are still dropping out at a higher rate compared to their more affluent peers (Howard & Madison-Harris, 2011). Messacar and Oreopoulos (2013) documented that students in poverty as well as Black and Hispanic students were disproportionately leaving school before completion.

Even before children from low-income families enter school, the achievement gap is apparent (Duncan & Sojourner, 2013; Reardon 2011). With increasing income inequality and a lack of financial resources invested into the development of children, students in poverty are facing a huge disadvantage even before entering school (Altintas, 2016; Kornrich & Furstenburg, 2013; Western, Bloome, & Percheski, 2008). Compared to their more affluent peers, students who are economically disadvantaged experience limited learning opportunities (Miller, Pavlakis, Lac, & Hoffman, 2014). As a result, students of poverty are entering schools with weaker academic skills than their more

affluent peers (Duncan & Magnuson, 2011; Duncan & Murnane, 2011; Hughes, 2010; Miller et al., 2014).

Moreover, the achievement gap between income classes also can be attributed to social and cultural factors affecting student performance: (a) number of moves, (b) number of parents, (c) food insecurity, (d) violence rate, and (e) average income (Berliner, 2009, 2013). Fiorni and Keane (2014) and Willingham (2012) identified the amount of time invested in developmental cognitive skills as another important explanation for the achievement gap between students of affluence and students of poverty. Students in poverty are entering school doors with less financial and social resources than their more affluent peers, which could affect their long term successes.

Several researchers (e.g., Merten & Flowers, 2003; Rendon, 2013; Suh, Suh, & Houston, 2007; Turner, 2000) have established that poverty and achievement rates are negatively associated. In a study conducted in Minnesota for the 1998-2010 years, Nitardy, Duke, Pettindell, and Borowsky (2014) documented that students in poverty had poorer academic achievement than students who were not economically disadvantaged. White students had approximately a 0.17-point advantage on Black students' GPA and a 0.37-point advantage on Hispanic students' GPA. Furthermore, when asked about intentions of completing high school, approximately 2.3% of Black students and 3% of Hispanic students who were economically disadvantaged had the intention of dropping out, compared to only 2% of White students who were economically disadvantaged.

In regard to academic achievement and poverty, Lee and Slate (2014) examined advanced performance on the 2012 Texas Assessment of Knowledge and Skills (TAKS) Higher Education Readiness Component for English Language Arts and Mathematics as

a function of student poverty. Statistically significant differences in performance were present. Students who were economically disadvantaged had statistically significantly lower performance than their more affluent peers on all exam subjects and advanced indicators. On the TAKS English Language Arts test, students who were economically disadvantaged were 6.19% less likely to earn Commended Performance and 27.61% less likely to be college-ready than students who were not economically disadvantaged. Small effect sizes were present. On the TAKS Mathematics test, students who were economically disadvantaged were 56.32% less likely to earn Commended Performance and 24.39% less likely to be college-ready than their more affluent peers.

Disparities between students of affluent neighborhoods and students in poor neighborhoods not only affect student achievement, but also influence whether or not students receive a high school diploma. Students from more affluent backgrounds are more likely to achieve a diploma than their peers who live in poor neighborhoods (Anderson & Leventhal, 2014; Boyle, Georgiades, Racine, & Mustard, 2007; Sastry & Pebley, 2010). In states that have higher unequal income distribution, higher dropout rates occur (Berliner, 2013; Wilkinson & Pickett, 2010).

Lower academic achievement can lead to high dropout rates, especially for students in poverty. Leventhal-Weiner and Wallace (2011) investigated the dropout rates of Black, Hispanic, and White students who were economically disadvantaged. Leventhal-Weiner and Wallace established the presence of statistically significant higher dropout rates for White, Black, and Hispanic students living in poverty than their peers who were not living in poverty. Black and Hispanic students in poverty had higher dropout rates than White students.

In a very recent investigation, Ambrose, Slate, and Moore (2016) examined two school years (i.e., 2011-2012 and 2012-2013) of Texas statewide data to determine the extent to which dropout rates differed as a function of high school size for students in poverty. Congruent to this investigation and previous research, they categorized high school size into three sizes based on student enrollment numbers: (small-size school = 50 to 400 students; medium size school = 401 to 1,500 students; large-size school > 1,500 students). Ambrose et al. (2016) documented the presence of statistically significant differences in dropout rates by high school size for their sample of students in poverty. For both school years, small-size high schools had higher dropout rates for students in poverty compared with medium or large-size high schools.

With respect to the topic of school size, whether large-size or small-size schools are better with respect to student achievement, is an ongoing argument. Several researchers (Conant, 1959, Duke, DeReberto, & Trauветter, 2009; Supovitz & Christian, 2005) contended smaller schools were better for supporting student achievement and offered better educational opportunity. However, in more recent research investigations, researchers (e.g., Greeney & Slate, 2012; Rios, Slate, Moore, & Martinez-Garcia, 2016a, 2016b). have emphasized larger high schools best support student achievement and high school completion

In a recent investigation of dropout rates, Rios et al. (2016a) examined the dropout rate of Hispanic students as a function of high school size. Texas statewide data of school years, 2009-2010 to 2013-2014, were used to examine high school sizes, small [50 to 400 students], medium [401-1499], and large-size high schools [1500 or more students] and their relationship to dropout rates of Hispanic students. Statistically

significant differences were yielded with small effect sizes in this study. For all five years, Hispanic students dropped out at a higher rate in small-size schools rather than large-size schools. Using the same parameters for school years and high school size, in a second study, Rios et al. (2016b) documented the presence of statistically significant differences in attendance rates for Hispanic students as a function of high school size. Attendance rates for Hispanic students were lower in small-size high schools than medium or large-size high schools. Percentage points ranged from 0.36 to 1.59 lower in small-size high schools than medium or large-size high schools.

Kahne, Sporte, de la Torre, and Easton (2008) conducted an investigation of large-size high schools in Chicago. One strategy implemented by Chicago's school reform, converted some large-size high schools into smaller high schools. The researchers documented dropout rates for the initial cohort were decreased, but no difference was apparent for the second cohort compared to the original dropout rates in the large-size schools.

Scott, Ingels, Shera, Taylor and Jergovic (1996) examined data from the High School Effectiveness Supplement from the National Educational Longitudinal study of 1988. In their investigation, they established that schools with more academic courses were less likely to have students drop out. Greater graduation rates were also documented for schools that had a student enrollment of 1,500 students or less.

Werblow and Duesbery (2009) examined the relationship of school size to mathematics achievement and to dropout rates of sophomores and seniors ($n = 16,081$) from the Educational Longitudinal Study of 2002. They determined that students who attended very large schools (2,592 or more students) or very small schools (674 or fewer

students) had higher student performance in mathematics. Moreover, students enrolled in larger schools were more likely to drop out than students in small schools. Werblow and Duesbery (2009) further contended building smaller schools was best practice due to their findings on mathematics achievement and dropout rates. Similarly, in an investigation of the relationship of school size and dropout rates in the consideration of socioeconomic status, Gardener, Riblatt, and Beaty (2000) discovered statistically significant differences for dropout rates for larger schools versus smaller schools. Larger schools had higher dropout rates for students who were economically disadvantaged than did smaller schools.

The most recent studies reviewed in this investigation support the idea that large-size schools were better for higher graduation rates. The same studies also were based on the students in Texas, the same state of interest in this study. The studies completed that support the idea small-size schools are better were conducted outside of Texas and reflect older research.

Review of the Literature for GED Rates and High School Size

General Education Development (GED) was originally created to serve veterans of World War II who needed the necessary credentials to obtain a job in an industrial era (Bowen & Nantz, 2014; Zajacova & Everett, 2014). After World War II, many returning veterans used the GED to receive admission to colleges and universities across the United States (Hanford & Smith, 2014). Thus, the returning vets used the GED as a second chance to obtain an education (Bowen & Nantz, 2014; Zajacova & Everett, 2014).

The GED, as a high school credential, is now a standardized test used by civilians to obtain a certificate that is equivalent to a high school diploma (Hanford & Smith,

2014). Every year, about 750,000 students take the GED in place of a high school diploma (Sanchez, 2012). In 2008, 500,000 students met the standards for the GED test, representing 12% of all high school credentials awarded in that year (Heckman, Humphries, & Mader, 2010). Unfortunately, according to Smith (2014), as of 2014, fewer students were taking and passing the GED test than ever before.

In the competitive job market of today, a high school diploma is the ideal school completion credential. However, for those students who do not obtain a high school diploma, the alternative solution is the GED. Although the GED credential is viewed as being less than a traditional high school diploma (Tuck, 2012), in contemporary times, some form of high school equivalency is vital to the growth of the American economy and an individual's satisfaction with life (Smith & Thomson, 2014). In order for the economy to prosper, educated workforce is needed to take on tasks and jobs that require at least a high school credential of some sort. The GED was never intended to be a second-chance diploma; however, the GED's prevalence has gained importance in giving students the necessary credential to enter the workforce or enter postsecondary education (Hanford & Smith, 2014).

Employers are placing more stringent criteria for employment, and jobs are becoming more difficult to locate, especially for students who do not have a completed high school credential. Emerging adults, those individuals between the ages of 18 and 29, who do not obtain a high school diploma or an equivalency, can experience long-term negative consequences such as difficulty with job attainment, lower earning wages, and family formation (Bergman, Kong, & Pope, 2014). Moreover, growth or promotion

opportunities for individuals not having the high school credential may be dismal and possibly lead to a future of delinquency (Neely & Griffin-Williams, 2013).

Entwisle, Alexander, and Olson (2004) conducted a longitudinal investigation of 293 first time dropouts in Baltimore to compare students who resumed school after a short time with students who dropped out permanently. They reported that 40% of Black males and girls and 40% of White females had completed high school by ages 22 or 23, compared to 31% of White males. Permanent dropouts were more likely to come from disadvantaged backgrounds, and these dropouts were more likely to have been retained and/or maintained a lower grade average than students who eventually reentered high school (Entwisle et al., 2004).

Another variable that may affect high school completion rates and increase the need for GED programs is high school size, with respect to student enrollment. Historically, larger schools are generally thought to be associated with lower student achievement (Fowler & Walberg, 1991; Grabe, 1981; Horyna & Bonds-Raacke, 2012). However, several researchers (e.g., Conant, 1959; Duke, DeReberto, & Trauветter, 2009; Greeney & Slate, 2012; Moore, Combs, & Slate, 2014) have documented that larger high schools have more academic opportunity and better curricular and co-curricular offerings. As a result, decreased dropout rates and higher graduation rates may be established in larger high schools.

In a recent examination of high school size and Hispanic student dropout rates, Greeney and Slate (2012) established that the lowest dropout rates were present at medium-size high schools than either small-size or large-size high schools. For three of the five years analyzed in their study, Hispanic students had statistically significantly

better completion rates in larger-size high schools than in small-size high schools (Greeney & Slate, 2012). Larger high schools were determined to be more conducive for completion rates than were small-size high schools for Hispanic students. However, Greeney and Slate (2012) did not analyze data on students of poverty.

Several researchers (Horyna & Bonds-Raacke, 2012; Stiefel, Berne, Iatarolo, & Frutcher, 2000; Tinto, 1975) agreed more educational opportunities are available for students in larger schools. However, Stiefel et al. (2000) contended a larger school may cause more competition among students and decrease identity, which could be detrimental for students who are economically disadvantaged. More competition among students, could lead to higher dropout rates. Although high school size has been analyzed more frequently in recent research, poverty is a topic that has been understudied in the relationship of dropout rates of students in poverty and high school size.

To offset the reasons for student dropouts, the need of an alternate way to complete high school, such as the GED, is necessary. However, test makers are making the test more rigorous for students. With the recent updates in the GED examination, not only are high school standards assessed, now students are assessed on college and career readiness (Smith, 2014). In a recent 5-year statewide investigation on the relationship of high school size and college readiness, Moore et al. (2014a) documented that White students had statistically significant higher college-readiness rates in English Language Arts, mathematics, and in both subjects in large-size high schools than White students who were enrolled in either medium-size or small-size high schools. Similarly, in another 5-year investigation conducted by Moore, Combs, and Slate (2014b), Black students exhibited higher college readiness rates in English Language Arts, mathematics,

and in both subjects in large-size high schools than Black students in either small-size or medium-size high schools. Moore et al. (2014b) also determined college readiness rates for Black students were very low in Texas.

Review of the Literature for Graduation Rates and High School Size

Despite an increase of six percentage points for graduation rates between 2000 and 2010, high school completion-rate disparities still exist by ethnicity/race, income status, and gender (Murnane & Hoffman, 2013). With the widening achievement gap, educational leaders are searching for answers for higher graduation rates and college readiness (Fitzgerald et al., 2012; Martin & Robinson, 2011). Students who do not graduate high school and receive a diploma may face a wide variety of hardships in their lifetime. Further, without completing high school, students may face grave outcomes such as financial government assistance, lower wages, or incarceration (Bjerk, 2012; Messacar & Oreopoulos, 2013; Rumberger, 2011; Zachry, 2010). These hardships are more daunting for Black and Hispanic students or students in poverty who are disproportionately affected by not completing high school (Messacar & Oreopoulos, 2013).

Students who have completed high school typically have better health, have higher lifetime incomes, and are less likely to participate in criminal activity (Cataldi, Laird, & KewalRamani, 2009) than students who did not complete high school. Further, students who possess a high school diploma are more likely to obtain a job after high school compared to students who do not attain a high school diploma (Holzer, 1996; McDaniel & Kuehn, 2013). High school completion rates and students entering the

workforce are vital to the stabilization of the United States economy (Burrus & Roberts, 2012; Nadirova & Burger, 2014).

Although dropout rates have decreased over the last 15 years, as of the school year 2011-2012, only 81% of high school students graduate with a traditional high school diploma (National Center for Education Statistics, 2015). Given that high school graduation rates are used to measure a high school's performance and are used for accountability ratings, graduating high school students becomes an important goal for school administrators to accomplish. Researchers (Elliott, 2013; Palardy 2013) have also revealed that students who live in economically disadvantaged areas can be an additional challenge in increasing graduation rates

Wodtke, Hardling, and Elwert (2011) discovered students who live in disadvantaged neighborhoods have lower graduation rates than student who do not live in disadvantaged neighborhoods. Students living in disadvantaged neighborhoods have a reduced likelihood of graduating. For Black children in disadvantaged neighborhoods, the probability of graduating dropped from 96% to 76%. For non-Black children, the probability of graduating dropped from 95% to 87%. Therefore, living in these disadvantaged neighborhoods may have a substantial influence on the high school graduation rates of the children.

Palardy (2013) analyzed data from the Educational Longitudinal study of 2002 to determine the relationship of socioeconomic status to high school graduation and college enrollment. Students who attended schools of higher economic status were 68% more likely to graduate high school and to enroll into a 4-year college than were students who attended low socioeconomic schools. Palardy suggested integrating more affluent

schools and schools that have a large population of students in poverty to offset the negative consequences of attending low socioeconomic schools to promote economic diversity in schools and to allow for equal educational opportunity.

Elliott (2013) examined the relationship between economic status and children's human capital development. In his investigation, students living in families of poverty had lower (a) academic achievement scores, (b) high school graduation rates, (c) college enrollment rates, and (d) college graduation rates. Higher income families were viewed as having an educational advantage, thus supporting the idea that educational inequalities for students in poverty exist.

Students from low socioeconomic families are more likely to exhibit poorer reading and mathematics skills compared to their more affluent peers (Burchinal, Roberts, Zeisel, & Rowley, 2008; Herbers et al., 2012). Several researchers (e.g., Brunn-Bevel & Byrd, 2015; Entiwise & Alexander, 1993; Magnuson & Waldfogel, 2008) have discovered the achievement gap widens as students are promoted through the grade levels. Larger achievement gaps in reading and mathematics exist for students of poverty and for students who are homeless or who experience high residential mobility (Herbers et al., 2012; Huntington et al., 2008; Obradovic' et al., 2009). These gaps may be a predictor for not earning a high school diploma or even obtaining job placement (Arnold & Doctoroff, 2003).

With academic achievement and higher graduation rates being stressed on school accountability ratings, policymakers continuously think about constructing schools that may lead to better outcomes (Byrk, 2010; Fitzgerald et al., 2012). School size, with respect to student enrollment, is one factor that may influence student performance

(Fitzgerald et al., 2012). Some researchers (e.g., Kuo, 2010; Weiss, Carolan, & Baker-Smith, 2010) supported the idea that smaller schools are more effective when it comes to supporting high school students' needs. Yet, other researchers (Lee & Smith, 1997; Slate & Jones, 2008) have documented moderate-size schools as being more ideal for student achievement. However, some researchers (e.g., Greeney & Slate, 2012; Rios et al., 2016a) have determined larger high schools support student achievement the best.

Jordan, Kostandini, and Mykerezi (2012) examined the relationship of dropout rates in urban and rural-size high schools, to determine which school environment had higher graduation rates over time. Graduation rates were determined to be similar for both types of high schools in the early 2000s, but did show graduation rates to be three percentage points lower than in the 1980's. Jordan et al. (2012) also concluded family and peer characteristics were more influential on a student's persistence to graduate than geographic location. In an investigation of high school size and dropout rates, Gardener, Ritblatt, and Beaty (2000) determined that small-size high schools that had a student enrollment of between 200 and 600 had lower dropout rates than high schools who had a student enrollment of 2,000 or more, even for student in poverty.

Lower test scores are associated with lower income regardless of race (Magnuson & Waldfogel, 2008). However, statistically significant differences have occurred with White students in poverty performing better than Black students in poverty (Magnuson & Waldfogel, 2008). In 2011, a 25-point gap was present in reading scores and a 31-point gap was present in mathematics scores between Black and White Grade 8 students on standardized tests (National Center for Education Statistics, 2011).

Werblow and Duesbery (2009) used the Educational Longitudinal Study 2002 to analyze school size and mathematics achievement as it pertained to dropout rates of sophomores and seniors ($n=16,081$). High schools that had very large student enrollment (2,592 or more students) or very small student enrollment (674 or fewer students) had higher student achievement in mathematics. Upon further analysis, Werblow and Duesbery (2009) discovered dropout rates in larger size high schools was greater than in small-size high schools. Similarly, Carolan (2012) used the Educational Longitudinal Study 2002 data tool to examine the relationship of mathematics achievement and high school size. Carolan (2012) determined statistically significant differences in mathematics achievement and high school size. Mathematics achievement was best in moderate-size schools (600-999 students). However, neither of these researchers analyzed data on students in poverty.

In a recent Texas statewide study, Moore et al. (2014a) analyzed five school years to determine the extent to which college readiness was related to high school size of Black students existed. High school sizes were categorized into three groups: small- size (<400 students), medium-size (401-1500 students), and large-size high schools (> 1500 students). Black students who attended large-size high schools had statistically significant higher college readiness rates than Black students who attended either small or medium-size high schools. In a similar study, using the same student enrollment criteria, Moore et al. (2014b) examined the five years of Texas statewide data on school size and college readiness. White students who attended large-size high schools had statistically significant higher college readiness rates in large-size high schools than did White students who attended either small or medium-size high schools. Moore et al. (2014c)

used the same student enrollment criteria to determine the extent of the relationship between high school size and college readiness of Hispanic students. Hispanic students attending large-size high schools had statistically significant higher college readiness rates than Hispanic students attending small-size schools. Moore et al. (2014a, 2014b, 2014c) provided evidence that college readiness skills for Black, Hispanic, and White students were better in large-size high schools than in either small-size or moderate-size high schools. In their three studies, however, they did not analyze the college readiness rates of students in poverty.

Statement of the Problem

Poverty is a continuing problem that is preventing students from graduating high school. However, for some individuals, without a high school diploma the harsh reality is a lifetime in poverty (Baydu, Kaplan, & Bayar, 2013). Researchers (e.g., Borg, Borg, & Stranahan, 2012; Howard & Madison-Harris, 2011) have discovered that as poverty decreases, graduation rates increase. Because a multitude of reasons exist why students in poverty struggle, inside and outside of school, no single intervention exists (Bloom, 2010; Dupere et al., 2015; Feinstein & Peck, 2008). With more than 60% of Texas students living in poverty (Texas Education Agency, 2015), strong academic skills must be fostered for these students to complete high school and to receive a high school diploma (Duncan & Murnane, 2011; Farkas, 2011).

Students in poverty face life experiences that their more affluent peers have not had to face. As such, school district leaders need to seek ways to meet the needs of students in poverty to help them persist (Thompson, 2009). One factor that may affect student success is high school size, with respect to student enrollment. With districts

creating larger schools to meet budgetary restrictions, the question is raised if creating larger high schools best support student achievement and produce higher graduation rates or if creating larger schools is purely a budgetary matter.

Purpose of the Study

The purpose of this journal-ready dissertation was to examine the extent to which poverty is related to dropout rates, GED recipient rates, and graduation rates as a function of high school size. The purpose of the first investigation was to determine the degree to which differences might be present by school size on the dropout rates of students who were economically disadvantaged. With regard to the second study, the purpose was to determine the extent to which differences are present by school size on the GED recipient rates of students who were economically disadvantaged. The final purpose was to ascertain the degree which differences might exist by school size on the graduation rates of students who were economically disadvantaged.

Significance of the Study

Many inequalities exist in schools serving students from economically disadvantaged backgrounds (Glickman & Scally, 2008; Kozol, 1991; Morgan, 2012; Robinson, 2007). Determining practices and strategies best suited for students in poverty is an important cause to explore due to the many inequalities (Paine & Schleiler, 2011; Walsh et al., 2014.). The information gathered regarding differences in dropout rates, GED attainment, and high school graduation rates by high school size for students who were economically disadvantaged may be used by educational leaders and policymakers to gain insight for determining an optimal school size that best supports achievement of students in poverty. As a result, school facilities might be designed and constructed to be

most effective for school districts that have a substantial number of students in poverty and are seeking ways to support students in poverty to graduate. Thus, changes in practice, decision making, and policy making may be better informed by increased research on the factors, such as high school size, that cause dropouts, especially for students who are economically disadvantaged (Miller et al., 2014). Therefore, with more understanding of how today's schools affect students in poverty, outcomes for students in poverty maybe positively influenced (Morgan, 2012).

Theoretical Framework

Social Capital refers to the engagement of individuals and the exchange of norms and influences within relationships (Putnam, 2000). Social Capital theorists (Bourdieu, 1986; Coleman, 1988; Haymai, 2009; Lollo; 2012) suggested social capital can be gained by the type of relationships and the networks in which individuals participate. Although definitions vary from social science researchers, sociologists, and experts, the construction and interactions of personal networks is the central idea for the social capital theory (Dasgupta, 2005; Fafchamps, 2006; Granovetter, 2005).

In consideration of students dropping out of school, educators might provide and build social capital for students who are in poverty, by increasing students' social capital through intrinsic and extrinsic influences and resources (Stanton-Salazar, 2011). When positive relationships are fostered within the school walls, a more positive and approachable learning environment results (Hardre & Reeve, 2003). As a result of these relationships, achievement and persistence may increase (Ungureanu, 2013). For example, Birch and Ladd (1997) suggested students who experience better teacher to student relationships performed better on assessment and generally had a higher level of

academic readiness. Given the amount of time spent with students, teachers, counselors, and administrators are in a position to change the long term outcomes for students because of the fostering of social capital (Phelan, Davidson, Locke, & Thanh, 1992).

Understanding why 1.2 million students drop out of high school is an arduous task, but determining reasons why students drop out is necessary to develop programs and/or interventions to help students persist (Pandolfo, 2012; Rumberger, 2011). Thus, it is crucial for educators to build social capital with students, especially those students who do not have the necessary educational opportunities or networks to be successful (Comer, 2015; Stolle-McAllister, 2011). To support this need for better understanding, Coleman (1988) determined that as an individual's social capital increased, the probability of that student dropping out decreased. If schools served students with the social capital idea in mind, the networks formed may help counteract the effects of many predictors used to identify a student as at risk for dropping out. By placing an emphasis on social capital in high schools, fewer students might dropout and more students of economic disadvantage might graduate.

Definition of Terms

Terms of importance to the three research studies that were conducted are as outlined.

Dropout

According to the Texas Academic Report Glossary, a dropout is:

a student who was enrolled in public school in grade 7–12 during the previous year, did not return to public school in current year, was not expelled, and did not

graduate, receive a high school equivalency certificate, continue school outside the public school system, begin college, or die. (2015b, p. 10)

Dropout Rate

In this study, the phrase of dropout rate was used to refer to the Annual Dropout Rate definition as outlined by The Texas Academic Report Glossary (2015b). The Annual Dropout Rate is “the percentage of students who drop out of school during one school year.” Annual dropout rates are shown for districts and campuses that serve grades 7–8 and/or 9–12” (p. 3). For the purpose of this study, the dropout rate reflects Grades 9-12.

Economic Disadvantage

Students of economic disadvantage qualify for free or reduced lunch under the National School Lunch and Child Nutrition Program. Generally, this term indicates the student’s household income level is based on 130% (free) and 185% (reduced) of the federal poverty guidelines (Texas Academic Performance Report Glossary, p. 14).

General Education Development

Students who receive a GED typically refers to students who complete a system of standardized examinations to receive a credential considered as equivalent to completion of high school (Texas Education Agency, 2015b).

Graduation Rate

For the purpose of this investigation, graduation rates refer to a cohort of students who obtained a high school diploma within a 4-year time period (Texas Academic Performance Report Glossary, p. 13).

High School Credential

For the purpose of this investigation, a high school credential is considered an educational certificate that verifies a high school student's educational competence. Once the certificate is granted, a student is considered to have completed all requirements outlined by an educational institution. The certificate is typically awarded for life (Bielick, Cronen, Stone, Montaquila, & Roth, 2013).

4-Year Longitudinal Rate for the 2012-2013 School Year

In this study, the longitudinal rate will be used to determine the status of a group (cohort) of students after completion of four years in high school. The cohort consists of high school students who started ninth grade in the 2009 school year. Students followed their cohort until the expected graduation in 2013 (Texas Academic Performance Report Glossary, p. 13).

4-Year Longitudinal Rate for the 2013-2014 School Year

The longitudinal rate will be used to determine the status of a group (cohort) of students after completion of four years in high school. The cohort consists of high school students who started ninth grade in the 2010 school year. Students followed their cohort until the expected graduation in 2014 (Texas Academic Performance Report Glossary, p. 13).

Texas Academic Performance Reports (TAPR)

Texas Academic Performance Reports include an array of information on student performance from campuses and district across Texas. These data are desegregated by subpopulations including (a) ethnicity/race, (b) special education, (c) Limited English Proficiency, and (d) economic status. Percentage rates of performance across

subpopulations as well as staff information are also available through these reports. (Texas Education Agency, 2015b).

Delimitations

For the purpose of this journal-ready dissertation, only dropout rates, GED recipients, and high school graduation rates for Texas high school students were analyzed. Additionally, for all three studies only two school years were analyzed (i.e., 2012-2013 and 2013-2014). With regard to the investigation of student population, only student data related to economic disadvantage as defined by the Texas Education Agency were analyzed. Additionally, data from only traditionally configured 9-12 high schools were examined, thus data from schools classified as charter, alternative, or private schools were not included in these studies.

Limitations

The relationship of dropout rates, GED recipients, and high school graduation rates as a function of school size for students who were economically disadvantaged was addressed in this study. As such, accurate rates reported to the Texas Education Agency by high school campuses constitute a possible threat to the internal validity of the data obtained. Extraneous variables that may contribute to dropout rates, GED recipient rates, and graduation rates were not examined in this study. Another limitation is the independent variable (i.e., school size) and the dependent variables (i.e., dropout, GED recipient, and graduation rates) cannot be controlled or manipulated due to the ex post facto nature of the study (Johnson & Christenson, 2014). Lastly, only quantitative data were obtained and analyzed in this study. Results from this study may not be

generalizable to all students who were economically disadvantaged in the United States and only pertains to the data analyzed in this specific study.

Assumptions

For the purpose of this journal-ready dissertation, the assumption was made that the dropout, GED, and graduation rate data along with economic status data in the Texas Academic Performance Report system are accurate. Additionally, the consistency in which Texas schools collect and report student data was assumed to be accurate and comparable across the state. Finally, the validity and consistency in with dropout, GED recipient, and graduation rates were collected and shared in regard to the rules and regulations of the Texas Education Agency were assumed to be accurate.

Procedures

Prior to conducting this investigation, a proposal was presented to this doctoral student's dissertation committee. After securing the committee's approval, an application was then submitted to the Sam Houston State University Institutional Review Board. Following their approval, data were downloaded from the Texas Education Agency website and recoded so that statistical analyses could be conducted.

Organization of the Study

In this investigation, three research studies were completed. In the first journal-ready dissertation article, the degree to which dropout rates of students who were economically disadvantaged differ as a function of high school size for the 2012-2013 and the 2013-2014 school years were addressed. In the second journal-ready article, GED recipient rates of students who were economically disadvantaged were examined as a function of school size for the 2012-2013 and 2013-2014 school years. For the third

journal-ready dissertation article, the degree to which graduation rates of students who were economically disadvantaged differ as a function of school size for the 2012-2013 and 2013-2014 school years was determined.

In this journal-ready dissertation, five chapters are included. In Chapter I, the background of the study, statement of the problem, purpose of the study, significance of the study, definition of terms, theoretical framework, delimitations, limitations, assumptions and outline of the journal-ready dissertation are present. In Chapter II, dropout rates of students in poverty were analyzed examined as a function of school size. In Chapter III, GED recipient rates of students in poverty were examined as a function of school size. In Chapter IV, graduation rates of students in poverty were analyzed as a function of school size. In Chapter V, a summary across all three studies was provided.

CHAPTER II

DIFFERENCES IN DROPOUT RATES AS A FUNCTION OF HIGH SCHOOL SIZE FOR STUDENTS IN POVERTY: A TEXAS MULTIYEAR, STATEWIDE STUDY

This dissertation follows the style and format of *Research in the Schools (RITS)*.

Abstract

In this investigation, the dropout rates of students in poverty as a function of school size was examined. Archival data were analyzed from the Academic Excellence Indicator System report from the Texas Education Agency. School size was analyzed based on groupings as defined by Greeney and Slate (2012), Perez and Slate (2015) and the University Interscholastic League categories (2014). In both the 2012-2013 and 2013-2014 school years statistical significant differences were yielded for dropout rates of students in poverty as a function of high school size. Students in poverty who were enrolled in Larger high schools had lower dropout rates than students in poverty who were enrolled in smaller size high schools. For both school years, as student enrollment increased, dropout rates decreased. Implications for policy and practice, as well as recommendations for research, are provided.

Keywords: dropout rates, poverty, school size

DIFFERENCES IN DROPOUT RATES AS A FUNCTION OF HIGH SCHOOL SIZE FOR STUDENTS IN POVERTY: A TEXAS MULTIYEAR, STATEWIDE STUDY

Child poverty in the United States, with regard to student achievement, has grave challenges for the children who face poverty (Scott & Pressman, 2013). Not only is living in poverty associated with lower academic achievement, but student poverty is also associated with lower rates of school completion (Borg, Borg, & Stranahan, 2012; Cooper & Crosnoe, 2007; Kena et al., 2015). Consequentially, students who do not complete high school are more likely to (a) serve time in prison, (b) need government assistance, and/or (c) die at an earlier age (Messacar & Oreopoulos, 2013). With the increasing number of children who are living in poverty, child poverty is an issue that needs to be at the forefront of the educational agenda (Tienken, 2012).

In 2014, approximately 10.9 million children, age 5 to 17, lived in poverty (National Center for Education Statistics, 2016). Despite educational reforms such as the No Child Left Behind Act of 2002, students in poverty are still dropping out at a higher rate than are their more affluent peers (Howard & Madison-Harris, 2011). Messacar and Oreopoulos (2013) documented that students in poverty as well as Black and Hispanic students were disproportionately leaving school before completion.

Even before children from low-income families enter school, the achievement gap is apparent (Duncan & Sojourner, 2013; Reardon 2011). With increasing income inequality and a lack of financial resources invested into the development of children, students in poverty are facing a huge disadvantage even before entering school (Altintas, 2016; Kornrich & Furstenburg, 2013; Western, Bloome, & Percheski, 2008). Compared to their more affluent peers, students who are economically disadvantaged experience

limited learning opportunities (Miller, Pavlakis, Lac, & Hoffman, 2014). As a result, students in poverty are entering schools with weaker academic skills than their more affluent peers (Duncan & Magnuson, 2011; Duncan & Murnane, 2011; Hughes, 2010; Miller et al., 2014).

Moreover, the achievement gap between income classes also can be attributed to social and cultural factors affecting student performance: (a) number of moves, (b) number of parents, (c) food insecurity, (d) violence rate, and (e) average income (Berliner, 2009; 2013). Fiorni and Keane (2014) and Willingham (2012) identified the amount of time invested in developmental cognitive skills as another important explanation for the achievement gap between students of affluence and students of poverty. Students in poverty are entering school doors with less financial and social resources than their more affluent peers, which could affect their long term successes.

Several researchers (e.g., Merten & Flowers, 2003; Rendon, 2013; Suh, Suh, & Houston, 2007; Turner, 2000) have established that poverty and achievement rates are negatively associated. In a study conducted in Minnesota for the 1998-2010 years, Nitardy, Duke, Pettindell, and Borowsky (2014) documented that students in poverty had poorer academic achievement than students who were not economically disadvantaged. White students had approximately a 0.17-point advantage on Black students' GPA and a 0.37-point advantage on Hispanic students' GPA. Furthermore, when asked about intentions of completing high school, approximately 2.3% of Black students and 3% of Hispanic students who were economically disadvantaged had the intention of dropping out, compared to only 2% of White students who were economically disadvantaged.

With regard to academic achievement and poverty, Lee and Slate (2014) examined advanced performance on the 2012 Texas Assessment of Knowledge and Skills (TAKS) Higher Education Readiness Component for English Language Arts and Mathematics as a function of student poverty. Statistically significant differences in performance were present. Students who were economically disadvantaged had statistically significantly lower performance than their more affluent peers on all exam subjects and advanced indicators. On the TAKS English Language Arts test, students who were economically disadvantaged were 6.19% less likely to earn Commended Performance and 27.61% less likely to be college-ready than students who were not economically disadvantaged. Small effect sizes (Cramer's V) of .23 were present. On the TAKS Mathematics test, students who were economically disadvantaged were 56.32% less likely to earn Commended Performance and 24.39% less likely to be college-ready than their more affluent peers.

Disparities between students of affluent neighborhoods and students in poor neighborhoods not only affect student achievement, but also influence whether or not students receive a high school diploma. Students from more affluent backgrounds are more likely to achieve a diploma than their peers who live in poor neighborhoods (Anderson & Leventhal, 2014; Boyle, Georgiades, Racine, & Mustard, 2007; Sastry & Pebley, 2010). In states that have higher unequal income distribution, higher dropout rates occur (Berliner, 2013; Wilkinson & Pickett, 2010).

Lower academic achievement can lead to high dropout rates, especially for students in poverty. Leventhal-Weiner and Wallace (2011) investigated the dropout rates of Black, Hispanic, and White students who were economically disadvantaged.

Leventhal-Weiner and Wallace established the presence of statistically significant higher dropout rates for White, Black, and Hispanic students living in poverty than their peers who were not living in poverty. Black and Hispanic students in poverty had higher dropout rates than White students.

In a recent investigation, Ambrose, Slate, and Moore (2016) examined two school years (i.e., 2011-2012 and 2012-2013) of Texas statewide data to determine the extent to which dropout rates differed as a function of high school size for students in poverty. Congruent to this investigation and previous research, they categorized high school size into three sizes based on student enrollment numbers: (small-size school = 50 to 400 students; medium size school = 401 to 1,500 students; large-size school > 1,500 students). Ambrose et al. (2016) documented the presence of statistically significant differences in dropout rates by high school size for their sample of students in poverty. For both school years, small-size high schools had higher dropout rates for students in poverty compared with medium or large-size high schools.

With respect to the topic of school size, whether large-size or small-size schools are better with respect to student achievement, is an ongoing argument. Several researchers (Conant, 1959, Duke, DeReberto, & Trauветter, 2009; Supovitz & Christian, 2005) contended smaller schools were better for supporting student achievement and offered better educational opportunity. However, in more recent research investigations, researchers (e.g., Greeney & Slate, 2012; Rios, Slate, Moore, & Martinez-Garcia, 2016a, 2016b) have emphasized larger high schools best support student achievement and high school completion rates.

In a recent investigation of dropout rates, Rios et al. (2016a) investigated the dropout rate of Hispanic students as a function of high school size. Texas statewide data of school years, 2009-2010 to 2013-2014, were used to examine high school sizes, small [50 to 400 students], medium [401-1499], and large-size high schools [1500 or more students] and their relationship to dropout rates of Hispanic students. Statistically significant differences were yielded with small effect sizes in this study. For all five years, Hispanic students dropped out at a higher rate in small-size schools rather than large-size schools. Using the same parameters for school years and high school size, in a second study, Rios et al. (2016b) documented the presence of statistically significant differences in attendance rates for Hispanic students as a function of high school size. Attendance rates for Hispanic students were lower in small-size high schools than medium or large-size high schools. Percentage points ranged from 0.36 to 1.59 lower in small-size high schools than medium or large-size high schools.

Kahne, Sporte, de la Torre, and Easton (2008) conducted an investigation of large-size high schools in Chicago. One strategy implemented by Chicago's school reform was leaders converted some large-size high schools into smaller high schools. Kahne et al. documented dropout rates for the initial cohort were decreased, but no difference was present for the second cohort compared to the original dropout rates in the large-size schools.

Scott, Ingels, Shera, Taylor, and Jergovic (1996) examined data from the High School Effectiveness Supplement from the National Educational Longitudinal study of 1988. In their investigation, they established that schools with more academic courses were less likely to have students drop out than did schools with fewer academic

offerings? Greater graduation rates were also documented for schools that had a student enrollment of 1,500 students or less than schools that had fewer students enrolled.

Werblow and Duesbery (2009) analyzed the relationship of school size to mathematics achievement and to dropout rates of sophomores and seniors ($n = 16,081$) from the Educational Longitudinal Study of 2002. They determined that students who attended very large schools (2,592 or more students) or very small schools (674 or fewer students) had higher student performance in mathematics. Moreover, students enrolled in larger schools were more likely to drop out than students in small schools. Werblow and Duesbery (2009) further contended building smaller schools was best practice due to their findings on mathematics achievement and dropout rates. Similarly, in an investigation of the relationship of school size and dropout rates in the consideration of socioeconomic status, Gardener, Riblatt, and Beaty (2000) discovered statistically significant differences for dropout rates for larger schools versus smaller schools. Larger schools had higher dropout rates for students who were economically disadvantaged than did smaller schools.

The most recent studies reviewed in this investigation were interpreted to support the idea that large-size schools were better for higher graduation rates. Also of note is that these investigations were conducted on data from the students in Texas, the same state of interest in this study. The studies that were interpreted to support the idea small-size schools are better were conducted outside of Texas and reflect older research.

Purpose of the Study

The purpose of this investigation was to examine the degree to which differences might be present in high school dropout rates as a function of high school size for

students in poverty. Specifically, high school size and dropout rates were analyzed for two school years: 2012-2013 and 2013-2014. These school years were selected because they constituted the most recent data available for Texas high schools.

Significance of the Study

Students living in poverty may encounter barriers that may prevent them from having success through education (McKinney, 2014). Addressing poverty is not a simple task, nor does a simple fix exist. However, due to dropout rates being a part of the accountability system in the state of Texas, educational leaders need insights in how to help all students achieve, regardless of economic status. By allowing for the equitable access to opportunities for educational achievement, schools can enhance the lives for children in poverty (McKinney, 2014).

Policymakers and school leader may use the results and recommendations from this study to determine a school size that best supports student achievement and the attainment of a high school diploma. In the consideration of students who are economically disadvantaged, policymakers and school leaders may take into account how the formation of schools affects this particular population. Moreover, educators may use the results from this study as a valuable lens through which they may determine the relationship of school size to dropout rates for all students as well as those students who are economically disadvantaged.

Research Questions

The following research questions were addressed in this study: (a) What is the difference in dropout rates as a function of high school size for students in poverty using the Greeney and Slate (2012) school size definition?; (b) What is the difference in

dropout rates as a function of high school size for students in poverty using the Perez and Slate (2015) school size groupings?; (c) What is the difference in dropout rates as a function of high school size for student in poverty using the Texas University Interscholastic League groupings?, and (d) What consistency, if any, is present in dropout rates by high school size for students in poverty using the Greeney and Slate (2012) definition?; (e) What consistency, if any, is present in dropout rates by high school size for students in poverty using the Perez and Slate (2015) definition?; and (f) What consistency, if any, is present in dropout rates by high school size for students in poverty using the Texas University Interscholastic League groupings? The first three research question were analyzed for two school years (i.e., 2012-2013, 2013-2014) whereas the fourth, fifth, and sixth research questions were a comparison of results across both school years. Therefore, a total of nine research questions was addressed in this study.

Method

Research Design

The research design for this empirical investigation was a non-experimental, causal comparative (Johnson & Christensen, 2014). In this causal comparative study, archival data were analyzed. In this investigation, the independent variable of high school size and the dependent variable of high school dropout rates for students who were economically disadvantaged had already occurred. Accordingly, neither variable could be manipulated—a typical occurrence in causal comparative research studies (Johnson & Christensen, 2014).

Participants and Instrumentation

Participants in this study were students who were determined to be economically

disadvantaged and who are enrolled in traditional Grade 9 through Grade 12 Texas high schools. In this investigation, students who were economically disadvantaged were students who lived in a household that met the guidelines for free or reduced lunch (Texas Academic Performance Report Glossary, p. 14). Students who were considered to have completed high school typically refer to students from a class of first-time ninth graders who completed their high school education within the traditional 4-year period (Texas Education Agency, 2015). Students were assigned a final status of graduate, once they had completed all graduation requirements (Texas Education Agency, 2015).

For the purpose of this study, high school size in the Greeney and Slate (2012) definition consisted of three groupings: small, moderate, and large. A Small-size high school was defined as a school with an enrollment of 400 or fewer students, with a minimum of 50 students. A Moderate-size high school defined as a school with an enrollment of 401 to 1,499 students. A Large-size high school was a school with an enrollment of 1,500 or more students (Greeney & Slate, 2012).

In the Perez and Slate (2015) definition, high school size consisted of four categories: small, moderate, large, and very large. A Small-size high school was defined as a high school with a student enrollment of 50 to 500 students. A Moderate-size high school was a high school with a student enrollment of 501 to 1,499 students. A Large-size high school was defined as a high school with a student enrollment of 1,500 to 2,499 students. A Very Large-size high school had a student enrollment of 2,500 or more students (Perez & Slate, 2015).

The third grouping of high school size was the University Interscholastic League (2014) guidelines: Very small, Small, Moderate, Medium, Large, and Very large. A

Very Small-size high school was defined as a high school with a student enrollment of 25 to 104 students. A Small-size high school was a high school with a student enrollment of 105 to 219 students. A Moderate-size high school was defined as a high school with a student enrollment of 220 to 464 students. A Medium-size high school was a high school with a student enrollment of 465 to 1,059 students. A Large-size high school was defined as a high school with a student enrollment of 1,060 to 2,099 students. Finally, a Very Large-size high school was a high school with an enrollment of 2,100 or more students (University Interscholastic League, 2014).

For the 2012-2013 and 2013-2014 school years, archival data were obtained from the Texas Academic Performance Reports as published annually by the Texas Education Agency. Available at the Texas Academic Performance report website are data for both of the school years. With specific reference to this investigation, Texas Academic Performance Report data were downloaded for the 2012-2013 and 2013-2014 school years. Specific variables that were downloaded were: (a) configuration of each high school; (b) total student enrollment; and (c) dropout rates of students in poverty.

Results

To determine whether a difference existed in dropout rates as a function of high school size as defined by Greeney and Slate (2012), Perez and Slate (2015), and the Texas University Interscholastic League (2014) groupings for students who were economically disadvantaged, an Analysis of Variance (ANOVA) procedure was conducted to address each research question. Before calculating an ANOVA, the standardized skewness coefficients and the standardized kurtosis coefficients were calculated to determine the degree to which the dropout rate data were normally

distributed, ± 3 (Onwuegbuzie & Daniel, 2002). The Levene's Test of Error Variance was also calculated to determine the degree of homogeneity of the data, in which a violation was discovered. Despite not all of the underlying assumptions being met, Field (2009) contends the ANOVA procedure is sufficiently robust to use as the statistical procedure.

Research Question 1

For the first research question, student enrollment was grouped into three high school sizes (Greeney & Slate, 2012): Small-size high schools (50 to 400 students); Moderate-size high schools (401 to 1,499 students); and Large-size high schools (1,500 or more students). For the 2012-2013 school year, a statistically significant difference was revealed in the dropout rates of students in poverty as a function of school size, $F(2, 1114) = 15.71, p < .001, \eta^2 = .027$, a small effect size (Cohen 1988). Scheffe' post hoc procedures were used next to determine which school size pairwise comparisons were statistically significantly different with respect to dropout rates for students in poverty. Two of the three post hoc comparisons yielded a statistically significant difference. Students in poverty who were enrolled in Small-size schools had statistically significantly higher dropout rates than did students in poverty who were enrolled in either Moderate-size or in Large-size high schools. The dropout rates of students in poverty did not differ between Moderate-size and Large-size high schools. Readers are directed to Table 2.1 for the descriptive statistics for this school year.

 Insert Table 2.1 about here

With regard to the 2013-2014 school year, a statistically significant difference was yielded in the dropout rates of students in poverty as a function of school size as defined by Greeney and Slate (2012), $F(2, 1119) = 15.15, p < .001, \eta^2 = .026$, a small effect size (Cohen 1988). Scheffe` post hoc procedures were again used to determine which pairwise groupings of high school size differed with respect to the dropout rates of their students in poverty. These post hoc procedures revealed that two of the three pairwise comparisons had statistically significant differences in the dropout rates of their students in poverty. Similar to the previous school year, students in poverty who were enrolled in Small-size high schools had statistically significantly higher dropout rates than for students in poverty who were enrolled in either Moderate-size or in Large-size high schools. The dropout rates of students in poverty did not differ between Moderate-size and Large-size high schools. Descriptive statistics for this analysis are presented in Table 2.2.

Insert Table 2.2 about here

Research Question 2

For the second research question, student enrollment was grouped into four high school sizes (Perez & Slate, 2015): Small-size high schools (50 to 500 students); Moderate-size high schools (501 to 1,499 students); Large-size high schools (1,500 to 2,499 students); and Very Large-size high schools (2,500 or more students). For the 2012-2013 school year, a statistically significant difference was revealed in the dropout rates of students in poverty as a function of school size, $F(2, 1113) = 4.70, p = .003, \eta^2 =$

.012, a small effect size (Cohen 1988). Scheffe` post hoc procedures revealed that two of the six post hoc pairwise comparisons yielded a statistically significant difference.

Students in poverty who were enrolled in Small-size schools had statistically significantly higher dropout rates than did students in poverty who were enrolled in Moderate-size high schools. Statistically significant differences were also revealed between Small-size high schools and Large-size high schools and Very Large-size high schools. Small-size high schools had higher dropout rates than Large-size high schools and higher dropout rates than Very Large-size high schools. The dropout rates of students in poverty did not differ between Moderate-size and Large-size high schools or in Large-size and Very large-size high schools. Readers are directed to Table 2.3 for the descriptive statistics for this analysis.

 Insert Table 2.3 about here

Concerning the 2013-2014 school year, a statistically significant difference was yielded in the dropout rates of students in poverty as a function of school size based upon the Perez and Slate (2016) definition, $F(3, 1118) = 4.72, p = .003, \eta^2 = .013$, a small effect size (Cohen 1988). Scheffe` post hoc procedures revealed that of the six post hoc comparisons yielded a statistically significant difference. Similar to the previous school year, students in poverty who were enrolled in Small-size schools had statistically significantly higher dropout rates than students in poverty who were enrolled in any of the other high school sizes. The dropout rates of students in poverty did not differ

between Moderate-size and Large-size high schools or Large-size and Very large-size high schools. Refer to Table 2.4 for the descriptive statistics for this school year.

Insert Table 2.4 about here

Research Question 3

For the third research question, student enrollment was grouped into the six Texas University Interscholastic League classifications (2014): Very Small-size high schools (25 to 104 students); Small-size high schools (105 to 219 students); Moderate-size high schools (220 to 446 students); Medium-size high schools (465 to 1,059 students); Large-size high schools (1,060 to 2,099 students); and Very Large-size high schools (2,100 or more students). For the 2012-2013 school year, a statistically significant difference was revealed in the dropout rates of students in poverty as a function of school size, $F(5, 1137) = 29.84, p < .001, \eta^2 = .116$, a medium effect size (Cohen 1988). Scheffe' post hoc procedures revealed that six of the 14 post hoc comparisons yielded statistically significant differences. Students in poverty enrolled in Very Small-size high schools had higher dropout rates than any other school size in the 2012-2013 school year. Statistically significant differences also were apparent between Small-size high schools and Medium-size high schools. Differences were not present between Medium-size high schools and Moderate-size high schools. Differences were also not present between Medium-size high schools and Large-size high schools and Very Large-size high schools. Table 2.5 contains the descriptive statistics for this school year.

Insert Table 2.5 about here

With regard to the 2013-2014 school year, a statistically significant difference was revealed in the dropout rates of students in poverty as a function of school size based upon the Texas University Interscholastic League classifications, $F(5, 1144) = 35.46, p < .001, \eta^2 = .134$, a near-large effect size (Cohen 1988). Scheffe` post hoc procedures revealed that five of the 14 post hoc comparisons yielded statistically significant differences. Students in poverty who were enrolled in Very Small-size high schools had statistically significantly higher dropout rates than students in poverty who were enrolled in any other size high school. No statistically significant differences were revealed in any of the other comparisons between high school sizes.

Insert Table 2.6 about here

Research Question 4

To address the consistency of the results across both school years (i.e., 2012-2013 and 2013-2014) using the Greeney and Slate (2012) groupings, Small-size high schools had higher dropout rates for students in poverty than either Moderate-size or Large-size high schools. Dropout rates for students in poverty who were enrolled in Small-size high schools were almost double the dropout rates of students in poverty who were enrolled in Moderate-size high schools in both school years. Though not a research question, the dropout rates of students in poverty revealed a slight increase from the 2012-2013 to the

2013-2014 school year. Figure 2.1 is a representation of the Greeney and Slate (2012) school size definition results for the two school years of data analyzed herein.

 Insert Figure 2.1 about here

Research Question 5

Consistent results were yielded when using the Perez and Slate (2015) high school size groupings in both school years (i.e., 2012-2013 and 2013-2014). Small-size high schools had higher dropout rates for students in poverty than any other school size examined in this investigation. A slight increase was noted in the dropout rates of students in poverty from the 2012-2013 to the 2013-2014 school year. One explanation for this change in dropout rates may be due to having data from five additional high schools available for analysis in the 2013-2014 school year. Presented in Figure 2.2 are the two years of results for dropout rates using the Perez and Slate (2015) definition of school size.

 Insert Figure 2.2 about here

Research Question 6

Consistent results were also revealed using the University Interscholastic League (2014) high school size groupings for both school years (i.e., 2012-2013 and 2013-2014). Very Small-size high schools had higher dropout rates for students who were in poverty than any other high school size examined in this investigation (i.e., Small-size, Medium-

size, Moderate-size, Large-size, and Very Large-size). Of importance was that the average dropout rate for students in poverty who were enrolled in the Very Small-size high schools was more than twice as large as the average dropout rate for students in poverty at any of the other high school sizes using the University Interscholastic League groupings. Depicted in Figure 2.3 are the results of the analyses using the University Interscholastic League school size definition for the 2012-2013 and 2013-2014 school years.

 Insert Figure 2.3 about here

Discussion

In this investigation, the extent to which high school dropout rates differed as a function of high school size for students in poverty was examined. Statewide Texas data were obtained from the Texas Academic Performance Reports for two school years (i.e., 2012-2013 and 2013-2014). Inferential statistical procedures were used to determine whether high school size was a contributing factor to the dropout rates of students in poverty in Texas. By analyzing two school years of data, consistent higher dropout rates in Small-size high schools was determined.

Summary of Results for Dropout Rates for Students in Poverty

Students in poverty who were enrolled in smaller size high schools had statistically significantly higher dropout rates than their peers who were in poverty but were enrolled at high schools with higher levels of student enrollment. For both school years, regardless of the high school size classifications, high schools with smaller student

enrollment had higher dropout rates. For students in poverty, in the state of Texas, smaller high schools were not conducive for preventing drop out.

Connections to the Literature

These results are congruent with previous investigations conducted in the State of Texas (Ambrose et al., 2016; Rios et al., 2016a). The smaller the high school enrollment, the higher the dropout rates for students in poverty. Conversely, the larger the high school enrollment, the lower the dropout rates for students in poverty. As such, high school size with respect to student enrollment is clearly connected to dropout rates of students who were economically disadvantaged.

Implications for Policy and Practice

Based upon the results of the three sets of inferential analyses, clearly evident were the presence of statistically significant differences in the dropout rates of students in poverty as a function of the student enrollment at their high schools. The smallest size high schools in each of the three definitions of school size had statistically significantly higher average dropout rates than any of the larger high school size groupings. As such, policymakers and educational leaders are encouraged to examine the possibility of having larger high schools, with respect to student enrollment. Policymakers and educational leaders should consider the idea of consolidation, where possible, smaller size high schools into larger size high schools. It may be that larger size high schools, with respect to student enrollment, have more resources and can offer their students programs and services that reduce dropout rates. When making decisions about the construction and the consolidation of high schools, educational leaders should consider larger high schools, especially for areas that have a large population of students in poverty. Finally,

educational leaders are encouraged to audit each of their high school's dropout rates by student economic status, as well as by other demographic characteristics. Such audits could assist them in determining whether new programs are needed to reduce their dropout rates, as well as in ascertaining the extent to which any current programs in place are effective.

Recommendations for Future Research

In this investigation, the dropout rates of students in poverty were analyzed as a function of high school size, with respect to student enrollment. Moreover, aggregated dropout rate data at the high school level for a 2-year time period were examined. As such, researchers are encouraged to analyze the dropout rates of students by important demographic characteristics. That is, are the dropout rates of Black or Hispanic students influenced by the size of the student enrollment at their high schools? The degree to the results obtained herein on the relationship of dropout rates of students in poverty to their high school size would generalize to other groups of students is not known. Another recommendation for research would be to obtain dropout rate data at the individual student level, rather than at the aggregated high school level. By analyzing individual student level data, a more nuanced examination of the interrelationships of student demographic characteristics (e.g., Black boys in poverty) could be conducted.

Researchers are encouraged to investigate the relationship of high school size with other important academic outcomes such as graduation rates and college readiness. The extent to which the findings obtained in this investigation would generalize to other academic outcomes is not known. This research study was conducted exclusively with regard to Texas students. Accordingly, this research investigation should be replicated in

other states to ascertain whether the results in other states are similar to these Texas results.

Conclusion

The results of the two years of data were not consistent with the idea that smaller size high schools are better for students. Rather, the dropout rates for students in poverty were statistically significantly higher in the smaller size high schools. All three high school size groupings yielded similar results, dropout rates were lower in the smallest high school size groupings. The evidence in this investigation provides merit to the discussion of consolidating smaller size high schools into larger ones.

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Table 2.1

Descriptive Statistics for the 2012-2013 Dropout Rates for Students in Poverty as a Function of High School Size Using the Greeney and Slate (2012) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Small (400 or less)	384	2.39	5.05
Moderate (401-1,499)	353	1.20	1.35
Large (1,500 or more)	380	1.40	0.98

Table 2.2

Descriptive Statistics for the 2013-2014 Dropout Rates for Students in Poverty as a Function of High School Size Using the Greeney and Slate (2012) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Small (400 or less)	386	2.49	5.39
Moderate (401-1,499)	355	1.27	1.33
Large (1,500 or more)	381	1.43	1.05

Table 2.3

Descriptive Statistics for the 2012-2013 Dropout Rates for Students in Poverty as a Function of High School Size Using the Perez and Slate (2015) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Small (400 or less)	460	2.10	4.68
Moderate (401-1,499)	277	1.36	1.40
Large (1,500-2,499)	256	1.37	1.02
Very Large (2,500 or more)	124	1.46	0.89

Table 2.4

Descriptive Statistics for the 2013-2014 Dropout Rates for Students in Poverty as a Function of High School Size Using the Perez and Slate (2015) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Small (400 or less)	462	2.19	5.00
Moderate (401-1,499)	279	1.44	1.36
Large (1,500-2,499)	257	1.37	1.12
Very Large (2,500 or more)	124	1.55	0.88

Table 2.5

Descriptive Statistics for the 2012-2013 Dropout Rates for Students in Poverty as a Function of High School Size Using the University Interscholastic League (2014)

Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Very Small (25-104)	77	5.83	7.04
Small (105-219)	139	2.40	4.96
Moderate (220-464)	248	1.37	3.62
Medium (465-1069)	213	1.23	1.40
Large (1,070-2099)	240	1.42	1.10
Very Large (2,100 or more)	226	1.41	1.01

Table 2.6

Descriptive Statistics for the 2013-2014 Dropout Rates for Students in Poverty as a Function of High School Size Using the University Interscholastic League (2014)

Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Very Small (25-104)	79	6.71	8.12
Small (105-219)	141	2.36	4.68
Moderate (220-464)	248	1.46	4.13
Medium (465-1069)	215	1.31	1.35
Large (1,070-2099)	241	1.41	1.16
Very Large (2,100 or more)	226	1.49	1.05

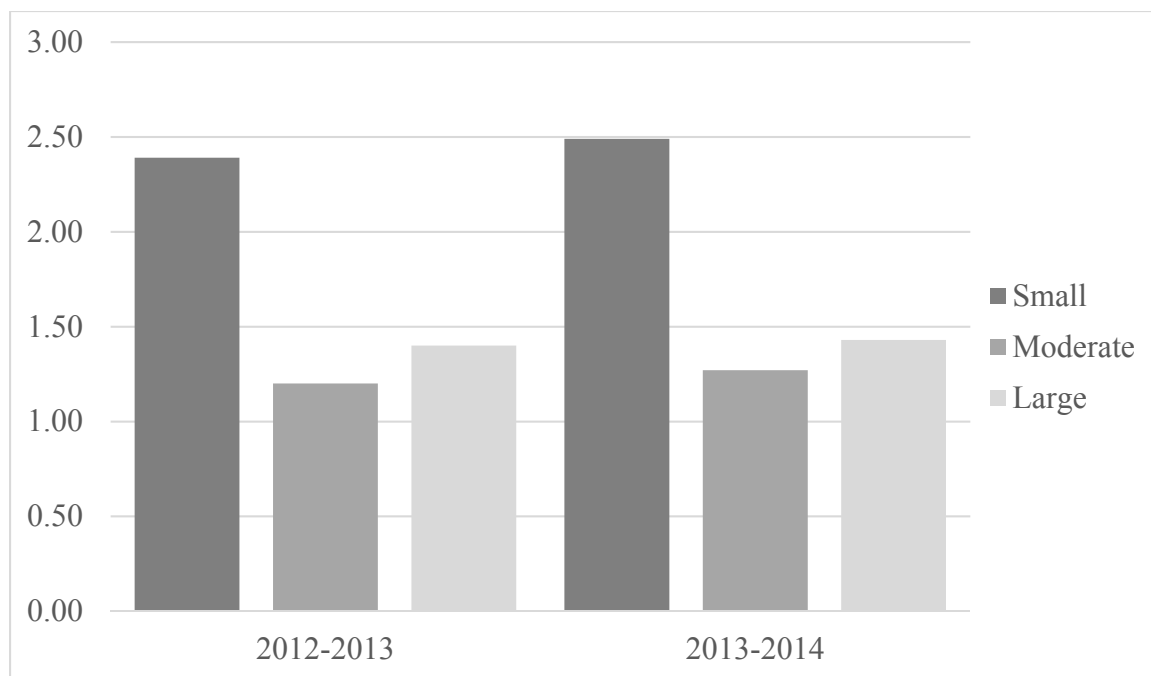


Figure 2.1. Dropout rates for students in poverty for the 2012-2013 and the 2013-2014 school years as a function of the Greeney and Slate (2012) definition of high school size.

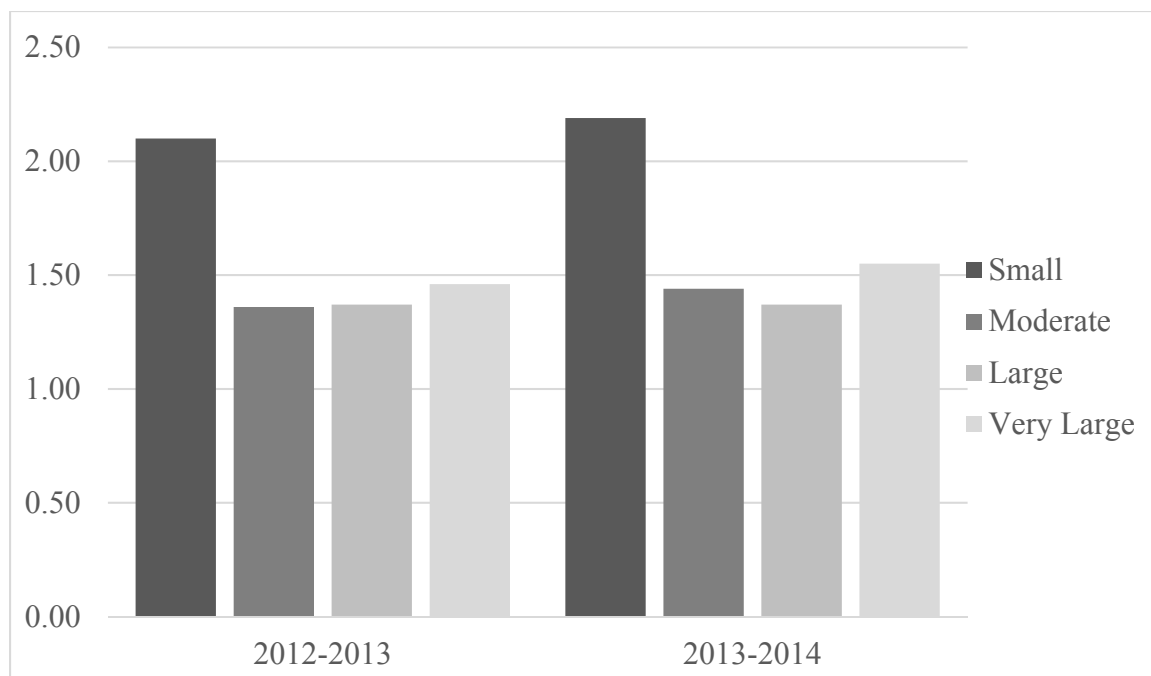


Figure 2.2. Dropout rates for students in poverty for the 2012-2013 and the 2013-2014 school years as a function of the Perez and Slate (2015) definition of high school size.

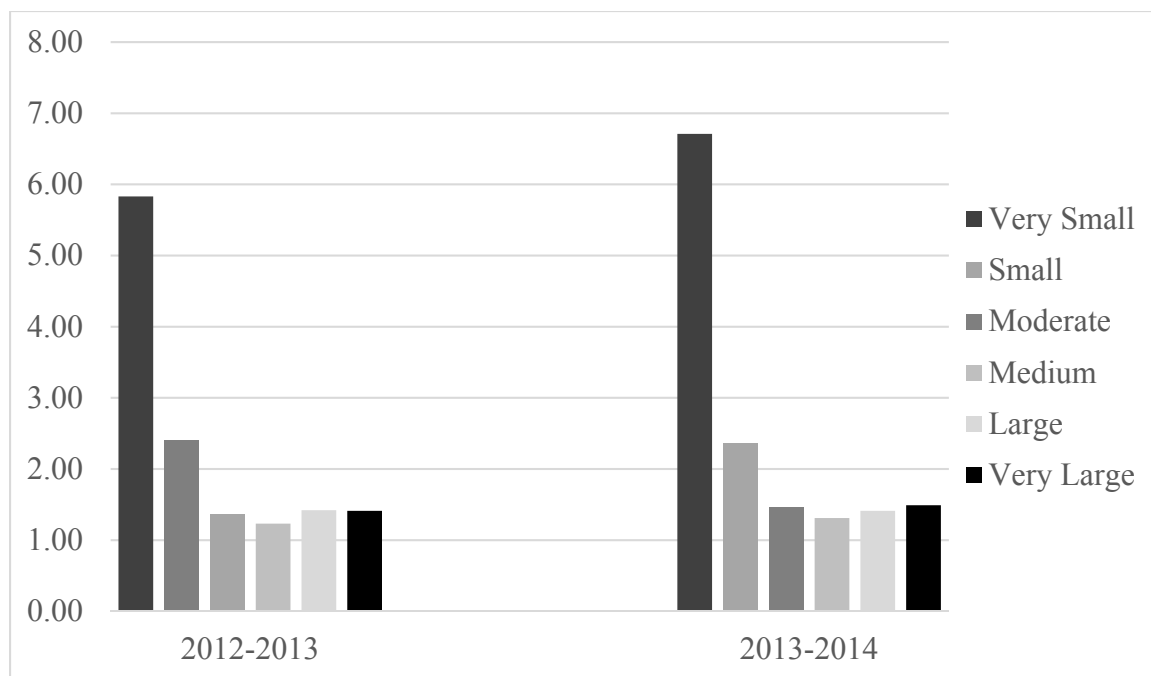


Figure 2.3. Dropout rates for students in poverty for the 2012-2013 and the 2013-2014 school years as a function of the University Interscholastic League (2014) definition of high school size.

CHAPTER III

DIFFERENCES IN GENERAL EDUCATION DEVELOPMENT RECIPIENT RATES AS A FUNCTION OF HIGH SCHOOL SIZE FOR STUDENTS OF POVERTY: A TEXAS MULTIYEAR, STATEWIDE STUDY

This dissertation follows the style and format of *Research in the Schools (RITS)*.

Abstract

In this investigation, the GED recipient rates of students in poverty as a function of high school size were examined. Archival data were analyzed from the Academic Excellence Indicator System report from the Texas Education Agency. School size, based on groupings as defined by Greeney and Slate (2012), Perez and Slate (2015) and the University Interscholastic League categories (2014), were used in the analysis. Statistically significant results were yielded when the University Interscholastic League classifications were used. Students in poverty who were enrolled in Very small high schools with 25 to 104 student enrollment, had higher GED recipient rates than students in poverty who were enrolled in larger high schools. As student enrollment increased, GED recipient rates decreased. Implications for policy and practice and recommendations for future research are provided.

Keywords: GED, Poverty, School size

DIFFERENCES IN GENERAL EDUCATION DEVELOPMENT RECEPIENT RATES
AS A FUNCTION OF HIGH SCHOOL SIZE FOR STUDENTS OF POVERTY: A
TEXAS MULTIYEAR, STATEWIDE STUDY

General Education Development (GED) was originally created to serve veterans of World War II who needed the necessary credentials to obtain a job in an industrial era (Bowen & Nantz, 2014; Zajacova & Everett, 2014). After World War II, many returning veterans used the GED to receive admission to colleges and universities across the United States (Hanford & Smith, 2014). Thus, the returning vets used the GED as a second chance to obtain an education (Bowen & Nantz, 2014; Zajacova & Everett, 2014).

The GED, as a high school credential, is now a standardized test used by civilians to obtain a certificate that is equivalent to a high school diploma (Hanford & Smith, 2014). Every year, about 750,000 students take the GED in place of a high school diploma (Sanchez, 2012). In 2008, 500,000 students met the standards for the GED test, representing 12% of all high school credentials awarded in that year (Heckman, Humphries, & Mader, 2010). Unfortunately, according to Smith (2014), as of 2014, fewer students were taking and passing the GED test than ever before.

In the competitive job market of today, a high school diploma is the ideal school completion credential. However, for those students who do not obtain a high school diploma, the alternative solution is the GED. Although the GED credential is viewed as being less than a traditional high school diploma (Tuck, 2012), in contemporary times, some form of high school equivalency is vital to the growth of the American economy and an individual's satisfaction with life (Smith & Thomson, 2014). In order for the economy to prosper, an educated workforce is needed to take on tasks and jobs that

require at least a high school credential of some sort. The GED was never intended to be a second-chance diploma; however, the GED's prevalence has gained importance in giving students the necessary credential to enter the workforce or enter postsecondary education (Hanford & Smith, 2014).

Employers are placing more stringent criteria for employment, and jobs are becoming more difficult to locate, especially for students who do not have a completed high school credential. Emerging adults, those individuals between the ages of 18 and 29, who do not obtain a high school diploma or an equivalency, can experience long-term negative consequences such as difficulty with job attainment, lower earning wages, and family formation (Bergman, Kong, & Pope, 2014). Moreover, growth or promotion opportunities for individuals not having the high school credential may be dismal and possibly lead to a future of delinquency (Neely & Griffin-Williams, 2013).

Entwisle, Alexander, and Olson (2004) conducted a longitudinal investigation of 293 first time dropouts in Baltimore to compare students who resumed school after a short time with students who dropped out permanently. They reported that 40% of Black males and girls and 40% of White females had completed high school by ages 22 or 23, compared to 31% of White males. Permanent dropouts were more likely to come from disadvantaged backgrounds, and these dropouts were more likely to have been retained and/or maintained a lower grade average than students who eventually reentered high school (Entwisle et al., 2004).

Another variable that may affect high school completion rates and increase the need for GED programs is high school size, with respect to student enrollment. Historically, larger schools are generally thought to be associated with lower student

achievement (Fowler & Walberg, 1991; Grabe, 1981; Horyna & Bonds-Raacke, 2012). However, several researchers (e.g., Conant, 1959; Duke, DeReberto, & Trauветter, 2009; Greeney & Slate, 2012; Moore, Combs, & Slate, 2014) have documented that larger high schools have more academic opportunities and better curricular and co-curricular offerings. As a result, decreased dropout rates and higher graduation rates may be established in larger high schools.

In a recent examination of high school size and Hispanic student dropout rates, Greeney and Slate (2012) established that the lowest dropout rates were present at medium-size high schools than either small-size or large-size high schools. For three of the five years analyzed in their study, Hispanic students had statistically significantly better completion rates in larger-size high schools than in small-size high schools (Greeney & Slate, 2012). Larger high schools were determined to be more conducive for completion rates than were small-size high schools for Hispanic students. However, Greeney and Slate (2012) did not analyze data on students of poverty.

Several researchers (Horyna & Bonds-Raacke, 2012; Stiefel, Berne, Iataroloa, & Frutcher, 2000; Tinto, 1975) agreed more educational opportunities are available for students in larger schools. However, Stiefel et al. (2000) contended a larger school may cause more competition among students and decrease identity, which could be detrimental for students who are economically disadvantaged. More competition among students, could lead to higher dropout rates. Although high school size has been analyzed more frequently in recent research, poverty is a topic that has been understudied in the relationship of dropout rates of students in poverty and high school size.

To offset the reasons a student may drop out, the need of an alternate way to complete high school, such as the GED, is necessary. However, test developers are making the test more rigorous for students. With the recent updates in the GED examination, not only are high school standards assessed, now students are assessed on college and career readiness (Smith, 2014). In a recent 5-year statewide investigation on the relationship of high school size and college readiness, Moore et al. (2014a) documented that White students had statistically significant higher college-readiness rates in English Language Arts, Mathematics, and in both subjects in large-size high schools than White students who were enrolled in either medium-size or small-size high schools. Similarly, in another 5-year investigation conducted by Moore, Combs, and Slate (2014b), Black students exhibited higher college readiness rates in English Language Arts, mathematics, and in both subjects in large-size high schools than Black students in either small-size or medium-size high schools. Moore et al. (2014b) also established college readiness rates for Black students were very low in Texas.

Purpose of the Study

The purpose of this investigation was to examine the extent to which differences might be present in GED recipient rates as a function of high school size for students in poverty. Specifically, high school size and GED recipient rates were analyzed for the 2013 and the 2014 4-year longitudinal data. These two school years were selected because they represented the most recent data available for Texas high schools.

Significance of the Study

For youth to obtain economic mobility as an adult, a strong educational foundation is essential. Informed educational practice in deciding to create environments

that are conducive to GED completion may be possible as a result of this study. Moreover, results from this multiyear empirical study may add to the extant literature. Often students who drop out lack non-cognitive skills (e.g., motivation, grit, determination) that could be fostered within the classroom walls. Moreover, students from poverty need support in building social, human, and financial capital. Educators might use the results from this study as a starting point for creating programs or environments in which students persist and earn a high school credential.

Research Questions

The following research questions were addressed in this study: (a) What is the difference in GED recipient rates as a function of high school size for students in poverty using the Greeney and Slate (2012) school size definition?; (b) What is the difference in GED recipient rates as a function of high school size for students in poverty using the Perez and Slate (2015) school size groupings?; (c) What is the difference in GED recipient rates as a function of high school size for student in poverty using the Texas University Interscholastic League groupings?, and (d) What consistency, if any, is present in dropout rates by high school size for students in poverty using the Greeney and Slate (2012) definition?; (e) What consistency, if any, is present in dropout rates by high school size for students in poverty using the Perez and Slate (2015) definition?; and (f) What consistency, if any, is present in dropout rates by high school size for students in poverty using the Texas University Interscholastic League groupings? The first three research question were analyzed for 4-year longitudinal data for 2013 and 2014 whereas the fourth, fifth, and sixth research questions were a comparison of results across the 2013

and the 2014 4-year longitudinal data. Therefore, a total of nine research questions were addressed in this study.

Method

Research Design

The research design for this empirical investigation was non-experimental, causal comparative (Johnson & Christensen, 2014). In this causal comparative research investigation, archival data was used. Therefore, in this investigation, the independent variable of high school enrollment size, with respect to student enrollment, and the dependent variable of GED recipient rates had already occurred. Accordingly, neither variable could be manipulated (Johnson & Christensen, 2014).

Participants and Instrumentation

Students who receive a GED typically complete a system of standardized examinations to receive a credential considered as equivalent to completion of high school (Texas Education Agency, 2015). Once students have fulfilled all necessary requirements, they are assigned a final status of GED recipient (Texas Education Agency, 2015). Therefore, participants in this study were be students from all traditionally configured Grade 9 through Grade 12 Texas high schools in which GED recipient rates were reported to the Texas Education Agency. Student in poverty refer to students who qualify for free or reduced lunch under the National School Lunch and Child Nutrition Program (Texas Academic Performance Report Glossary, p. 14).

For the purpose of this study, high school size in the Greeney and Slate (2012) definition consisted of three sizes: Small, Moderate, and Large. A Small-size high school was defined as a school with an enrollment of 400 or fewer students, with a minimum of

50 students. A Moderate-size high school was defined as a school with an enrollment of 401 to 1,499 students. A Large-size high school was a school with an enrollment of 1,500 or more students (Greeney & Slate, 2012).

In the Perez and Slate (2015) definition, high school size consisted of four sizes: Small, Moderate, Large, and Very Large. A Small-size high school was defined as a high school with a student enrollment of 50 to 500 students. A Moderate-size high school was a high school with a student enrollment of 501 to 1,499 students. A Large-size high school was defined as a high school with a student enrollment of 1,500 to 2,499 students. A Very Large-size high school had a student enrollment of 2,500 or more students (Perez & Slate, 2015).

The third group of high school sizes were from the University Interscholastic League (2014) guidelines: Very Small, Small, Moderate, Medium, Large, and Very large. A Very Small-size high school was defined as a high school with a student enrollment of 25 to 104 students. A Small-size high school was a high school with a student enrollment of 105 to 219 students. A Moderate-size high school was defined as a high school with a student enrollment of 220 to 464 students. A Medium-size high school was a high school with a student enrollment of 465 to 1,059 students. A Large-size high school was defined as a high school with a student enrollment of 1,060 to 2,099 students. Finally, a Very Large-size high school was a high school with an enrollment of 2,100 or more students (University Interscholastic League, 2014).

Archival data were obtained from the Texas Academic Performance Report as published annually by the Texas Education Agency. Available at the Texas Academic Performance Report website are data for each of the school years. With specific

reference to this investigation, Texas Academic Performance Report data were downloaded for the 2013 and for the 2014 4-year longitudinal GED recipient rates. Specific variables that were downloaded were: (a) grade span configuration of each high school; (b) total student enrollment; and (c) GED recipient rates of students in poverty.

Results

To determine whether a difference existed in GED recipient rates as a function of high school size as defined by Greeney and Slate (2012), Perez and Slate (2015), and the Texas University Interscholastic League (2014) groupings for students who were economically disadvantaged, an Analysis of Variance (ANOVA) procedure was completed for each of these research questions. Prior to conducting an ANOVA, the standardized skewness coefficients and the standardized kurtosis coefficients were calculated for normality to ensure the GED recipient rate data were normally distributed, ± 3 (Onwuegbuzie & Daniel, 2002). The Levene's Test of Error Variance was also calculated to determine the degree of homogeneity of the data, in which a violation was discovered. However, Field (2009) contended the ANOVA procedure is sufficiently robust to use as the statistical procedure.

Research Question 1

For the first research question, the following enrollment numbers were used for each high school grouping (Greeney & Slate, 2012): Small-size high schools (50 to 400 students); Moderate-size high schools (401 to 1,499 students); and Large-size high schools (1,500 or more students). For the 2013 4-year longitudinal data, a statistically significant difference was not revealed in GED recipient rates for students in poverty as a function of school size, $F(2, 1041) = 0.04, p = .96$. The GED recipient rates for students

in poverty were similar across the three school size groupings. Readers are referred to Table 3.1 for the descriptive statistics concerning the GED recipient rates of students who were in poverty for the 2013 4-year longitudinal data.

Insert Table 3.1 about here

Concerning the 2014 4-year longitudinal data, a statistically significant difference was not present in the GED recipient rates of students in poverty as a function of school size as defined by Greeney and Slate (2012), $F(2, 1074) = 1.11, p = .33$. Consistent with the previous school year result, the 2013-2014 GED recipient rates of students in poverty were comparable by high school size. Descriptive statistics for this analysis are presented in Table 3.2.

Insert Table 3.2 about here

Research Question 2

For the second research question, the following enrollment numbers were used for each high school grouping (Perez & Slate, 2015): Small-size high schools (50 to 500 students); Moderate-size high schools (501 to 1,499 students); Large-size high schools (1,500 to 2,499 students); and Very Large-size high schools (2,500 or more students). For the 2013 4-year longitudinal data, a statistically significant difference was not revealed in GED recipient rates for students in poverty as a function of school size, $F(3, 1040) = 0.11, p = .95$. The GED recipient rates of students in poverty were

commensurate across all of the four high school sizes. Readers are directed to Table 3.3 for the descriptive statistics for this school year.

Insert Table 3.3 about here

Concerning the 2014 4-year longitudinal data, a statistically significant difference was not yielded for GED recipient rates for students in poverty as a function of school size, $F(3, 1073) = 0.75, p = .53$. Similar to the previous school year, GED recipient rates of student in poverty were similar across the four high school groupings. Table 3.4 contains the descriptive statistics for the 2013-2014 school year.

Insert Table 3.4 about here

Research Question 3

For the third research question, the following enrollment numbers were used for each high school grouping (University Interscholastic League, 2014): Very Small-size high schools (25 to 104 students); Small-size high schools (105 to 219 students); Moderate-size high schools (220 to 446 students); Medium-size high schools (465 to 1,059 students); Large-size high schools (1,060 to 2,099 students); and Very Large-size high schools (2,100 or more students). For the 2013 4-year longitudinal data, a statistically significant difference was revealed in GED recipient rates for students in poverty as a function of school size, $F(5, 1056) = 5.83, p < .001, \eta^2 = .027$, a small effect size (Cohen 1988). Scheffe` post hoc procedures were used next to determine which

school size pairwise comparisons were statistically significantly different with respect to GED recipient rates for students in poverty. Students in poverty who were enrolled in Very Small-size high schools had higher GED recipient rates than any other school size. No other school size pairwise comparisons had statistically significantly different GED recipient rates. Descriptive statistics for this school year are revealed in Table 3.5.

 Insert Table 3.5 about here

In regard to the 2014 4-year longitudinal data, a statistically significant difference was yielded in GED recipient rates for students in poverty as a function of the University Interscholastic League (2014) school size definition, $F(5, 1091) = 3.30, p = .006, \eta^2 = .015$, a small effect size (Cohen 1988). Scheffe` post hoc procedures revealed that students in poverty who were enrolled in Very Small-size high schools had statistically significantly higher GED recipient rates than students in poverty who were enrolled in Moderate-size high schools, Medium-size high schools, and Very Large-size high schools. The other pairwise comparisons of high school size groups did not yield any statistically significant differences in their GED recipient rates. Table 3.6 contains the descriptive statistics for this analysis.

 Insert Table 3.6 about here

Research Question 4

Using the groupings as defined by Greeney and Slate (2012), consistency was present. Though the two analyses did not yield statistically significant differences, readers should note that Small-size high schools had the highest percentages of GED recipients for both the 2013 and the 2014 4-year longitudinal data. For both 4-year longitudinal data examined, Moderate and Large-size high schools had very similar GED recipient rates, within one percent. Figure 3.1 is a representation of the GED recipient rates for students in poverty for the 2013 and the 2014 4-year longitudinal data.

Insert Figure 3.1 about here

Research Question 5

Using the groupings as defined by Perez and Slate (2015), consistency was not present across both school years in regard to the highest GED recipient rates. For the 2013 4-year longitudinal data, Very-large size high schools had the highest GED recipient rates of students in poverty. However, in the 2014 4-year longitudinal data, Small-size high schools had the highest GED recipient rates of students in poverty. Congruent with the Greeney and Slate (2012) grouping results, Moderate-size and Large-size high schools had very similar GED recipient rates for the 2013 and the 2014 4-year longitudinal data. These results are depicted in Figure 3.2.

Insert Figure 3.2 about here

Research Question 6

Using the classifications as defined by the University Interscholastic League (2014), consistency was present for Very-small-size high schools. In Texas, high schools with 25 to 104 enrolled students, GED recipient rates were the highest for students in poverty for both the 2013 and the 2014 4-year longitudinal data. Moderate-size and Medium-size high schools had very similar GED recipient rates, within 1% in both school years. Readers are directed to Figure 3.3 for a presentation of the consistency in GED recipient rates for the 2013 and the 2014 4-year longitudinal data for the University Interscholastic League (2014) definition of school size.

 Insert Figure 3.3 about here

Summary of Results for GED Recipient Rates of Students in Poverty

For both the 2013 and 2014 4-year longitudinal data, statistically significant differences were not present in the GED recipient rates of students in poverty using the groupings as defined by Greeney and Slate (2014) and Perez and Slate (2015). However, using the UIL classifications for both the 2013 and 2014 4-year longitudinal data, Very Small-size high schools had the highest GED recipient rates of students in poverty. For schools that had a student of enrollment of 25 to 104 students, GED recipient rates more than doubled in Very Small-size size high schools than any other high schools size analyzed in this investigation.

Discussion

In this study, the extent to which high school GED recipient rates differed as a function of high school size for students in poverty was examined. Statewide Texas data were obtained from the Texas Academic Performance Reports for the 2013 and the 2014 4-year longitudinal data. Inferential statistical procedures were used to determine whether high school size was a contributing factor to the GED recipient rates of students in poverty in Texas. Of the high school groupings analyzed in this investigation, only the University Interscholastic League groupings yielded statistically significant results. Students in poverty who were enrolled in Very Small-size high schools had higher GED recipient rates.

Connection to the Literature

As noted by other researchers (e.g., Conant, 1959; Duke, DeReberto, & Trauветter, 2009; Greeney & Slate, 2012; Moore et al, 2014), large schools have more opportunities for curricular and co-curricular participation which in turn can lead to lower dropout rates and higher graduation rates. In this investigation, smaller size schools had higher GED recipient rates of students in poverty than did larger size schools. These results align with current literature in the respect that higher dropout rates yield more students to obtain a GED. Thus, smaller high schools have higher GED recipient rates due to having a larger pool of students who may have to take the GED to receive a high school credential.

Implications for Policy and Practice

Based upon the results of the three sets of inferential analyses, Very Small-size high schools had statistically significant differences in the GED recipient rates of students

in poverty as a function of the student enrollment at their high schools. Educational leaders are encouraged to audit each of their high school's GED recipient rates by student economic status, as well as by other demographic characteristics. Such audits could assist them in determining whether new programs are needed to reduce their dropout rates or implement other interventions, such as the GED. The effectiveness of current GED programs should be examined for effectiveness as well to ensure students are exiting high school with some form of high school credential. With the demand of the labor market and high school accountability standards, GED programs and other interventions are necessary.

Recommendations for Future Research

In this investigation, the GED recipient rates of students in poverty were analyzed as a function of high school size, with respect to student enrollment. Moreover, aggregated GED recipient rate data at the high school level were only examined for the 2013 and 2014 4-year longitudinal data. As such, researchers are encouraged to analyze the GED recipient rates of students by important demographic characteristics such as ethnicity/race, at-risk status, and English Language Learner status. Are the GED recipient rates of Black or Hispanic students influenced by high school size? Furthermore, in regard to GED recipient rates, future researchers are advised to use the University Interscholastic League groupings when examining the issue of school size in Texas.

Researchers are also encouraged to investigate the relationship of high school size with other important accountability standards such as graduation rates and college readiness. The extent to which the findings obtained in this investigation would

generalize to other academic outcomes is not known. This research study was conducted only on high school students in Texas. Accordingly, this research investigation should be replicated in other states to determine whether the results in other states are similar to these Texas results.

Conclusion

Overall public school enrollment is projected to increase to 52.9 million students by the school year 2024-2025 (National Center for Education Statistics, 2015). Because of increasing student enrollment, it is imperative for policymakers to examine other relationships between school buildings and student achievement (Greeney & Slate, 2012). School size is one of the few variables that can be controlled by policy makers to ensure schools can maximize student achievement (Humlum & Smith, 2015). Consolidating schools to provide equal opportunities for all students may be the answer to increasing high school completion rates. Larger schools could also create dropout prevention and GED programs to assist students to obtain some form of high school credential.

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Table 3.1
*Descriptive Statistics for the 2013 4-Year Longitudinal GED Recipient Rates for Students
 in Poverty as a Function of High School Size Using the Greeney and Slate (2012)*

Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Small (400 or less)	349	0.58	1.61
Moderate (401-1,499)	339	0.56	1.34
Large (1,500 or more)	356	0.59	0.83

Table 3.2

Descriptive Statistics for 2014 4-Year Longitudinal GED Recipient Rates for Students in Poverty as a Function of High School Size Using the Greeney and Slate (2012) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Small (400 or less)	362	0.78	2.65
Moderate (401-1,499)	348	0.60	1.39
Large (1,500 or more)	367	0.62	0.91

Table 3.3

Descriptive Statistics for the 2013 4-Year Longitudinal GED Recipient Rates for Students in Poverty as a Function of High School Size Using the Perez and Slate (2015) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Small (400 or less)	349	0.58	1.61
Moderate (401-1,499)	339	0.56	1.34
Large (1,500-2,499)	234	0.56	0.84
Very Large (2,500 or more)	122	0.63	0.82

Table 3.4

Descriptive Statistics for the 2014 4-Year Longitudinal GED Recipient Rates for Students in Poverty as a Function of High School Size Using the Perez and Slate (2015) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Small (400 or less)	362	0.78	2.65
Moderate (401-1,499)	348	0.60	1.39
Large (1,500-2,499)	245	0.62	0.98
Very Large (2,500 or more)	122	0.62	0.75

Table 3.5

Descriptive Statistics for the 2013 4-Year Longitudinal GED Recipient Rates for Students in Poverty as a Function of High School Size Using the University Interscholastic League (2014) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Very Small (25-104)	58	1.79	4.96
Small (105-219)	130	0.53	1.79
Moderate (220-464)	227	0.55	1.59
Medium (465-1069)	210	0.54	1.10
Large (1,070-2099)	220	0.58	1.04
Very Large (2,100 or more)	217	0.60	0.79

Table 3.6

Descriptive Statistics for the 2014 4-Year Longitudinal GED Recipient Rates for Students in Poverty as a Function of High School Size Using the University Interscholastic League (2014) Definition

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
Very Small (25-104)	64	1.60	4.85
Small (105-219)	133	0.95	3.49
Moderate (220-464)	236	0.58	1.71
Medium (465-1069)	212	0.58	1.42
Large (1,070-2099)	232	0.66	1.07
Very Large (2,100 or more)	220	0.60	0.78

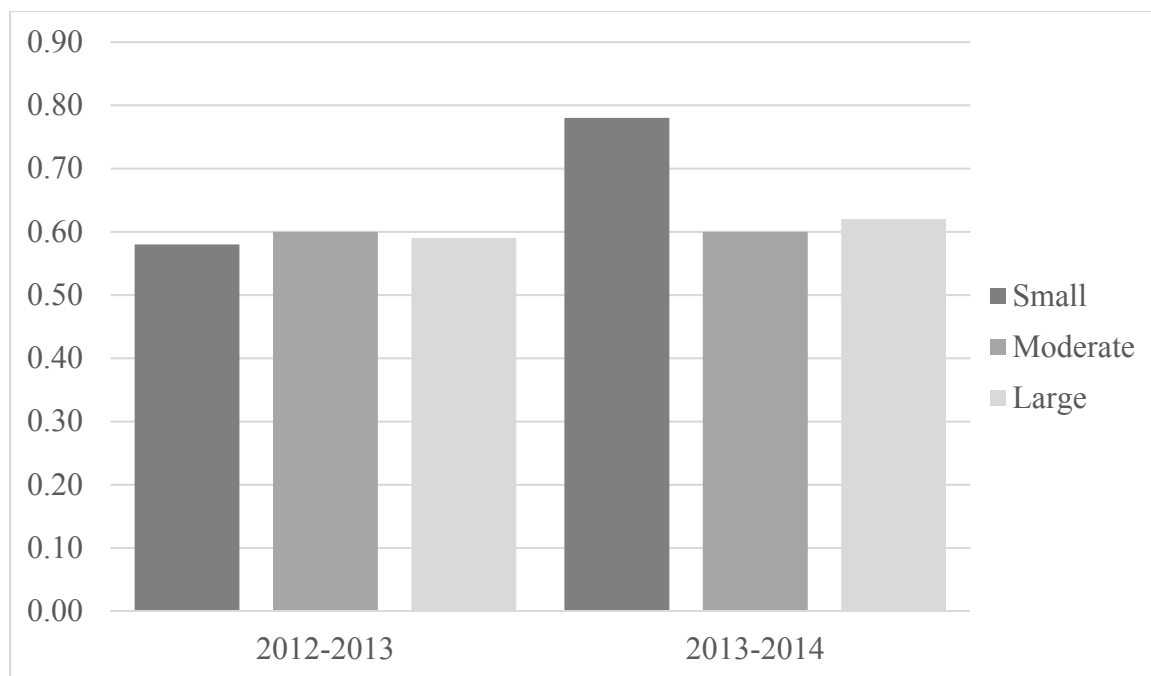


Figure 3.1. Four-Year Longitudinal General Education Development recipient rates for 2013 and 2014 as a function of the Greeney and Slate (2012) definition of high school size.

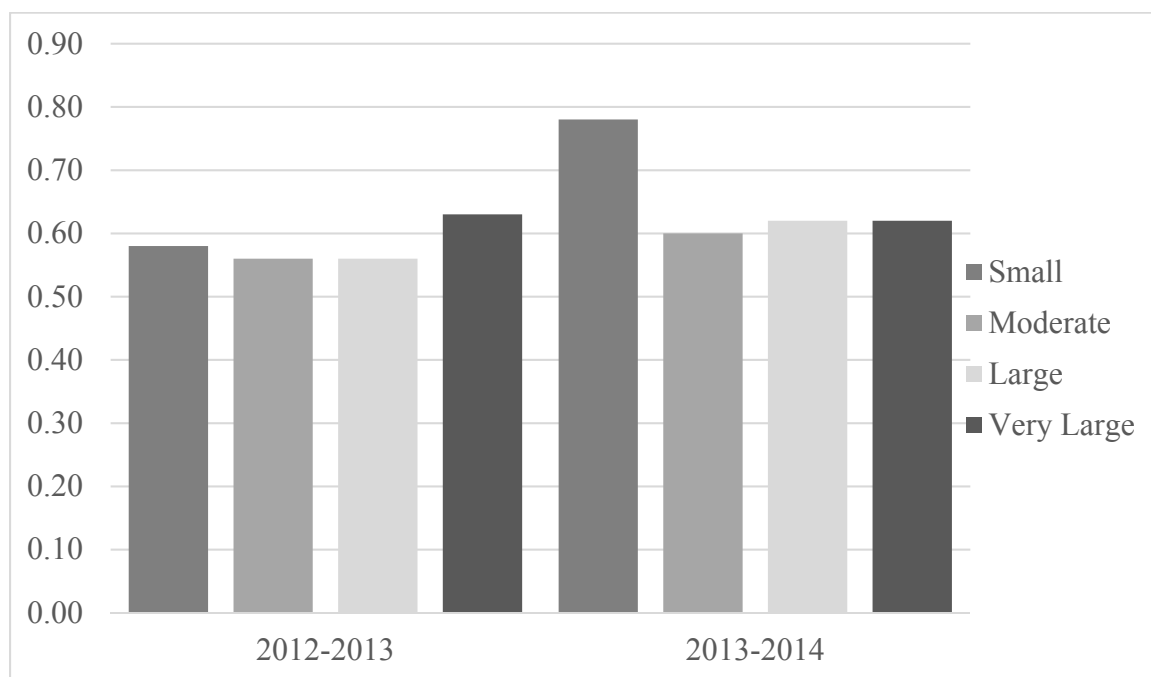


Figure 3.2. Four-Year Longitudinal General Education Development recipient rates for 2013 and 2014 as a function of the Perez and Slate (2015) definition of high school size.

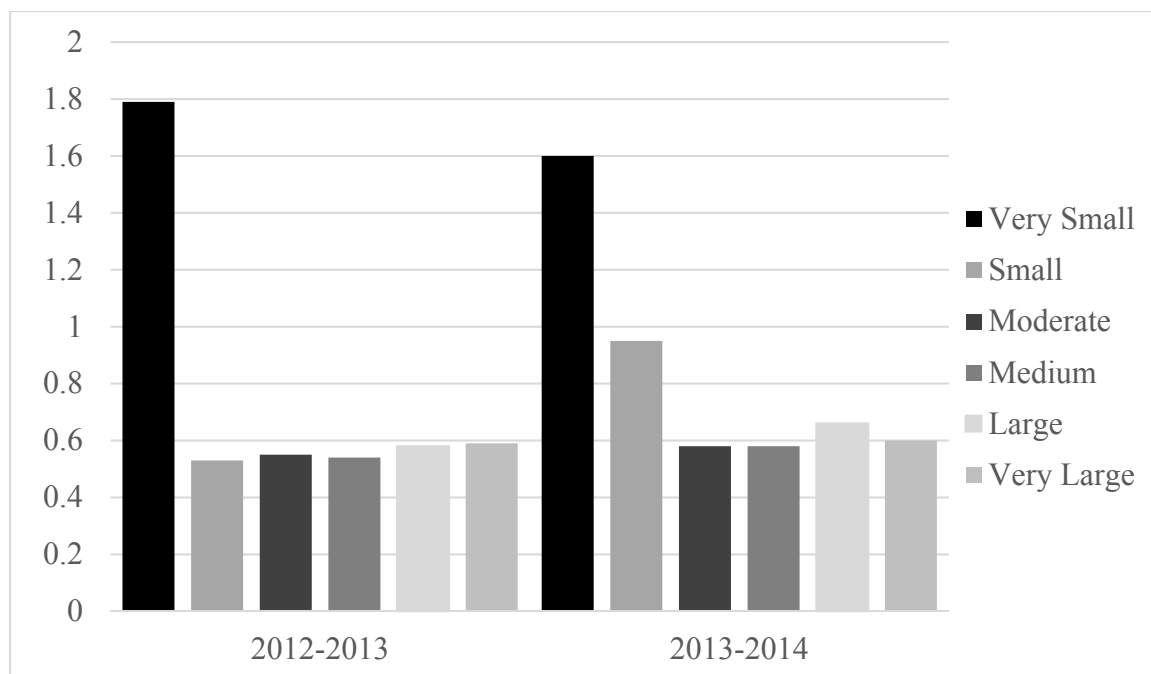


Figure 3.3. Four-Year Longitudinal General Education Development recipient rates for students in poverty for 2013 and 2014 school years as a function of the University Interscholastic League (2014) definition of high school size.

CHAPTER IV

DIFFERENCES IN GRADUATION RATES AS A FUNCTION OF HIGH SCHOOL SIZE FOR STUDENTS OF POVERTY: A TEXAS MULTIYEAR, STATEWIDE STUDY

This dissertation follows the style and format of *Research in the Schools (RITS)*.

Abstract

In this investigation, the graduation rates of students in poverty as a function of school size were examined. Archival data were analyzed from the Academic Excellence Indicator System report from the Texas Education Agency. School size was analyzed based on groupings as defined by Greeney and Slate (2012), Perez and Slate (2015) and the University Interscholastic League categories (2014). Graduation rates were analyzed annually and longitudinal. In both the 2012-2013 and 2013-2014 school years, statistical significant differences were yielded for Graduation rates of students in poverty as a function of high school size. Students who lived in poverty who were enrolled in larger high schools had higher graduation rates than students in poverty who were enrolled in smaller high schools. For both school years, as student enrollment increased, graduation rates increased. Implications for policy and practice and recommendations for future research are provided.

Keywords: Graduation rates, High school completion, Poverty, School size

DIFFERENCES IN GRADUATION RATES AS A FUNCTION OF HIGH SCHOOL SIZE FOR STUDENTS OF POVERTY: A TEXAS MULTIYEAR, STATEWIDE STUDY

Despite an increase of six percentage points in graduation rates between 2000 and 2010, high school completion-rate disparities still exist by ethnicity/race, income status, and gender (Murnane & Hoffman, 2013). With the widening achievement gap, educational leaders are searching for answers for higher graduation rates and college readiness (Fitzgerald et al., 2012; Martin & Robinson, 2011). Students who do not graduate high school and receive a diploma may face a wide variety of hardships in their lifetime. Further, without completing high school, students may face grave outcomes such as financial government assistance, lower wages, or incarceration (Bjerk, 2012; Messacar & Oreopoulos, 2013; Rumberger, 2011; Zachry, 2010). These hardships are more daunting for Black and Hispanic students or students in poverty who are disproportionately affected by not completing high school (Messacar & Oreopoulos, 2013).

Students complete high school typically have better health, have higher lifetime incomes, and are less likely to participate in criminal activity (Cataldi, Laird, & KewalRamani, 2009) than students who do not complete high school. Further, students who possess a high school diploma are more likely to obtain a job after high school compared to students who do not attain a high school diploma (Holzer, 1996; McDaniel & Kuehn, 2013). High school completion rates and students entering the workforce are vital to the stabilization of the United States economy (Burrus & Roberts, 2012; Nadirova & Burger, 2014).

Although dropout rates have decreased over the last 15 years, as of the 2011-2012 school year, only 81% of high school students graduate with a traditional high school diploma (National Center for Education Statistics, 2015). Researchers (e.g., Elliott, 2013; Palardy, 2013) have revealed that students who live in economically disadvantaged areas can be an additional challenge in increasing graduation rates. Given that high school graduation rates are used to measure a high school's performance and are used for accountability ratings, graduating high school students is an important goal for school administrators to accomplish.

Wodtke, Hardling, and Elwert (2011) discovered students who live in disadvantaged neighborhoods have lower graduation rates than student who do not live in disadvantaged neighborhoods. Students living in disadvantaged neighborhoods have a reduced likelihood of graduating. For Black children in disadvantaged neighborhoods, the probability of graduating dropped from 96% to 76%. For non-Black children, the probability of graduating dropped from 95% to 87%. Therefore, living in these disadvantaged neighborhoods may have a substantial influence on high school graduation rates.

Palardy (2013) analyzed data from the Educational Longitudinal study of 2002 to determine the relationship of socioeconomic status to high school graduation and college enrollment. Students who attended schools of higher economic status were 68% more likely to graduate high school and to enroll into a 4-year college than were students who attended low socioeconomic schools. Palardy suggested integrating more affluent schools and schools that have a large population of students in poverty to offset the

negative consequences of attending low socioeconomic schools to promote economic diversity in schools and to allow for equal educational opportunity.

Elliott (2013) examined the relationship between economic status and children's human capital development. In his investigation, students living in families of poverty had lower (a) academic achievement scores, (b) high school graduation rates, (c) college enrollment rates, and (d) college graduation rates. Higher income families were viewed as having an educational advantage, thus supporting the idea that educational inequalities for students in poverty exist.

Students from low socioeconomic families are more likely to exhibit poorer reading and mathematics skills compared to their more affluent peers (Burchinal, Roberts, Zeisel, & Rowley, 2008; Herbers et al., 2012). Several researchers (e.g., Brunn-Bevel & Byrd, 2015; Entiwise & Alexander, 1993; Magnuson & Waldfogel, 2008) have established the achievement gap widens as students are promoted through the grade levels. Larger achievement gaps in reading and mathematics exist for students of poverty and for students who are homeless or who experience high residential mobility (Herbers et al., 2012; Huntington et al., 2008; Obradovic' et al., 2009). These gaps may be a predictor for not earning a high school diploma or even obtaining job placement (Arnold & Doctoroff, 2003).

With academic achievement and higher graduation rates being emphasized in school accountability ratings, policymakers continuously think about constructing schools that might lead to better outcomes (Byrk, 2010; Fitzgerald et al., 2012). School size, with respect to student enrollment, is one factor that may influence student performance (Fitzgerald et al., 2012). Some researchers (e.g., Kuo, 2010; Weiss,

Carolan, & Baker-Smith, 2010) supported the idea that smaller schools are more effective when it comes to supporting high school students' needs. Yet, other researchers (Lee & Smith, 1997; Slate & Jones, 2008) have documented moderate-size schools as being more ideal for student achievement. However, some researchers (e.g., Greeney & Slate, 2012; Rios, Slate, Moore, & Martinez-Garcia, 2016a) have determined larger high schools support student achievement the best.

Jordan, Kostandini, and Mykerezi (2012) examined dropout rates in urban and rural-size high schools to determine which school environment had higher graduation rates over time. Graduation rates were determined to be similar for both types of high schools in the early 2000s, however, graduation rates were three percentage points lower than in the 1980s. Jordan et al. (2012) concluded family and peer characteristics were more influential on a student's persistence to graduate than was geographic location. In an investigation of high school size and dropout rates, Gardener, Ritblatt, and Beaty (2000) determined that small-size high schools that had a student enrollment of between 200 and 600 had lower dropout rates than high schools who had a student enrollment of 2,000 or more, even for student in poverty.

Lower test scores are associated with lower income regardless of race (Magnuson & Waldfogel, 2008). However, statistically significant differences have occurred with White students in poverty performing better than Black students in poverty (Magnuson & Waldfogel, 2008). In 2011, a 25-point gap was present in reading scores and a 31-point gap was present in mathematics scores between Black and White Grade 8 students on standardized tests (National Center for Education Statistics, 2011).

Werblow and Duesbery (2009) used the Educational Longitudinal Study 2002 to analyze school size and mathematics achievement as it pertained to dropout rates of sophomores and seniors ($n = 16,081$). High schools that had very large student enrollment (2,592 or more students) or very small student enrollment (674 or fewer students) had higher student achievement in mathematics. Upon further analysis, Werblow and Duesbery (2009) determined that dropout rates in larger size high schools were greater than in small-size high schools. Similarly, Carolan (2012) used the Educational Longitudinal Study 2002 data tool to examine the relationship of mathematics achievement and high school size. Carolan (2012) determined statistically significant differences in mathematics achievement and high school size. Mathematics achievement was best in moderate-size schools (600-999 students). However, neither of these researchers analyzed data on students in poverty.

In a recent Texas statewide study, Moore, Combs, and Slate (2014a) analyzed five school years to determine the extent to which college readiness was related to high school size of Black students. High school sizes were categorized into three groups: small-size (< 400 students), medium-size (401-1500 students), and large-size high schools (> 1500 students). Black students who attended large-size high schools had statistically significant higher college readiness rates than Black students who were enrolled in either small or medium-size high schools. In a similar study, using the same student enrollment criteria, Moore, Combs, and Slate (2014b) examined five years of Texas statewide data on school size and college readiness for White students. White students who attended large-size high schools had statistically significant higher college readiness rates in large-size high schools than did White students who were enrolled in either small or medium-

size high schools. In a third investigation, Moore et al. (2014c) used the same student enrollment criteria to determine the extent of the relationship between high school size and college readiness of Hispanic students. Hispanic students attending large-size high schools had statistically significant higher college readiness rates than Hispanic students attending small-size or moderate-size high schools. In their three studies, Moore et al. (2014a, 2014b, 2014c) provided evidence that college readiness rates were higher in large-size high schools for Black, Hispanic, and White students. They did not, however, analyze the graduation rates of students in poverty.

Purpose of the Study

The purpose of this investigation was to ascertain the extent to which graduation rates might differ as a function of high school size for students in poverty. Specifically, high school size and annual graduation rates were analyzed for two school years: 2012-2013 and 2013-2014. Longitudinal data were also examined for 2013 and 2014 to determine the status of the cohort of students that the annual data represented. These school years were selected because they constituted the most recent data available for Texas high schools.

Significance of the Study

Through this investigation more information has been gained with regard to graduation rates and high school size for students in poverty. Findings from this study may be used to provide insight for educators and policymakers when considering school construction and consolidation that might best support subgroups. School district leaders and state legislators may gain insights from this study that may provide policy and decision making related to funding for programs designed to support students who are at

risk of dropping out. From an administrative standpoint, decreasing dropout rates may in turn help schools and school districts to improve accountability ratings.

Research Questions

The following research questions were addressed in this study: (a) What is the difference in annual graduation rates as a function of high school size for students in poverty using the Greeney and Slate (2012) school size definition? (b) What is the difference in annual graduation rates as a function of high school size for students in poverty using the Perez and Slate (2015) school size groupings?; (c) What is the difference in annual graduation rates as a function of high school size for student in poverty using the Texas University Interscholastic League groupings?; (d) What is the difference in the longitudinal graduation rates as a function of high school size for students in poverty using the Greeney and Slate (2012) school size definition?; (e) What is the difference in longitudinal graduation rates as a function of high school size for students in poverty using the Perez and Slate (2015) school size groupings?; (f) What is the difference in longitudinal graduation rates as a function of high school size for student in poverty using the Texas University Interscholastic League groupings?; (g) What consistency, if any, is present in annual graduation rates by high school size for students in poverty using the Greeney and Slate (2012) definition?; (h) What consistency, if any, is present in annual graduation rates by high school size for students in poverty using the Perez and Slate (2015) definition?; (i) What consistency, if any, is present in annual graduation rates by high school size for students in poverty using the Texas University Interscholastic League groupings? (j) What consistency, if any, is present in longitudinal graduation rates by high school size for students in poverty using the Greeney and Slate

(2012) definition?; (k) What consistency, if any, is present in longitudinal graduation rates by high school size for students in poverty using the Perez and Slate (2015) definition?; and (l) What consistency, if any, is present in longitudinal graduation rates by high school size for students in poverty using the Texas University Interscholastic League groupings?

Method

Research Design

The research design for this empirical investigation was non-experimental, causal comparative (Johnson & Christensen, 2014). In this causal comparative research investigation, archival data were analyzed. With archival data, the independent and dependent variable had already occurred. Accordingly, neither variable could be manipulated (Johnson & Christensen, 2014). In this study, the independent variable was the size of the high school, with respect to student enrollment. The dependent variable was the graduation rates of students in poverty.

Participants and Instrumentation

Participants in this study were students from all traditionally configured Grade 9 through Grade 12 Texas high schools in which graduation rates were reported to the Texas Education Agency. Students who are considered to have completed high school typically refer to students who are from a class of first-time ninth graders who complete their high school education by their anticipated graduation date (Texas Education Agency, 2015). Once a class has finished high school, students are assigned a final status of graduate, continuer, GED recipient, or dropout (Texas Education Agency, 2015). Students who are identified to be of poverty level typically refer to students who are of

economic disadvantage and indicates the student's household income is 130% (free) and 185% (reduced) of the federal poverty guidelines (Texas Academic Performance Report Glossary, p. 14).

For the purpose of this study, high school size in the Greeney and Slate (2012) definition consisted of three groupings: Small, Moderate, and Large. A Small-size high school was defined as a school with an enrollment of 400 or fewer students, with a minimum of 50 students (Greeney & Slate, 2012). A Moderate-size high school was defined as a school with an enrollment of 401 to 1,499 students (Greeney & Slate, 2012). A Large-size high school was defined as a school with an enrollment of 1,500 or more students (Slate & Jones, 2008).

In the Perez and Slate (2015) definition, high school size consisted of four categories: Small, Moderate, Large, and Very Large. A Small-size high school was defined as a high school with a student enrollment of 50 to 500 students (Perez & Slate, 2015). A Moderate-size high school was defined as a high school with a student enrollment of 501 to 1,499 students (Perez & Slate, 2015). A Large-size high school was defined as a high school with a student enrollment of 1,500 to 2,499 students (Perez & Slate, 2015). A Very Large-size high school had a student enrollment of 2,500 or more students (Perez & Slate, 2015).

The third grouping of high school size was the University Interscholastic League guidelines: Very Small, Small, Moderate, Medium, Large, and Very Large. A very Small-size high school was defined as a high school with a student enrollment of 25 to 104 students. A Small-size high school was a high school with a student enrollment of 105 to 219 students. A Moderate-size high school was a high school with a student

enrollment of 220 to 464 students. A Medium-size high school was defined as a high school with a student enrollment of 465 to 1,059 students. A Large-size high school was a high school with a student enrollment of 1,060 to 2,099 students. Finally, a Very Large-size high school was a high school with an enrollment of 2,100 or more students (University Interscholastic League, 2014).

Archival data were obtained from the Texas Academic Performance Report as published annually by the Texas Education Agency. Available at the Texas Academic Performance Report website were data for each of the two school years. With specific reference to this investigation. Texas Academic Performance Report data were downloaded for the 2012-2013 and 2013-2014 school years. Longitudinal data were also downloaded for 2013 and 2014. Specific variables that were downloaded were: (a) configuration of each high school; (b) total student enrollment; and (c) graduation rates of students in poverty.

Results

To determine whether a difference was present in graduation rates as a function of school size for the groupings formed by Greeney and Slate (2012), Perez and Slate (2015), and the Texas University Interscholastic League (2014) for students who were economically disadvantaged, an Analysis of Variance (ANOVA) procedure were conducted. Standardized skewness coefficients and standardized kurtosis coefficients were checked for graduation rates to ascertain the degree to which they were reflective of normally distributed data across the three school sizes. All coefficients were calculated to ensure they all are within range of normality of ± 3 (Onwuegbuzie & Daniel, 2002). A Levene's Test of Error Variance was analyzed to ensure homogeneity of the variables.

When all assumptions were met, an ANOVA procedure was justified. However, Field (2009) contended the ANOVA procedure is sufficiently robust against failures to meet all assumptions. When a statistically significant difference was determined, Scheffe` post hoc procedures were calculated to determine which groups were statistically significantly different.

Research Question 1

For the first research question, student enrollment was analyzed according to the groupings as defined by Greeney and Slate (2012): Small-size high schools (50 to 400 students); Moderate-size high schools (401 to 1,499 students); and Large-size high schools (1,500 or more students). For the 2012-2013 school year, a statistically significant difference was revealed for the annual graduation rates for students in poverty as a function of school size, $F(2, 1090) = 38.55, p < .001, \eta^2 = .066$, a medium effect size (Cohen 1988). Scheffe` post hoc procedures were analyzed next to determine which high school size pairwise comparisons were statically significant with respect to graduation rates of students who were in poverty. Four of the six post hoc comparisons yielded statistically significant differences. Students in poverty who were enrolled in Small-size high schools had statistically lower graduation rates than students in poverty who were enrolled in either Moderate-size or Large-size high schools. The graduation rates were similar for students in poverty in Moderate-size and Large-size high schools.

Concerning the 2013-2014 school year, a statistically significant difference was determined in the annual graduation rates of students in poverty as a function of high school size as defined by Greeney and Slate (2012), $F(2, 1104) = 40.65, p < .001, \eta^2 = .069$, a medium effect size (Cohen 1988). Similar to the previous school year, students in

poverty who were enrolled in Small-size high schools had statistically significantly lower graduation rates than students in poverty who were enrolled in either Moderate-size or Large-size high schools. The graduation rates were similar for Moderate-size and Large-size high schools. Descriptive statistics for the analysis of the 2012-2013 and the 2013-2014 school years are presented in Table 4.1.

 Insert Table 4.1 about here

Research Question 2

For this research question, student enrollment was analyzed according to the groupings defined by Perez and Slate (2015): Small-size high schools (50 to 400 students); Moderate-size high schools (401 to 1,499 students); Large-size high schools (1,500 to 2,499); and Very Large-size high schools (2500 students or more). For the 2012-2013 school year, a statistically significant difference was revealed for graduation rates for students in poverty as a function of school size, $F(3, 1089) = 25.99, p < .001, \eta^2 = .067$, a medium effect size (Cohen 1988). Students in poverty who were enrolled in Small-size high schools had lower graduation rates than students in poverty who were enrolled in either Moderate-size, Large-size, or Very Large-size high schools. No other pairwise comparisons yielded statistically significant results.

In regard to the 2013-2014 school year, a statistically significant difference was determined in the graduation rates of students in poverty as a function of high school size as defined by Perez and Slate (2015), $F(3, 1103) = 27.23, p < .001, \eta^2 = .069$, a medium effect size (Cohen 1988). Similar to the previous school year, students in poverty who

were enrolled in Small-size high schools had statistically lower graduation rates than students in poverty who were enrolled in either Moderate-size, Large-size, or Very Large-size high schools. No other pairwise comparisons yielded statistically significant results. Table 4.2 contains the descriptive statistics for the 2012-2013 and the 2013-2014 analysis with regard to the Perez and Slate (2015) school size definition.

 Insert Table 4.2 about here

Research Question 3

For the third research question, the following enrollment numbers were used for each high school grouping (University Interscholastic League, 2014): Very Small-size high schools (25 to 104 students); Small-size high schools (105 to 219 students); Moderate-size high schools (220 to 446 students); Medium-size high schools (465 to 1,059 students); Large-size high schools (1,060 to 2,099 students); and Very Large-size high schools (2,100 or more students). For the 2012-2013 school year, a statistically significant difference was revealed for graduation rates for students in poverty as a function of school size, $F(5, 1019) = 57.41, p < .001, \eta^2 = .206$, a large effect size (Cohen 1988). Scheffe` post hoc procedures were used next to determine which school size pairwise comparisons were statistically significantly different with respect to graduation rates for students in poverty. Students enrolled in Very Small-size high schools had statistically significantly lower graduation rates of students in poverty than any of the other school size groupings. Similarly, students who were enrolled in Small-size high schools had statistically significantly lower graduation rates for students in poverty than

high schools with more students enrolled. The other high school size groupings had similar graduation rates of their students in poverty.

In regard to the 2013-2014 school year, a statistically significant difference was determined in the graduation rates of students in poverty as a function of high school size as defined by the University Interscholastic League Classifications (2014), $F(5, 1126) = 57.55, p < .001, \eta^2 = .204$, a large effect size (Cohen 1988). Scheffe` post hoc procedures revealed that students enrolled in Very Small-size high schools had statistically significantly lower graduation rates of students in poverty than any of the other school size groupings. Similarly, students who were enrolled in Small-size high schools had statistically significantly lower graduate rates of students in poverty than high schools with more students enrolled. The other high school size groupings had similar graduation rates of their students in poverty. Presented in Table 4.3 are the descriptive statistics for the 2012-2013 and the 2013-2014 analysis with regard to the University Interscholastic League (2014) school size definition.

 Insert Table 4.3 about here

Research Question 4

With regard to the 4-year longitudinal graduation rates in the 2012-2013 school year, student enrollment was analyzed according to the groupings defined by Greeney and Slate (2012): Small-size high schools (50 to 400 students); Moderate-size high schools (401 to 1,499 students); and Large-size high schools (1,500 or more students). For the 2012-2013 school year, a statistically significant difference was revealed for

longitudinal graduation rates for students in poverty as a function of school size, $F(2, 1032) = 29.23, p < .001, \eta^2 = .054$, a small effect size (Cohen 1988). Scheffe' post hoc procedures revealed that students in poverty who were enrolled in Small-size high schools had statistically significantly lower 4-year longitudinal graduation rates than students in poverty who were enrolled in either Moderate-size or Large-size high schools. A stepwise effect was present, with increasing graduation rates from as student enrollment increased from Small-size high schools to Large-size high schools. Large-size high schools had the highest 4-year longitudinal graduation rates for students in poverty.

Concerning the 2013-2014 school year, a statistically significant difference was determined in the 4-year longitudinal graduation rates of students in poverty as a function of high school size as defined by Greeney and Slate (2012), $F(2, 1071) = 42.24, p < .001, \eta^2 = .073$, a medium effect size (Cohen 1988). Similar to the previous school year, students in poverty who were enrolled in Small-size high schools had statistically significantly lower 4-year longitudinal graduation rates than students in poverty who were enrolled in either Moderate-size or Large-size high schools. The 4-year longitudinal graduation rates were similar for Moderate-size and Large-size high schools with only a 1% difference. Descriptive statistics for the 2012-2013 and the 2013-2014 school years analyses based on the Greeney and Slate (2012) high school size definition are presented in Table 4.4.

Insert Table 4.4 about here

Research Question 5

Concerning 4-year longitudinal data in the 2012-2013 school year, student enrollment was analyzed using Perez and Slate's (2015) definition: Small-size high schools (50 to 400 students); Moderate-size high schools (401 to 1,499 students); Large-size high schools (1,500 to 2,499) and Very Large-size high schools (2500 students or more). For the 2012-2013 school year, a statistically significant difference was revealed in the 4-year longitudinal graduation rates for students in poverty as a function of school size, $F(3, 1031) = 19.65, p < .001, \eta^2 = .054$, a small effect size (Cohen 1988). Students in poverty who were enrolled in Small-size high schools had lower 4-year longitudinal graduation rates than students in poverty who were enrolled in either Moderate-size, Large-size, or Very Large-size high schools. Moderate-size and Very large-size high schools had similar graduation rates.

In regard to the 2013-2014 school year, a statistically significant difference was determined in the 4 year longitudinal graduation rates of students in poverty as a function of high school size, $F(3, 1070) = 28.27, p < .001, \eta^2 = .073$, a medium effect size (Cohen 1988). Similar to the previous school year, students in poverty who were enrolled in Small-size high schools had statistically significantly lower 4-year longitudinal graduation rates than students in poverty who were enrolled in either Moderate-size, Large-size, or Very Large-size high schools. The biggest difference yielded was between Small-size and Moderate-size high schools, with a mean difference of approximately 10% in 4-year longitudinal graduation rates. Readers are referred to Table 4.5 for the descriptive statistics for the 2012-2013 and the 2013-2014 school year analyses with respect to the Perez and Slate (2015) definition of high school size.

Insert Table 4.5 about here

Research Question 6

Regarding the 4-year longitudinal graduation rates in the 2012-2013 school year, the following enrollment numbers were used for each high school grouping (University Interscholastic League, 2014): Very Small-size high schools (25 to 104 students); Small-size high schools (105 to 219 students); Moderate-size high schools (220 to 446 students); Medium-size high schools (465 to 1,059 students); Large-size high schools (1,060 to 2,099 students); and Very Large-size high schools (2,100 or more students). For the 2012-2013 school year, a statistically significant difference was revealed in the 4-year longitudinal graduation rates for students in poverty as a function of school size, $F(5, 1046) = 45.02, p < .001, \eta^2 = .177$, a large effect size (Cohen 1988). Scheffe' post hoc procedures revealed that students enrolled in Very Small-size high schools had statistically significantly lower 4-year longitudinal graduation rates of students in poverty than any of the other school size groupings. Similarly, students who were enrolled in Small-size high schools had statistically significantly lower 4-year longitudinal graduation rates for students in poverty than high schools with more students enrolled. Of note was the magnitude of the difference, almost 40%, between the 4-year longitudinal graduation rates of students in poverty in Very small-size high schools and Very large-size high schools.

Concerning the 2013-2014 school year, a statistically significant difference was determined in the 4 year longitudinal graduation rates of students in poverty as a function

of high school size, $F(5, 1088) = 48.63, p < .001, \eta^2 = .183$, a large effect size (Cohen 1988). Scheffe` post hoc procedures revealed that students enrolled in Very Small-size high schools had statistically significantly lower 4-year longitudinal graduation rates of students in poverty than any of the other school size groupings. Large-size and Very large- size high schools had very similar 4-year longitudinal graduation rates. Presented in Table 4.6 are the descriptive statistics for the 2012-2013 and the 2013-2014 analyses related to the University Interscholastic League (2014) definition of high school size.

Insert Table 4.6 about here

Research Question 7

Using the Greeney and Slate (2012) definition for school sizes, consistency was present in the two years of results. Small-size high schools had the lowest percentages of annual graduation rates in both school years (i.e., 2012-2013 and 2013-2014). Similar graduation rates, within one half of one percent, were present for students in poverty who were enrolled at either the Moderate-size or Large-size high schools. Figure 4.1 is a representation of the annual graduation rates by school size grouping for students in poverty for these school years.

Insert Figure 4.1 about here

Research Question 8

Using the Perez and Slate (2015) school size categories, consistency was revealed in the graduation rates of students in poverty by school size. In both school years (i.e., 2012-2013 and 2013-2014), graduation rates of students in poverty increased substantially, by at least 10%, as student enrollment increased from the Small-size schools to the Moderate-size high schools. These results are presented in Figure 4.2.

Insert Figure 4.2 about here

Research Question 9

Consistent results were also revealed using the University Interscholastic League (2014) high school size groupings for both school years (i.e., 2012-2013 and 2013-2014). Very Small-size high schools had the lowest graduation rates for students in poverty than any other high school size examined in this investigation (i.e., Small-size, Medium-size, Moderate-size, Large-size, and Very Large-size). Of importance was that the average graduation rates for students in poverty at the Very Large-size high schools were almost double that of the Very Small-size high school size. Figure 3.3 is provided as a representation of consistency for the University Interscholastic League school size definition for the 2012-2013 and 2013-2014 school years.

Insert Figure 4.3 about here

Research Question 10

Using the Greeney and Slate (2012) definition for school sizes, consistency was present in the two years of results for longitudinal graduation rates for students in poverty. Small-size high schools had the lowest percentages of 4-year longitudinal graduation rates in both school years (i.e., 2012-2013 and 2013-2014). Similar graduation rates, within 3%, were present for students in poverty who were enrolled at either Moderate-size or Large-size high schools. Figure 4.4 is a representation of the longitudinal graduation rates by school size grouping for students in poverty for these school years.

Insert Figure 4.4 about here

Research Question 11

Using the Perez and Slate (2015) school size categories, consistency was revealed in the graduation rates of students in poverty by school size. Small-size high schools had the lowest longitudinal graduation rates for students in poverty. In both school years (i.e., 2012-2013 and 2013-2014), graduation rates of students in poverty increased substantially, by at least 9%, as student enrollment increased from the Small-size schools to the Moderate-size high schools. These results are presented in Figure 4.5

Insert Figure 4.5 about here

Research Question 12

Consistent results were also revealed using the University Interscholastic League (2014) high school size groupings for both school years (i.e., 2012-2013 and 2013-2014). Very Small-size high schools had the lowest graduation rates for students in poverty than any other high school size examined in this investigation (i.e., Small-size, Medium-size, Moderate-size, Large-size, and Very Large-size). Of importance was that the average longitudinal graduation rates for students in poverty at the Very Large-size high schools were almost double that of Very Small-size high school size. For both school years, a difference of at least 24% in longitudinal graduation rates was present between Very-small and Small-size high schools. Figure 4.6 is provided as a representation of consistency for the University Interscholastic League school size definition for the 2012-2013 and 2013-2014 school years.

 Insert Figure 4.6 about here

Discussion

In this investigation, the extent to which graduation rates differed as a function of high school size for students in poverty was examined. Statewide Texas data were obtained from the Texas Academic Performance Reports for two school years (i.e., 2012-2013 and 2013-2014). Inferential statistical procedures were used to determine whether high school size was related to the graduation rates of students in poverty in Texas.

Summary of Results for Graduation Rates of Student in Poverty

Statistically significant differences were established in both school years as a function of high school size using the groupings as defined by Greeney and Slate (2012) and Perez and Slate (2015) for the graduation rates of enrolled students who were economically disadvantaged. Students in poverty who were enrolled in Small-size high schools had statistically significant lower graduation rates than students in poverty who were enrolled at either Moderate-size or Large-size high schools. The lower the student enrollment at a high school, the lower the graduation rates that were documented for students in poverty.

However, for both school years, Very small-size high schools had the lowest graduation rates for students in poverty using the classifications as defined by the University Interscholastic League (2014). Graduation rates gradually increased as student enrollment increased; however, graduation rates decreased again once student enrollment was 2100 or more. Very large-size high schools also had similar graduation rates to the Medium-size high schools.

Connection to the Literature

For this analysis, the larger high schools in Texas were experiencing higher graduation rates for students in poverty. This result was similar to the results of previous researchers (Ambrose et al., 2016; Rios et al., 2016a). In the previous literature, dropout rates were higher at smaller high schools with lower dropout rates at the larger high schools. In respect to previous literature and the results of this investigation, results are congruent to each other. Smaller dropout rates in a larger high school means higher graduation rates.

Implications for Policy and Practice

Statistically significant differences in the graduation rates of students in poverty as a function of high school were evident based upon the results of the three sets of inferential analyses. The larger size high schools in each of the three definitions of school size had statistically significantly higher average graduation rates than any of the smaller high school size groupings. Furthermore, when longitudinal graduation rates were examined, Very-small size high schools had the lowest graduation rates. Policymakers and educational leaders are encouraged to examine the possibility of having larger high schools, with respect to student enrollment. Consolidation of smaller high schools should also be considered by policymakers and educational leaders. Larger high schools may have more resources and can offer programs and interventions that help students persist. When making construction decisions for high schools that have a large population of students in poverty, larger high schools should be considered. Audits of economic status and other demographic characteristics are encouraged to determine the effectiveness of programs that support students in graduating high school.

Recommendations for Future Research

In this investigation, the graduation rates of students in poverty were analyzed as a function of high school size, with respect to student enrollment. Aggregated graduation rate data, annual and longitudinal, were examined. Future researchers are encouraged to analyze the graduation rates of students by important demographic characteristics such as ethnicity/race, at-risk status, and English Language Learner designation. The graduation rates of students by demographic characteristics other than poverty may be influenced by high school size.

Researchers are also encouraged to investigate the relationship of high school size with other important accountability standards such percentages of passing state standards for testing and college readiness. The results in this study are not known to be generalizable to other academic outcomes. The state of interest in this research study was conducted only on high school students in Texas and should be replicated in other states to determine if similar results can be yielded.

Conclusion

The results of this investigation are consistent with the idea that larger size high schools are better for students. Graduation rates for students in poverty were statistically significantly higher in the larger size high schools. Although, all size groupings yielded statistically significant differences, results yielded with the use of the University Interscholastic League classifications were more defined in the respect of student enrollment. The results made evident that high schools with more than 25 and less than 104 students really struggle with graduating students. Based on data and the analyses from this study, a discussion of consolidating current high schools and building larger high schools is validated.

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Table 4.1
*Descriptive Statistics for the 2012-2013 and the 2013-2014 Annual Graduation Rates for
 Students in Poverty as a Function of High School Size Using the Greeney and Slate
 (2012) Definition*

School Year	<i>n</i> of schools	<i>M</i>	<i>SD</i>
School Size Grouping			
2012-2013			
Small (400 or less)	369	68.72	24.98
Moderate (401-1,499)	350	78.57	13.61
Large (1,500 or more)	374	78.62	10.72
2013-2014			
Small (400 or less)	375	70.52	25.21
Moderate (401-1,499)	353	80.57	13.46
Large (1,500 or more)	379	80.78	11.03

Table 4.2
*Descriptive Statistics for the 2012-2013 and the 2013-2014 Annual Graduation Rates for
 Students in Poverty as a Function of High School Size Using the Perez and Slate (2015)*

Definition

School Year School Size Groupings	<i>n</i> of schools	<i>M</i>	<i>SD</i>
2012-2013			
Small (400 or less)	369	68.71	24.98
Moderate (401-1,499)	350	78.57	13.61
Large (1,500-2,499)	251	79.22	11.00
Very Large (2,500 or more)	123	77.39	10.05
2013-2014			
Small (400 or less)	375	70.52	25.21
Moderate (401-1,499)	353	80.57	13.46
Very Large (2,500 or more)	123	79.92	9.96

Table 4.3

Descriptive Statistics for the 2012-2013 and the 2013-2014 Annual Graduation Rates for

Students in Poverty as a Function of High School Size Using the University

Interscholastic League (2014) Definition

School Years School Size Groupings	<i>n</i> of schools	<i>M</i>	<i>SD</i>
2012-2013			
Very Small (25-104)	66	41.81	33.97
Small (105-219)	136	67.59	23.85
Moderate (220-464)	241	75.33	20.54
Medium (465-1069)	213	78.28	12.69
Large (1,070-2099)	234	79.15	11.16
Very Large (2,100 or more)	225	78.27	10.67
2013-2014			
Very Small (25-104)	69	43.54	35.61
Small (105-219)	139	69.26	24.48
Moderate (220-464)	244	76.78	21.25
Medium (465-1069)	215	79.83	13.12
Large (1,070-2099)	240	81.63	11.39
Very Large (2,100 or more)	225	80.47	10.12

Table 4.4

*Descriptive Statistics for the 2012-2013 and the 2013-2014 4-year Longitudinal
Graduation Rates for Students in Poverty as a Function of High School Size Using the
Greeney and Slate (2012) Definition*

School year	<i>n</i> of schools	<i>M</i>	<i>SD</i>
School Size Grouping			
2012-2013			
Small (400 or less)	345	69.96	23.48
Moderate (401-1,499)	335	77.68	17.07
Large (1,500 or more)	355	79.86	11.22
2013-2014			
Small (400 or less)	360	70.07	25.49
Moderate (401-1,499)	347	80.56	15.12
Large (1,500 or more)	367	81.53	12.40

Table 4.5
*Descriptive Statistics for the 2012-2013 and the 2013-2014 4-year Longitudinal
 Graduation Rates for Students in Poverty as a Function of High School Size Using the
 Perez and Slate (2015) Definition*

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
2012-2013			
Small (400 or less)	345	69.96	23.48
Moderate (401-1,499)	335	77.68	17.07
Large (1,500-2,499)	234	80.34	11.83
Very Large (2,500 or more)	121	78.91	9.93
2013-2014			
Small (400 or less)	360	70.07	25.49
Moderate (401-1,499)	347	80.56	15.12
Large (1,500-2,499)	245	81.95	12.55
Very Large (2,500 or more)	122	80.70	12.08

Table 4.6

*Descriptive Statistics for the 2012-2013 and the 2013-2014 4-year Longitudinal
Graduation Rates for Students in Poverty as a Function of High School Size Using the
University Interscholastic League (2014) Definition*

School Size Grouping	<i>n</i> of schools	<i>M</i>	<i>SD</i>
2012-2013			
Very Small (25-104)	55	42.78	32.98
Small (105-219)	128	69.30	21.84
Moderate (220-464)	226	74.91	20.32
Medium (465-1069)	209	78.50	13.79
Large (1,070-2099)	218	78.50	16.37
Very Large (2,100 or more)	216	79.71	10.39
2013-2014			
Very Small (25-104)	63	44.95	34.74
Small (105-219)	132	68.69	25.05
Moderate (220-464)	235	76.31	21.21
Medium (465-1069)	212	80.83	12.73
Large (1,070-2099)	232	81.05	15.64
Very Large (2,100 or more)	220	81.52	11.27

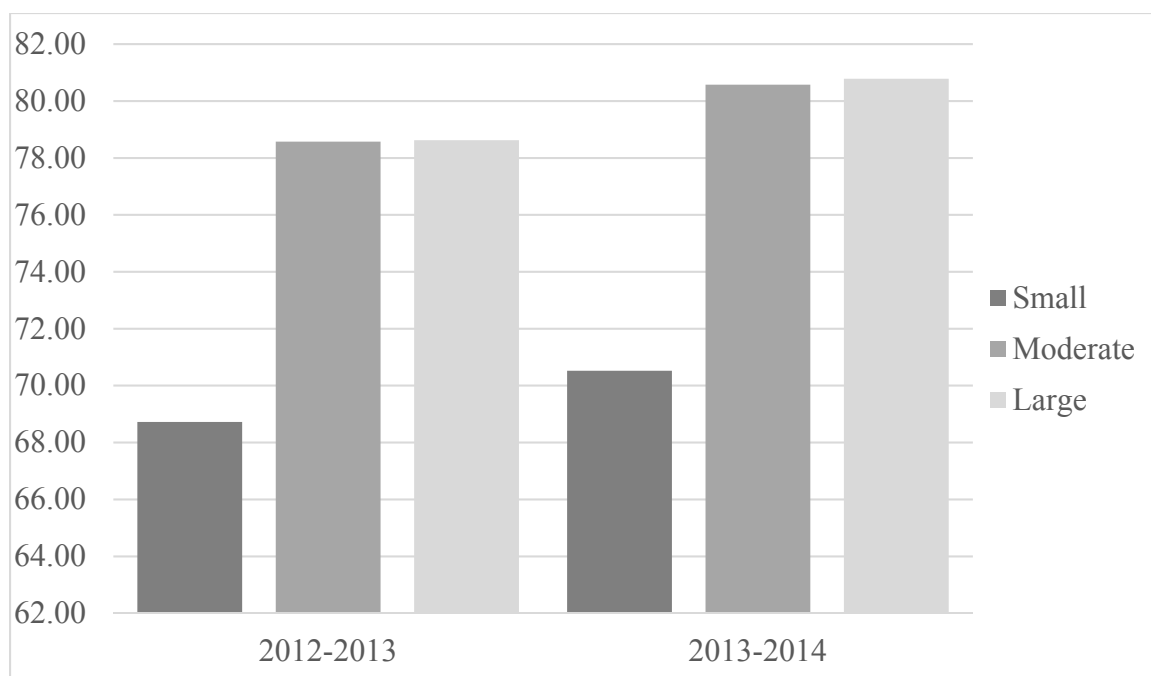


Figure 4.1. Annual Graduation rates for students in poverty for the 2012-2013 and 2013-2014 school years as a function of the Greeney and Slate (2012) definition of high school size.

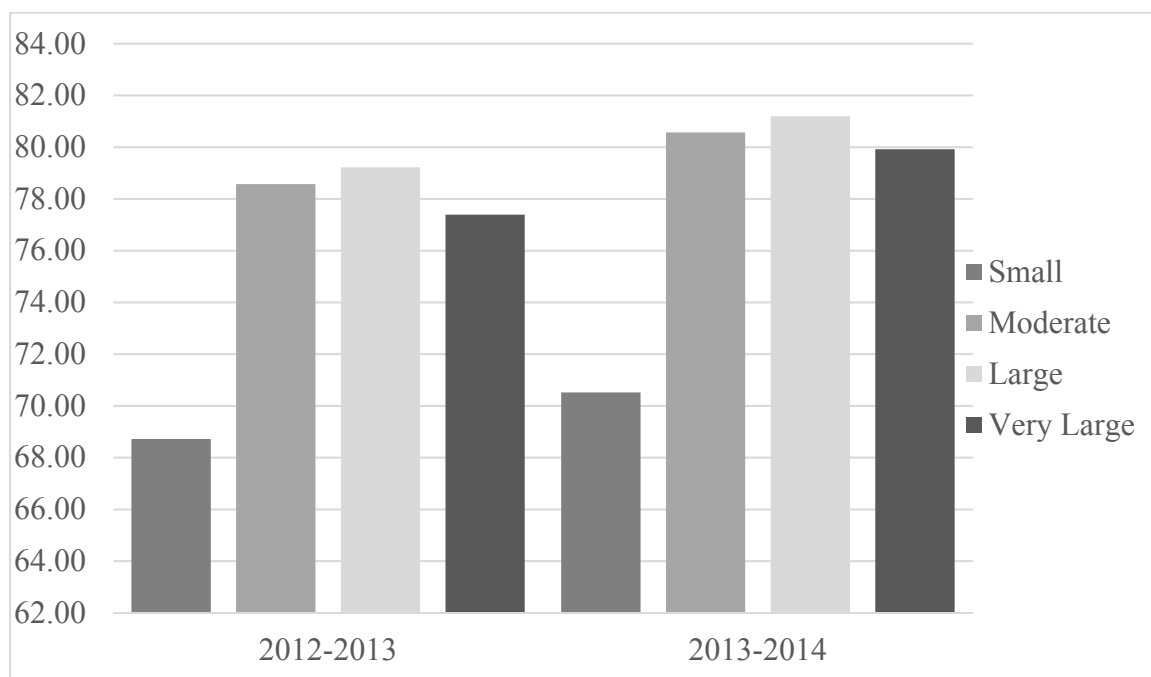


Figure 4.2. Annual Graduation rates for students in poverty for the 2012-2013 and the 2013-2014 school years as a function of the Perez and Slate (2015) definition of high school.

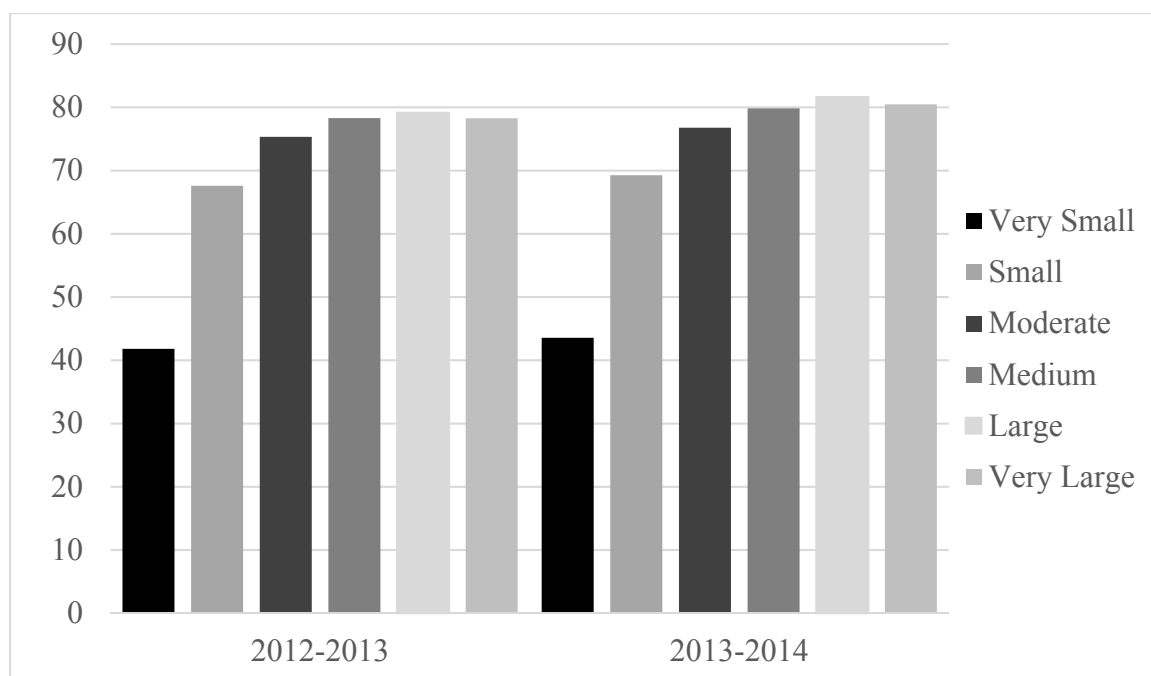


Figure 4.3. Annual Graduation rates for students in poverty for the 2012-2013 and the 2013-2014 school years as a function of the University Interscholastic League (2014) definition of high school size.

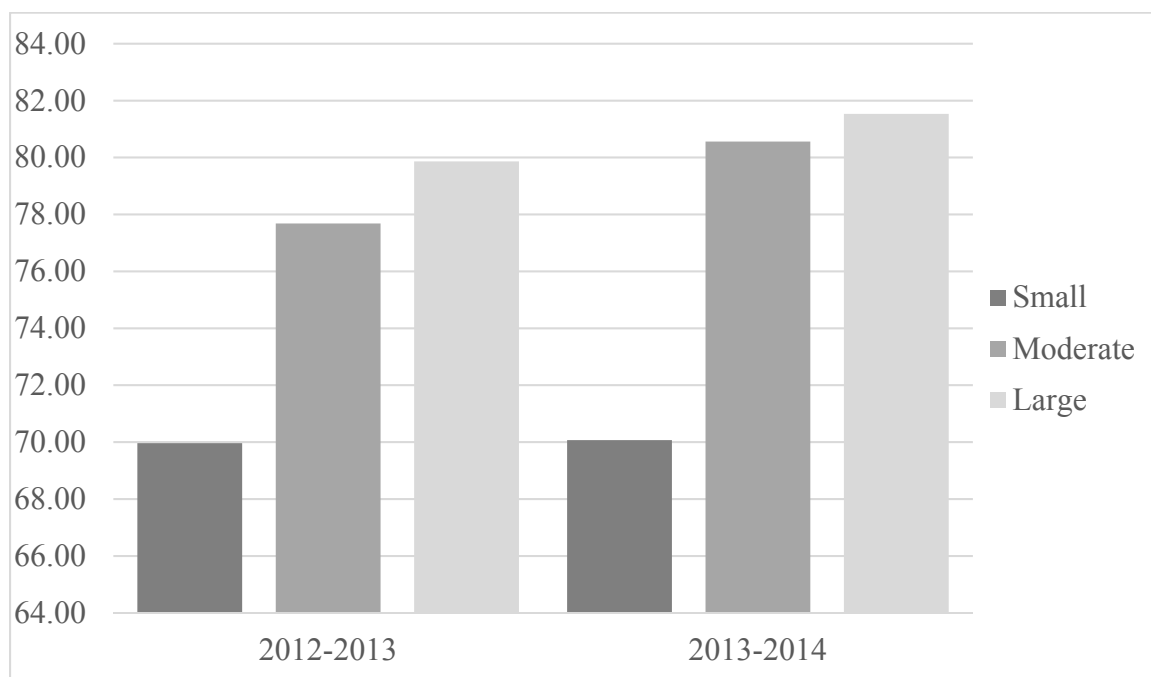


Figure 4.4. Four-year longitudinal graduation rates for students in poverty for the 2012-2013 and the 2013-2014 school years as a function of the Greeney and Slate (2012) definition of high school size

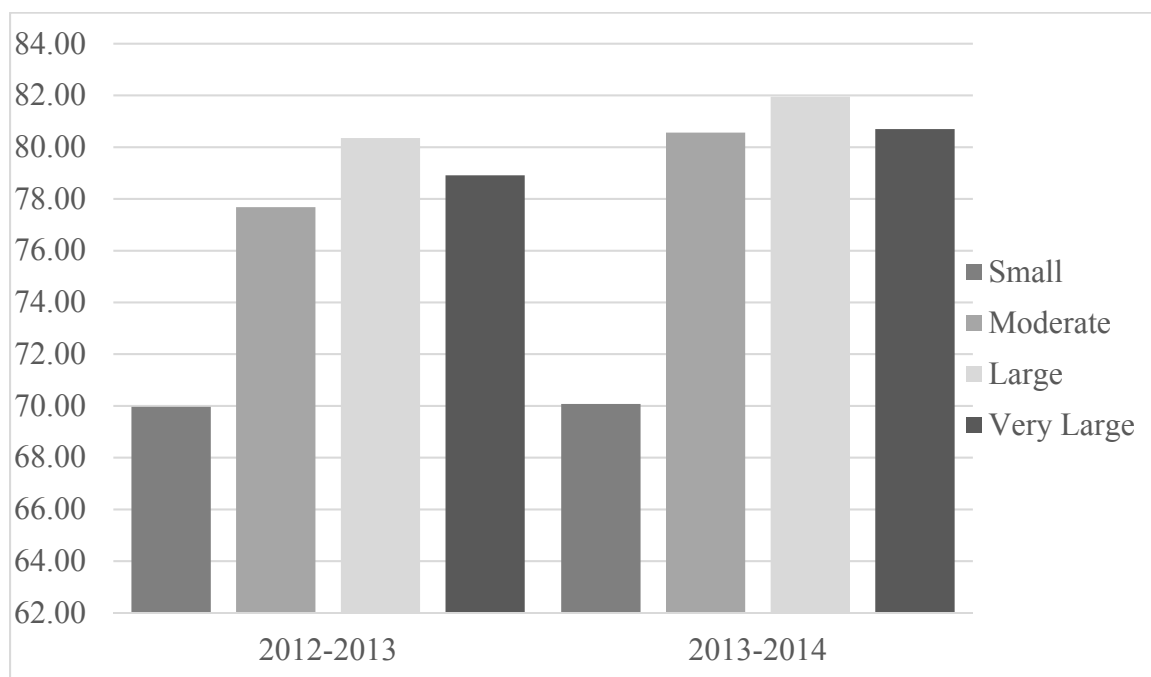


Figure 4.5 Four-year longitudinal graduation rates for students in poverty for the 2012-2013 and the 2013-2014 school years as a function of the Perez and Slate (2015) definition of high school size.

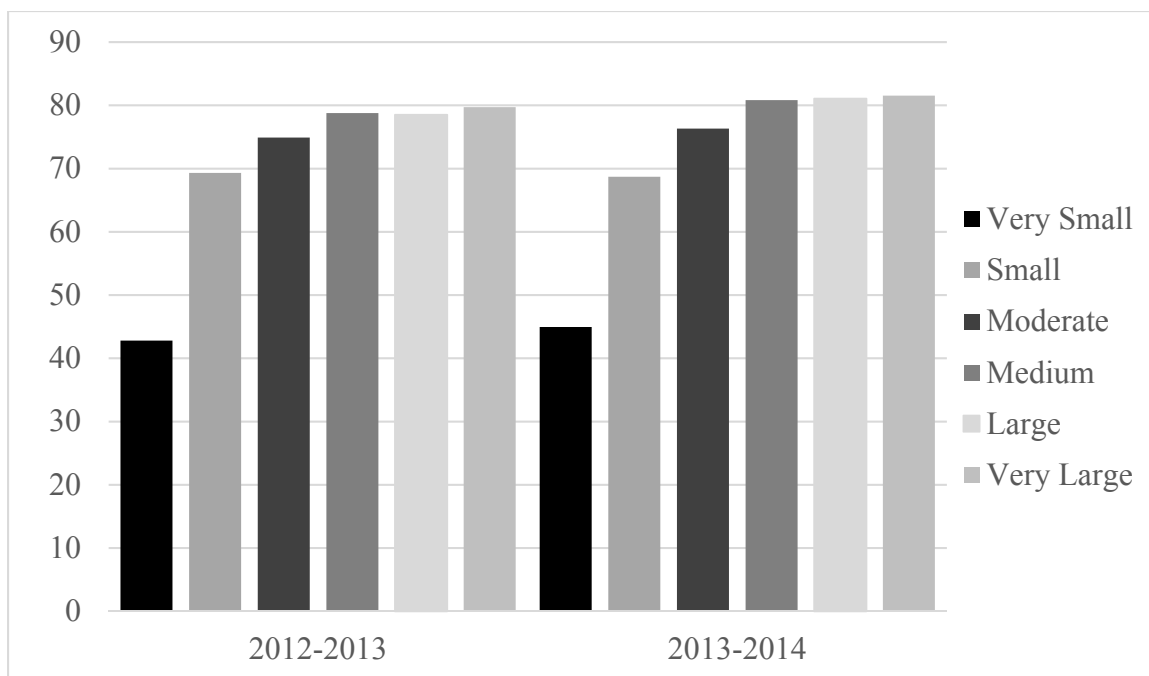


Figure 4.6. Four-year longitudinal graduation rates for students in poverty for the 2012-2013 and the 2013-2014 school years as a function of the University Interscholastic League (2014) definition of high school size.

CHAPTER V

Discussion, Implications and Recommendations

The purpose of this journal-ready dissertation was to examine the extent to which poverty is related to dropout rates, GED recipient rates, and graduation rates as a function of high school size. The purpose of the first investigation was to determine the degree to which differences might be present by school size on the dropout rates of students who were economically disadvantaged. With regard to the second study, the purpose was to determine the extent to which differences are present by school size on the GED recipient rates of students who were economically disadvantaged. The final purpose was to ascertain the degree which differences might exist by school size on the graduation rates of students who were economically disadvantaged. In this chapter, results across the three empirical studies conducted in this journal-ready dissertation will be summarized. Implications from these three studies for policy and for practice will be provided, along with recommendations for future research.

Summary of Results

Using the three groupings for high school size, lower dropout rates and higher graduation rates were determined for large-size high schools. Important to note was that small-size high schools had higher dropout rates and higher GED recipient rates when using the University Interscholastic League classifications than when using either the Greeney and Slate (2012) or the Perez and Slate (2015). In general, as high school size increased, graduation rates increased and dropout rates decreased. In the consideration of GED recipient rates, only when University Interscholastic League classifications were

used, did the results yield statistically significant results. Very Small-size high schools had higher GED recipient rates than any of the other school size groupings.

In the first article, students in poverty who were enrolled in smaller size high schools had statistically significantly higher dropout rates than their peers who were in poverty but were enrolled at high schools with higher levels of student enrollment. For both school years, regardless of the high school size classifications, high schools with smaller student enrollment had higher dropout rates. For students in poverty, in the state of Texas, smaller high schools were not conducive for preventing drop out.

In the second article and in both school years, differences were not present in the GED recipient rates of students in poverty using the groupings as defined by Greeney and Slate (2014) and Perez and Slate (2015). However, using the UIL classifications for both school years, Very Small-size high schools had the highest GED recipient rates of students in poverty. For schools that had a student of enrollment of 25 to 104 students, GED recipient rates more than doubled in Very Small-size size high schools than any other high schools size analyzed in this investigation.

In the third empirical study, statistically significant differences were established in both school years for the graduation rates of students who were economically disadvantaged as a function of high school size using the groupings as defined by Greeney and Slate (2012) and Perez and Slate (2015). Students in poverty who were enrolled in Small-size high schools had statistically significant lower graduation rates than students in poverty who were enrolled at either Moderate-size or Large-size high schools. The lower the student enrollment at a high school, the lower the graduation rates that were documented for students in poverty.

However, in both school years, Very Small-size high schools had the lowest graduation rates for students in poverty using the University Interscholastic League (2014) high school classifications. Graduation rates gradually increased as student enrollment increased; however, graduation rates decreased again once student enrollment was 2,100 students or more. Very Large-size high schools also had similar graduation rates to the Medium-size high schools.

Connection to the Literature

Dropout rates as a function of high school size that were documented in this journal-ready dissertation are congruent with previous investigations conducted in the State of Texas (Ambrose et al., 2016; Rios et al., 2016a). The smaller the high school enrollment, the higher the dropout rates were for students in poverty. Conversely, the larger the high school enrollment, the lower the dropout rates were for students in poverty. As such, high school size with respect to student enrollment is clearly connected to the dropout rates of students who were economically disadvantaged.

Researchers (e.g., Conant, 1959; Duke et al., 2009; Greeney & Slate, 2012; Moore et al., 2014) have noted large schools have more opportunities for curricular and co-curricular participation which, in turn, can lead to lower dropout rates and high graduation rates. In this investigation, smaller size schools had higher GED recipient rates of students in poverty than did larger size schools. These results align with current literature in the respect that higher dropout rates yield more students who would be available to obtain a GED. Thus, smaller high schools have higher GED recipient rates due to having a larger pool of students who may have to take the GED to receive a high school credential.

Larger high schools in Texas experienced higher graduation rates for students in poverty. These results were similar to the results of previous researchers (e.g., Ambrose et al., 2016; Rios et al., 2016a). In the previous literature, dropout rates were higher at smaller high schools with lower dropout rates at the larger high schools. In respect to previous literature and the results of this investigation, results are congruent. Smaller dropout rates in a larger high school means higher graduation rates.

Implications for Policy and Practice

Based on the results of the examination of dropout rates, GED recipient rates, and graduation rates for students in poverty as a function of high school size, high schools with larger student enrollment have higher levels of high school completion. The smaller size high schools in each of the three definitions of school size had statistically significantly higher average dropout rates and lower graduation rates than any of the larger high school size groupings. As such, policymakers and educational leaders are encouraged to examine the possibility of having larger high schools, with respect to student enrollment. Consolidation of high schools is an avenue educational leaders and policymakers should consider, merging smaller high schools into larger high schools. Larger high schools may have more resources that can support high school students to complete high school, with a typical high school diploma or GED. Larger high schools may be able to offer more programs that help students finish high school. For areas that have a high population of students in poverty, consolidation of high schools should be considered, especially for areas that have a large population of students in poverty. Finally, a regular audit is encouraged to determine each of high school's dropout rates, GED recipient rates, and graduation rates by student economic status, as well as by other

demographic characteristics. Such audits could assist decision makers in determining whether new programs are needed to support student persistence towards high school completion, as well as in determining the effectiveness of any current programs in place.

Recommendations for Future Research

In this investigation, the dropout, GED recipient, and Graduation rates of students in poverty were analyzed as a function of high school size, with respect to student enrollment. Moreover, aggregated dropout and GED recipient rate data at the high school level for a 2-year time period were examined. Aggregated graduation rate data, annual and longitudinal, were also examined. As such, researchers are encouraged to analyze the dropout, GED recipient, and Graduation rates of students by other important demographic characteristics. That is, are the dropout rates of Black or Hispanic students influenced by the size of the student enrollment at their high schools? The degree to the results obtained herein on the relationship of dropout rates of students in poverty to their high school size would generalize to other groups of students is not known. Another recommendation for research would be to obtain dropout, GED recipient, and Graduation rate data at the individual student level, rather than at the aggregated high school level. By analyzing individual student level data, a more nuanced examination of the interrelationships of student demographic characteristics (e.g., Black boys in poverty) could be conducted.

Researchers are also encouraged to investigate the relationship of high school size with other important accountability standards such as college readiness or English language learners. This research study was conducted only on high school students in

Texas. Accordingly, this research investigation should be replicated in other states to determine whether the results in other states are similar to these Texas results.

Conclusion

The results of the three investigations were supportive of the idea that larger high schools are better for students in respect to high school completion. Smaller high schools had lower dropout rates which, in turn, created higher GED recipient rates. Larger high schools had lower dropout rates and higher graduation rates. Based on the data and analyses from these studies, larger high schools are more conducive for students to receive a high school credential. Moreover, when analyzing the accountability rates for student in poverty, University Interscholastic League classifications yielded results that were more refined in the regard of understanding of which high school sizes were really conducive for preventing drop out and graduating students. For the school years analyzed in the state of Texas, results were that high schools with larger student enrollment had better environments for ensuring accountability standards were met.

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APPENDIX



Institutional Review Board
 Office of Research and Sponsored Programs
 903 Bowers Blvd, Huntsville, TX 77341-2448
 Phone: 936.294.4875
 Fax: 936.294.3622
irb@shsu.edu
www.shsu.edu/~rgs_www/irb/

DATE: November 9, 2016

TO: Amy Ambrose [Faculty Sponsor: Dr. George Moore]

FROM: Sam Houston State University (SHSU) IRB

PROJECT TITLE: *Differences in Dropout Rates, General Education Development Recipient Rates, and High School Graduation Rates for Students in Poverty as a Function of School Size: A Texas Multiyear Statewide Study [T/D]*

PROTOCOL #: 2016-10-32438

SUBMISSION TYPE: INITIAL REVIEW

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: November 9, 2016

REVIEW CATEGORY: Category 4—research involving existing, publicly available data usually has little, if any, associated risk, particularly if subject identifiers are removed from the data or specimens.

Thank you for your submission of Initial Review materials for this project. The Sam Houston State University (SHSU) IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

*** What should investigators do when considering changes to an exempt study that could make it nonexempt?**

It is the PI's responsibility to consult with the IRB whenever questions arise about whether planned changes to an exempt study might make that study nonexempt human subjects research. In this case, please make available sufficient information to the IRB so it can make a correct determination.

If you have any questions, please contact the IRB Office at 936-294-4875 or irb@shsu.edu. Please include your project title and protocol number in all correspondence with this committee.

Sincerely,

Donna Desforges

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Sam Houston State University IRB's records

VITA

Amy R. Ambrose

EDUCATIONAL HISTORY

Doctorate of Education- Educational Leadership, May 2017

Sam Houston State University, Huntsville, TX

Dissertation: Differences in Dropout Rates, General Education Development Recipient Rates, High School Graduation Rate as a Function of School Size for Students in Poverty: A Texas Multiyear Statewide Study

Master of Education in Educational Leadership, December 2012

Lamar University, Beaumont, TX

Bachelor of Science in Academic Studies, May 2008

Sam Houston State University, Huntsville, TX

PROFESSIONAL EXPERIENCE

Literacy Coach, Conroe ISD, 2014-2017

Language Arts Teacher, Spring ISD, 2012-2014

Language Arts Teacher, Sheldon ISD, 2008-2012

SCHOLARLY RESEARCH ACTIVITY

Ambrose, A. R., Slate, J. R., & Moore, G. W. (2016). Differences in high school dropout rates by school size for students in poverty. *International Research Journal for Quality Education*, 3(3), 1-6.

PRESENTATIONS

Ambrose, A. R. (2015, October). *Differences in high school dropout rates by school size for students who were economically disadvantaged*. Paper presented at the semi- annual conference of the Texas Council of Professors of Educational Administration, Austin, TX.