

An analysis of fifth grade gifted and talented student math and reading achievement in South Texas public schools

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ABSTRACT

This study investigated the achievement of south Texas public school fifth graders participating in gifted and talented programming compared to the achievement of fifth graders not participating in gifted and talented classification in the area of math to determine if any differences exist. Student achievement of males and females and students identified for free/reduced or full price lunch participating in gifted and talented programs were also examined for differences in achievement levels. Data analysis results indicate that there are significant differences between students who participate in gifted education programs and those who do not. For all results, a negligible effect size was present, indicating the gifted education program had a minimal effect on the scores for the students participating in the program.

Keywords: gifted and talented, student achievement, K-12 education, gifted education

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INTRODUCTION

According to the National Association for Gifted Children (NAGC), there are approximately four million academically gifted and talented students in the United States (NAGC, 2015a). While much research has been done regarding the educational programming and achievement of gifted students as well as accountability studies analyzing the achievement of minorities, special education and English language learning students, there is limited research looking at the impact of accountability measures on gifted education achievement (Robinson, Cotabish, Wood, & O'Tuel, 2014; Yoders, 2014).

The Jacob K. Javits Gifted and Talented Students Education Act, passed as part of the 1988 reauthorization of the Elementary and Secondary Education Act (ESEA), now known as the No Child Left Behind Act (NCLB) of 2001, that gifted education was addressed at the national level (Jacob K. Javits Gifted and Talented Students Education Act [Javits], 1988). This act is the only federal legislation to date concerning gifted children.

The Jacob K. Javits Gifted and Talented Students Education Act of 1988 provided the first federal definition of gifted and talented as students “who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity or in specific academic fields, and who need services or activities not ordinarily provided by the school in order to fully develop those capabilities” (Javits, 1988). The Jacob K. Javits’ definition serves as the foundation from which states develop procedures for the identification and education of gifted and talented learners; however how the states go about implementing these identification methods and subsequent programming is inconsistent across the nation. This is illustrated in the National Association for Gifted Children’s *2012-2013 State of the States in Gifted Education* report that outlines the differences between oversight and accountability measures for each state. Texas is one of many that does not monitor or audit a district’s gifted program or publish an annual report on state gifted services (NAGC, 2013). However, school districts in Texas are required to follow the Texas State Plan for the Education of Gifted/Talented Students (State Plan)(TEA, 2009), which outlines expectations for identification, service design, curriculum and instruction, and educator professional development as well as family and community involvement requirements for gifted students (TEA, 2009). For the purposes of this study, a child was defined as gifted and talented based on the criteria determined by the school district in accordance with the provisions outlined in the State Plan.

The goal of the American educational system has been to have excellence as well as equity (Gallagher, 2004); however while there are policies in place for the education of gifted students at the state level in Texas, the focus on accountability and closing academic achievement gaps brought about with the implementation of NCLB also brought questions from advocates for gifted and talented students regarding how this population fit within this focus. Others claim NCLB efforts completely bypassed gifted students’ needs by targeting learners who are not experiencing academic success (Beisser, 2008).

Accountability has become an inherent element in determining the success of school systems (Wagner, 2013). However, the increase in accountability has not focused on the achievement of all students, but rather the emphasis is on ensuring that those who have difficulty can attain minimal levels of mastery (Gentry, 2006). Yet, when a school district identifies a student as one exhibiting gifts and talents, this is an indication that the regular academic program is not sufficient to meet their needs; additionally, gender and socio-economic factors play a role in the programming for gifted education students and thus these students require specific interventions to help them reach their potential (Slocumb & Olenchak, 2006). There seems to be

a lack of urgency amongst educators to meet the needs of gifted children to enable them to exceed the mastery levels required as part of NCLB (Gallagher, 2008). Therefore it appears that gifted students are not being afforded equitable access and programming that would allow them to maximize their achievement levels.

This quantitative study explored the extent to which gifted students' educational needs were being met by analyzing achievement scores in the areas of reading and math. The study sought to determine if achievement differences exist between south Texas public school fifth grade gifted education students and regular education students (excluding those who participate in migrant, English language learning, and/or special education programs). Further analysis was conducted to determine if any achievement gaps were present within the gifted student population when disaggregated by gender and socio-economic status.

The purpose of this study was to determine if there were any differences in reading and/or math achievement for south Texas public school fifth grade students who were identified as gifted and regular education students (excluding those who participated in migrant, English language learning, and/or special education programs) through a quantitative analysis of students' scores on the Texas state assessment: State of Texas Academic Assessment of Readiness (STAAR). The study also examined if any differences were present in math and/or reading achievement on the STAAR within the fifth grade gifted students' group with regards to gender and socio economic status. The information gained through this study allowed for inferences to be drawn regarding deficiencies in the campus' educational programming for their gifted students, which impacted their achievement levels. To analyze student achievement, this study considered the following variables: gifted education program participation, gender, and socio economic status. In order to fully explore this topic, the following questions were considered with the understanding that students who are participating in migrant, English language learning and/or special education programs were excluded.

REVIEW OF THE LITERATURE

Appropriate challenge is important in the education of gifted students and can alleviate many other social and emotional concerns. Gifted students who experience challenge learn to struggle, persevere, work hard and attribute subsequent success to their hard work. An educational system that does not offer challenges sets up a situation where these students are at risk of not realizing their potential and consequently not achieving at levels they would otherwise be capable of reaching (Davidson, Davidson, & Vanderkam, 2004). As a society, the negative implications from these students being undereducated are severe as it will be these youths who have the abilities to address important problems in the future (Davidson, Davidson, & Vanderkam, 2004). Gifted students' attitudes toward school play a significant role in their academic achievement; therefore, there is a definite need to develop educational programs that will meet their needs and adequately challenge them (Ng & Nicholas, 2007).

Motivation

Motivation has been identified as the primary factor in influencing the decision to drop out (Rycik, 2007). As gifted students continue through their educational journey, they have a greater risk of dropping out of high school. Brown, Avery, VanTassel-Baska, Worley, and Stambaugh (2006) report as many as 20% of drop outs are identified gifted students. According to Holding (2011), "in the end, the worth of talent as a construct is revealed as virtually useless

when, in the absence of the training necessary to reveal it and the effort necessary to sustain it, vanishes” (p. 458).

Underachievement

The underachievement of gifted students has been an ongoing concern for educators (Cross & Coleman, 2014). Gifted students have the potential for high levels of achievement; however, many of them fail to attain such levels of success because the educational focus too often lies on those students who are at risk of failing, allowing those students who could achieve more to slip through with little effort on their part. These children are able to easily attain a level of success by reaching a bar that has been set low leaving gifted students to spend their time doing self-selected fillers while other students complete assigned activities (Montgomery, 2004).

In analyzing the achievement levels of gifted students, about fifty percent do not reach their ability level. Many of these students have become what are defined as underachievers, those children whose expected capabilities and achievement have a negative discrepancy (Clemons, 2008). Unless future mandates require schools to push students to achieve at higher levels, it is unlikely that many gifted students will strive to do so (Wyner, Bridgeland & Diilio, 2007).

Gifted and Talented Policy

Over the last several decades, at both the federal and state level, much debate has surrounded gifted education in attempting to shape the definition, identification, and educational programming of gifted students towards positively affecting their educational outcomes (The Research Division of the Texas Association for the Gifted and Talented, 2008). The U.S. Department of Education issued a report in 1993, *National excellence: The case for developing America's talent, disparaging the nation for neglecting its most talented students* (National Association for Gifted Children, 2015b).

Jacob K. Javits Gifted and Talented Education Act. Although a federal effort for the gifted existed prior to that time under various titles of ESEA, it was not until 1988 that the only federal program dedicated to educating gifted and talented students was established. The Jacob K. Javits Gifted and Talented Students Education Act increased visibility and federal support for educating gifted students (Boren, 2007) with the purpose “to orchestrate a coordinated program of scientifically based research, demonstration projects, innovative strategies and similar activities that build and enhance the ability of elementary and secondary schools to meet the special educational needs of gifted and talented students” (H.R. 543, 1987). Specifically, resources are allocated to facilitate the identification of underrepresented students, particularly minority, economically disadvantaged, limited-English proficient, and disabled students, and serving these students in gifted and talented programs, to help reduce gaps in achievement and to encourage the establishment of equal educational opportunities for all students (Javits, 2014). However it does not establish a federal accountability structure to ensure the educational needs of gifted students are met (The Research Division of the Texas Association for the Gifted and Talented, 2008).

The continuation of the Javits program was carried out in 1994 when it became Title X-B of ESEA. On January 8, 2002, as part of the No Child Left Behind Act of 2001, the Jacob K. Javits Gifted and Talented Students Education Act of 2001 was enacted and has been extended through the automatic extensions for each of the subsequent ESEA authorizations (Boren, 2007).

Ultimately it is the state legislature's responsibility to outline the educational plan for their gifted students and to make sure that local school districts have what they need to implement the plan (Baker & McIntire, 2003).

Programming state by state. Although the Javits act provides some research-based guidance, it is not a federal mandate to states indicating requirements for programming or funding. Consequently each state has the freedom to implement gifted programs as they choose. "Therefore, the direction and continuity of local gifted programs, then, is heavily influenced by the state one resides in and the strength of the policy initiatives in that state" (Brown et al., 2006, p. 11).

The Intersection of NCLB and GT

NCLB, as an educational policy, offers many disappointing ramifications for gifted students as professionalism of teachers is removed and replaced with minimal skill attainment through rote learning and scripted instruction instead of complex, rigorous and relevant learning opportunities; thereby significantly reducing the development of intrinsically motivated, lifelong learners (Casbergue & Bedford, 2010). Research indicates that gifted students learn differently as they tend to possess speedier processing skills, sharp conceptual judgment, ability for quick learning, and are up for intellectual challenges (Jolly & Mackel, 2010), but gifted students do not have the opportunity to learn in the manner that is best for them or experience challenging learning activities when the system promotes group assessment of grade-level standards (Davidson, Davidson, & Vanderkam, 2004).

With NCLB so focused on accountability, academic achievement gaps, and highly qualified teachers for students at risk, advocates for the gifted and talented population question how this population fits into the picture. Beisser (2008) indicates that NCLB bypasses gifted students' needs for the purpose of targeting learners who are not experiencing academic success. In one national study, only twenty-three percent of surveyed teachers self-reported academically advanced children to be the priority (Bracey, 2008). In many extreme cases, teachers narrow their instructional focus to only those that are on the cusp between meeting/not meeting proficiency standards to the exclusion of all other student needs (Phillips, 2008). The pressures placed upon teachers to have their students attain minimal mastery of skills, has created a void for accelerating academically those who have the potential to reach far beyond said standards (Beisser, 2008) and consequently teachers leave gifted students to their own devices, erroneously convinced that they will achieve regardless of teacher assistance (Jolly & Makel, 2010). This creates an environment lacking enrichment and rigorous material that is not academically beneficial for any student. Certainly the expectations of minimal attainment create a disservice to students (Phillips, 2008). "Raising the bar of excellence will not leave students behind; it will challenge students to reach up instead of out" (Phillips, 2008, p. 59).

There are conflicting viewpoints with regards to special populations regarding both state and national policies and corresponding high stakes testing and accountability measures (Brown, Avery, VanTassel-Baska, Worley, & Stambaugh, 2006) and questions regarding the unintended negative outcomes on special populations in the academic arena have become numerous. NCLB mandates have negatively impacted gifted education in curricula, time constraints, teacher motivation, and widespread educational apathy (Blake, 2008). The field of education still needs to garner greater "federal statutory protection for gifted children" in order for them to "gain access to special, ability-appropriate programming" (Baker, Friedmann-Nimz, 2002, p. 1).

Texas Policy

State plan. In Texas, the Texas State Plan for the Education of Gifted/Talented Students (State Plan) is the guiding document, which serves as the foundation to formulate procedures for the identification, educational service design, curricular needs, and professional development requirements for teachers of gifted and talented students (TEA, 2009).

The State Plan, which set state wide goals for gifted education, was developed in 1990. Most currently, in 2009, the Texas Education Agency (TEA) updated the State Plan to provide a framework from which a definition of excellence in programming could be formed. The State Plan outlines the criteria each district must attain in the areas of: student assessment, service design, curriculum and instruction, professional development and family-community involvement. The updated State plan increased the standards in all areas involving gifted education and provides a framework to define excellence in programming as a component of a districts' accountability rating (TEA, 2009).

Identification. The state of Texas requires school districts to use multiple sources in assessing students' abilities and achievement for the purpose of determining giftedness. Many schools utilize quantitative measures such as a non-verbal intelligence testing and standardized achievement tests in combination with qualitative measures such as teacher and parent inventories, and student portfolios as well as student interviews.

Service design. The needs of gifted students vary greatly and are dependent on the individual child. The State Plan (2009) requires services for students who have a need for gifted services because they "excel in a specific academic field or an unusual capacity for leadership or exhibits high performance capability in an intellectual, creative, or artistic area" (p. 18). Consequently educators must recognize that each child has different needs, such as grade level acceleration, subject specific advanced instruction or compacted curricula (Howley, 2002) and many gifted students have the ability to become profound leaders but require guidance to do so (Milligan, 2003). Gifted students "make connections faster, work well with abstractions, and generally have the deep interests found in older individuals" (Sousa, 2009, p. 46). They work at a quicker pace, enjoy more independence and require instruction that has greater depth and complexity (Sousa, 2009).

Every child learns in different ways and this is especially true for gifted students; therefore educators must construct educational opportunities and experiences to help each achieve their potential (Brown, Higgins, & Hartley, 2001). It is no wonder that designing suitable programs for these students is a daunting task and further reiterates the correlation to a special education type of programming if a school wants to be successful in meeting the needs of their gifted students, which are not dissimilar to that which is designed and developed for special education students. This is affirmed by Sousa (2009), "every identified child must be given consistent, progressively more difficult curriculum that has been articulated across grade and building levels and has been consciously delivered" (p. 229). A differentiated curriculum delivered in a flexible learning environment is foundational for the education of gifted students in order to provide challenges and prevent boredom (Sousa, 2009). Students who are identified should receive opportunities to work individually and as a group each day on activities that commensurate with their area of strength and interest; as well as having out of school events that offer related topics (TEA, 2009).

Unfortunately the load falls upon the shoulders of the teachers in the classrooms to construct the necessary environment for these students to thrive. Most gifted students spend their

school days in heterogeneously grouped classrooms, which typically are not able to meet their curricular needs (Brown, Avery, Van Tassel-Baska, Worley, & Stambaugh, 2006). Teachers can either try to provide an individualized instructional setting for each student in their class or teach the masses. Unfortunately for gifted students, many teachers are doing the latter (Davalos & Griffin, 1999). This traditional model of curriculum and instruction limits opportunities for “highly creative...students, opportunities to acquire and express knowledge in a cognitively comfortable and efficient manner” (Jarvis, 2009, p. 234). Programs for gifted students need to be constructed to teach them to work at greater levels of depth and complexity while being highly rigorous and relevant (Sousa, 2009). There are a wide variety of instructional models that could be employed to meet the needs of gifted students, including: enrichment in the regular classroom, enrichment pull-out programs, acceleration, curriculum compacting, distance education, independent study, mentoring, extra-school activities and magnet schools (Zepeda & Langenbach, 1999). Acceleration of subject content offers one avenue that keeps them from underachieving or dropping out (Phillips, 2008).

Grouping. Many researchers have argued that ability grouping is a form of elitism and goes against the democratic morals established by our founding government (Shields, 2002); whereas others argue that age grouping is neither effective nor equitable (Phillips, 2008). Davalos & Griffin (1999) indicate that gifted students’ needs can be met in a traditional classroom given the teacher has a thorough understanding and ability to implement individualized instruction, can allow students to control their own learning, be prepared to support not only their academic, but also social and emotional needs and develop a commonality of learning language between the students and teacher. This is a tall order for even the most experienced educators and provides an evidence of the stark reality regarding heterogeneous groups and their potentially negative impact for gifted students (Hess & Petrilli, 2009). It takes effort on the school’s part, but in designing placements aligned with student needs, students can achieve positive outcomes (Shields, 2002).

Technology. A large portion of the research addresses the use of technology to create an effective service design. The education of gifted students can be equalized with the use of technology and is an even larger factor for those in rural schools (Belcastro, 2002). Coursework can be individualized via the web by providing options and allowing the student to direct their own learning in accordance with their interests, skill set and preferred learning styles (Salend, Duhaney, Anderson, & Gottschalk, 2004). Many argue that the use of technology in education is an attempt to replace the classroom and teacher interaction, but this is not the case for many students in today’s classrooms. Rather technology is a means to meeting their educational need as it is often times not ever addressed (Belcastro, 2002); therefore, replacing the idea of a teacher with that of learning community in distance education learning environments “is conducive to high level learning and achievement” (McKinnon & Nolan, 1999, p. 325). Technology is a proven motivating factor for students and this framework lends itself to flexible grouping based on student interests and needs; it also gives students an opportunity to direct their learning pace and focus while providing a source of ownership (Ng & Nicholas, 2007). Educators are often forced to compromise the education of their gifted students due to limited ability, understanding, time and/or resources; however, technology offers a possible solution through the use of online learning tools, such students can receive differentiated, individualized, student tailored instruction (Hess & Petrilli, 2009).

Curriculum & Instruction. Students must minimally receive instruction in their area of giftedness within the four core subjects. Districts can additionally identify student abilities

in creative/artistic areas, leadership and general intellectual strengths. These students must be allowed an opportunity to obtain accelerated instruction, flexible pacing and have scheduling modifications as appropriate in their needed area. Links to career mentors should be made to enhance instruction (TEA, 2010). Accelerated instruction allows students to participate in academic activities at their ability and achievement level (Howley, 2002). Phillips (2008) indicates a huge benefit is achieved for students when acceleration of subject matter is utilized as it meets their educational needs.

Professional Development. NCLB requires for teachers to be “highly qualified”, even those who are teachers of learning disabled or of other disabilities; so then, there should be similar requirements for teachers of the gifted (Gallagher, 2004). Texas requires all teachers who work with gifted students to receive an initial thirty hours, and maintain six hours annually thereafter, of training to meet these students’ needs (TEA, 2009); however, a large majority of teachers feel they need more professional development in order to be prepared (Bracey, 2008). While each teacher must participate in thirty hours of professional development in gifted education and additionally, can obtain a supplementary certificate through successful examination on the Texas certification assessment, this training is insufficient to prepare teachers to meet the individual needs of these students (Hess & Petrilli, 2009). The state has no requirements for trainers of the thirty hours, other than prior participation in the thirty hour training. Each trainer is given flexibility in conducting the thirty hour training, given that the following topics are addressed: nature and needs, identification and assessment and curriculum and instruction; however, the individual time requirements are at the discretion of the trainer as long as the total training time is equal to or greater than thirty hours (Texas Education Code Section 21.451).

Family-Community Involvement. The role of parental and community involvement is a critical component in developing and maintaining a successful gifted program. Support from parents and community allows a district to offer opportunities that otherwise might not be implemented. Partnerships between individuals and students bridge learning and give real world products and performances as required by the State Plan (The Research Division of the Texas Association for the Gifted and Talented, 2008).

METHODOLOGY

The quantitative methodology selected for this study involves an ex-post facto non-equivalent groups, pre-experimental design; the research was causal-comparative. The independent variables, are specifically type of program, gifted and talented and regular education identification; gender, male and female; and socio economic status as identified by the STAAR report as those who qualify for free/reduced or full price lunch.

The data were collected from each school district superintendent or their designee.

Population and Sampling Procedures

The population for this study was 2013-2014 fifth grade students enrolled in south Texas public schools, and included those who participated in gifted and talented programs and those who were not participating in gifted and talented, migrant, special education and/or English language learner programs. The gifted student population included males and females as well as those who received free/reduced and full price lunch. For the school districts in south Texas, Table 1 (Appendix) lists the demographics for each of the populations included and excluded.

Data Collection

All schools who had 5th grade gifted students were selected to participate. The data report that was requested did not contain any identifiers and included only the following fields: [district], [campus], [student id], [mathpercentcorrectY1], [mathpercentcorrectY2], [reading percentcorrectY1], [reading percentcorrectY2], [gender], [ses], [gt participation], [sped participation], [migrant participation], [lep participation]. In the data fields, Y1 represents STAAR scores for the 2012-2013 school year and Y2 represents scores from the 2013-2014 school year. The purpose of collecting information regarding participation in special education, migrant, and English language learning programs is to exclude these student scores from the data analysis.

Data Analysis

An analysis of covariance (ANCOVA) was utilized to determine if there were significant differences between students in gifted and talented programs and those in regular education programs excluding students who participate in migrant, English language learning, and/or special education programs on the STAAR tests in math and reading; significant differences between gender of the gifted and talented students on the STAAR tests in math and reading and significant differences between the levels of socio-economic status of gifted and talented student on the STAAR tests in math and reading.

RESULTS

The total data collected for this study included a total sample of 1988 students ($N=1988$) from seventeen south Texas schools. The sample included 211 students who were coded as participating in gifted education programs and 1777 that were in regular education programs (this population did not include any students who participate in migrant, English language learning, and/or special education programs). Of the 211 students who were coded as participants in the gifted education program, 107 were male and 104 were female and 69 were coded as socioeconomically disadvantaged and 142 were not. This information is presented in Table 2 (Appendix).

A randomized sample size of 211 was generated for the students participating in regular education in order to ensure a normal distribution and to be able to conduct the ANCOVA. As such, a sample of 422 students comprised of 50% participating in gifted education and 50% participating in regular education programs were analyzed to determine if gifted education program participation significantly influences STAAR scores in math. An analysis of covariance was used to assess if differences in STAAR math scores exist between students in gifted education programs and those who do not participate in gifted education programs after controlling for differences in these groups on the grade four STAAR math scores (Table 3, Appendix). Results indicate that after controlling for grade four STAAR math scores, there is a significant difference between students who participate in gifted education and those who do not on grade five STAAR math scores. $F(1, 419) = 47.55, p < .001, \eta^2 = .10$. The effect size is considered medium and 10% of the variance in the Math score was accounted for by whether a student was in gifted or not in gifted education.

A sample of 422 students comprised of 50% participating in gifted education and 50% of regular education programs were analyzed to determine if gifted education program participation significantly influences STAAR scores in reading. An analysis of covariance was used to assess if differences in STAAR reading scores exist between students in gifted education programs and those who do not participate in gifted education programs after controlling for differences in these groups on the grade four STAAR reading test (Table 4, Appendix). Results indicate that after controlling for STAAR grade four reading scores, there is a significant difference between students who participate in gifted education and those who do not on grade five STAAR reading scores. $F(1, 419) = 10.50, p < .001, \eta^2 = .02$. The effect size is considered as small and only 2% of the variance in the reading score was accounted for by whether a student was in gifted or not in gifted education.

A sample of 211 students comprised of 51% males and 49% females were analyzed using an analysis of to assess whether differences in STAAR math scores exist between male and female students in gifted education programs after controlling for differences in these groups on the grade four STAAR math test (Table 5, Appendix). Results indicate that after controlling for grade four STAAR math scores, there is not a significant difference between male and female students who participate in gifted education on grade five STAAR math scores. $F(1, 208) = .088, p = .77, \eta^2 = .00$. The effect size is negligible.

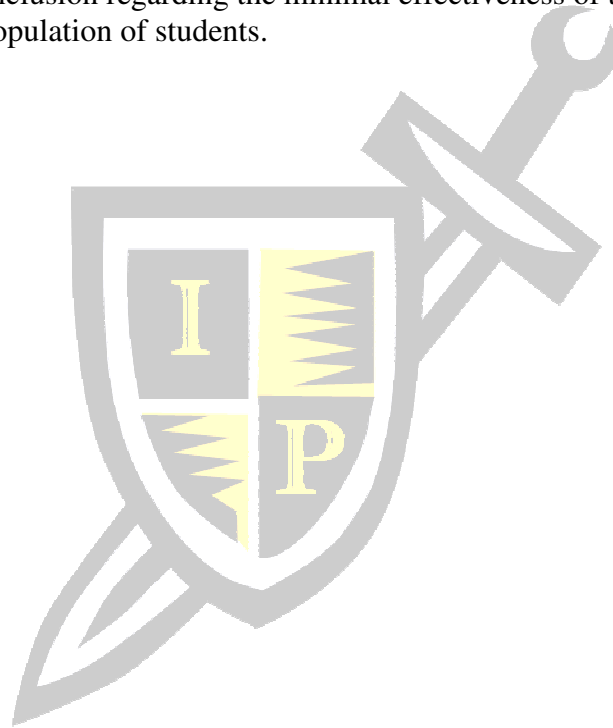
A sample of 211 students comprised of 51% males and 49% females were analyzed using analysis of covariance to assess whether if differences in STAAR reading scores exist between male and female students in gifted education programs after controlling for differences in these groups on the grade four STAAR reading test (Table 6, Appendix). Results indicate that after controlling for grade four STAAR reading scores, there is not a significant difference between male and female students who participate in gifted education on grade five STAAR reading scores. $F(1, 208) = .231, p = .631, \eta^2 = .00$. The effect size is negligible.

A sample of 211 students comprised of 67% non-economically disadvantaged and 33% economically disadvantaged were analyzed using analysis of covariance to assess whether if differences in STAAR math scores exist between economically and non-economically disadvantaged students in gifted education programs after controlling for differences in these groups on the grade four STAAR math test (Table 7, Appendix). Results indicate that after controlling for grade four STAAR math scores, there is not a significant difference between economically and non-economically disadvantaged students who participate in gifted education on grade five STAAR math scores. $F(1, 208) = .505, p = .478, \eta^2 = .00$. The effect size is negligible.

A sample of 211 students comprised of 67% non-economically disadvantaged and 33% economically disadvantaged were analyzed using analysis of covariance to assess whether if differences in STAAR reading scores exist between economically and non-economically disadvantaged students in gifted education programs after controlling for differences in these groups on the grade four STAAR reading test (Table 8, Appendix). Results indicate that after controlling for grade four STAAR reading scores, there is not a significant difference between economically and non-economically disadvantaged students who participate in gifted education on grade five STAAR reading scores. $F(1, 208) = 3.47, p = .064, \eta^2 = .02$. The effect size is small and 2% of the variance in reading is accounted for by SES.

SUMMARY, CONCLUSION, RECOMMENDATIONS

The focus of this study was to determine how gifted and talented programming influence academic performance of gifted education participants in general, and also specifically looked at the performance of these students by gender and socioeconomic status, on STAAR math and reading exams. Although the difference in results between the regular education and gifted education students was significant, the effect of the gifted education programming for the gifted education students was in actuality, negligible. The significance between the groups of students (those who participate in gifted education programming and those who did not) may stem from the inherent intellectual abilities that pertain to students who participate in gifted education, but when considering this population's academic potential, falls short (Jolly & Mackel, 2010). Therefore a conclusion can be inferred regarding the minimal effectiveness of the gifted education program on the achievement levels of gifted education students. Similarly, the within gifted education student group analysis by SES and gender had negligible effect sizes, although the differences in the results between the subgroups were insignificant. This result served to further reinforce the conclusion regarding the minimal effectiveness of the gifted education programming for this population of students.



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APPENDIX

Table 1
Population Demographics

Population	Participation	Total Students
All	Yes	7,328
Males	Yes	3697
Females	Yes	3631
Economically Disadvantaged	Yes	4843
	No	2484
	No Information	1
Migrant	Yes	71
	No	7254
	No Information	3
Limited English Proficiency	Yes	277
	No	7050
	No Information	1
Special Education	Yes	432
	No	6895
	No Information	1
Gifted and Talented	Yes	594
	No	6733
	No Information	1

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Table 2
Frequency Statistics for Sample

	Gifted	Regular Education
N	211	1777
Gender	Males	Females
N	107	104
SES	Eco-Dis	Non-Eco Dis
N	69	142

Table 3

Analysis of Covariance for Math Achievement as a Function of Gifted Education, Using Grade Four STAAR Math Scores as a Covariate

	<i>df</i>	MS	F	<i>P</i>	η^2
Grade Four STAAR Math Scores	1	41008.74	273.70	<.001	.40
Gifted Status	1	7125.07	47.55	<.001	.10
Error	419	149.83			

Table 4

Analysis of Covariance for Reading Achievement as a Function of Gifted Education, Using Grade Four STAAR Reading Scores as a Covariate

	<i>df</i>	MS	F	<i>p</i>	η^2
Grade Four STAAR Reading Score	1	53933.55	622.29	<.001	.60
Gifted Status	1	909.77	10.50	<.001	.02
Error	419	149.83			

Table 5

Analysis of Covariance for Math Achievement as a Function of Gender, Using Grade Four STAAR Math Scores as a Covariate

	<i>df</i>	MS	<i>F</i>	<i>p</i>	η^2
Grade Four STAAR Math Scores	1	4790.78	57.81	<.001	.217
Gender	1	7.26	.088	.767	.000
Error	208	82.88			

Table 6

Analysis of Covariance for Reading Achievement as a Function of Gender, Using Grade Four STAAR Reading Scores as a Covariate

	<i>df</i>	MS	F	<i>p</i>	η^2
Grade Four STAAR Reading Scores	1	9468.40	211.52	<.001	.504
Gender	1	10.34	.231	.631	.001
Error	208	44.76			

Table 7

Analysis of Covariance for Math Achievement as a Function of Socioeconomic Status, Using Grade Four STAAR Math Scores as a Covariate

	<i>df</i>	MS	<i>F</i>	<i>p</i>	η^2
Grade Four STAAR Math Scores	1	4527.66	54.74	<.001	.208
Socioeconomic Status	1	41.76	.505	.478	.002
Error	208	82.71			

Table 8

Analysis of Covariance for Reading Achievement as a Function of Socioeconomic Status, Using Grade Four STAAR Reading Scores as a Covariate

	<i>Df</i>	MS	<i>F</i>	<i>p</i>	η^2
Grade Four STAAR Reading Scores	1	8613.05	195.41	<.001	.484
Socioeconomic Status	1	152.92	3.47	.064	.016
Error	208	82.71			

