**MEMORANDUM** October 4, 2018

TO: Lance Menster
Officer, Elementary Curriculum and Development

FROM: Carla Stevens
Assistant Superintendent, Research and Accountability

SUBJECT: **A QUASI-EXPERIMENTAL STUDY ON THE IMPACT OF FINE ARTS INSTRUCTION ON THE ACADEMIC ACHIEVEMENT, ATTENDANCE, AND DISCIPLINARY OUTCOMES OF HISD STUDENTS, 2017–2018**

Attached is a copy of the program evaluation for the Fine Arts Department, measuring the STAAR performance, attendance, and disciplinary actions of students who received fine arts instruction in 2017–2018. To improve the reliability and validity of the study, a treatment group of students who attended Fine Arts Magnet schools was identified, with the assumption that these students received a more robust fine arts education beyond the typical neighborhood school. Students who attended non-Fine Arts Magnet schools were used as the comparison group, considering that these students had similar family backgrounds to the treatment group.

Key findings include:

- Treatment and comparison-group students, typically, outperformed their peers districtwide on the 2018 STAAR 3-8 English reading and mathematics subtests, relative to the percentage of students who scored at or above the Approaches Grade Level standard, regardless of the type of fine arts teacher certification (visual arts, theatre, dance, instrumental music, and music).
- Treatment-group students outperformed comparison-group students in all fine arts teacher certification areas on the 2018 Algebra I EOC exam, and in four of five teacher certification areas on the 2018 English I EOC exam.
- Difference-in-differences (DiD) analyses revealed benefits in treatment group participation relative to reading and mathematics performance over time across grades three through eight.
- There was a higher mean increase in total absences among comparison-group students than treatment group students from 2016–2017 to 2017–2018.
- There was a higher decrease in-school and out-of-school suspensions of treatment-group students over comparison-group students from 2016–2017 to 2017–2018.

Further distribution of this report is at your discretion. Should you have any further questions, please contact me at 713-556-6700.

Carla J. Stevens CJS

Attachment

cc: Noelia Longoria
Wenden Sanders

HOUSTON INDEPENDENT SCHOOL DISTRICT

# RESEARCH

Educational Program Report

## A QUASI-EXPERIMENTAL STUDY ON THE IMPACT OF FINE ARTS INSTRUCTION ON THE ACADEMIC ACHIEVEMENT, ATTENDANCE, AND DISCIPLINARY OUTCOMES OF HISD STUDENTS, 2017-2018

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# EVALUATION REPORT

BUREAU OF PROGRAM EVALUATION

## *A Quasi-experimental Study on the Impact of Fine Arts Instruction on the Academic Achievement, Attendance, and Disciplinary Outcomes of HISD Students, 2017–2018*

Prepared by Venita R. Holmes, Dr.P.H.

**Abstract**

*To measure the impact of fine arts instruction in HISD, the study compared the STAAR performance, attendance, and disciplinary outcomes of fine arts students enrolled in Fine Arts Magnet schools (treatment group) with students enrolled in non-Fine Arts Magnet schools (comparison group). An underlying assumption of the study was that Fine Arts Magnet students received a more robust fine arts education; therefore, representing a reliable treatment group, while comparison-group students had similar background characteristics, which strengthened the validity of the study. The study found that treatment and comparison-group students, typically, outperformed their peers districtwide on the 2018 STAAR 3–8 English reading and mathematics subtests, relative to the percentage of students who scored at or above the Approaches Grade Level standard, regardless of the type of teacher certification (visual arts, theatre, dance, instrumental music, and music). Comparison-group students outperformed treatment-group students under similar conditions. On the 2018 Algebra I EOC exam, higher percentages of treatment-group students scored at or above this standard relative to comparison-group students. Moreover, treatment-group students outperformed comparison-group students on the 2018 English I EOC exam in four of five teacher certification areas. Paired t-test analyses showed statistically significant improvements in STAAR 3–8 reading and mathematics scale scores as both groups successively progressed to fourth, fifth, and seventh grades from 2017 to 2018. Sixth and eighth-grade students in both groups also showed statistically significant improvements in reading from 2017 to the 2018. Difference-in-differences analyses revealed benefits in treatment-group participation as evidenced by lower in-and out-of-school suspension rates over the comparison group, and an observable small, positive program effect on "no" in-school suspensions. This study observed evidence that fine arts instruction in HISD has contributed toward improving student achievement and behavioral outcomes. Future research could measure student engagement as well as the dosage effect of fine arts instruction for students enrolled in a coherent sequence of fine arts courses, with multiple years of instruction.*

### Introduction

It is widely reported that students with high-quality arts educational experiences perform better academically than students who lack these experiences (Catterall, Chapleau, & Iwanaga, 1999; Gullatt, 2007; National Endowment for the Arts, 2012; Paige & Huckabee, 2005). Moreover, students who engage in the arts have been found to demonstrate higher-order thinking skills and be more independent learners (Gullatt, 2007). Schubert and Melnick (1997) observed that when the arts are integrated across academic areas, students showed increased self-concept and positive attitudes toward school; demonstrated skills in more than the arts, but also in content areas; experienced a more equitable learning environment, stronger information retainment, and increased participation in school activities (**Figure 1**).

Arts education programs in the Houston Independent School District (HISD) play a viable role toward strengthening students' intellectual abilities to perform better in school (HISD Fine Arts Department, 2018; Omstein & Hunkins, 2009; Southgate & Roscigno, 2009; Feldman & Matjasko, 2005; Feldman-Farb & Matjasko, 2012). Consequently, a goal of the HISD Fine Arts

**Figure 1:** Heights HS Art Car Winner at 2018 Art Car Parade

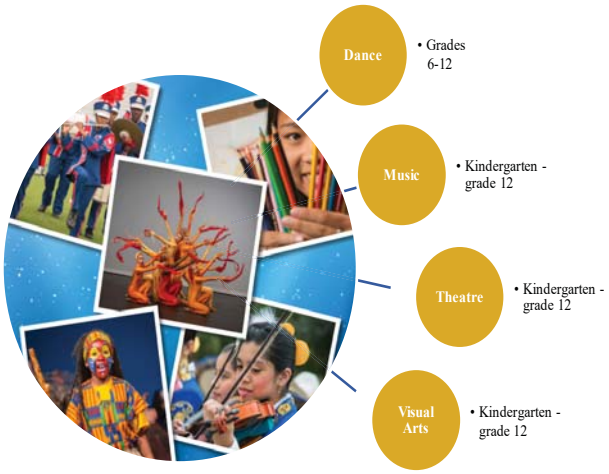



**Figure 2:** Texas Fine Arts Core Instructional Areas, 2017–2018

Department is to increase the emergent literacy skills of students through participation in an enhanced fine arts curriculum (HISD Fine Arts Department, 2018).

## Background

The HISD fine arts curriculum is aligned to the State of Texas curriculum for reading, language arts, science, mathematics, and social studies. Fine arts teaching strategies in HISD are designed to provide students with high-quality arts educational experiences through observation and perception, creative expression, historical and cultural relevance, and critical evaluation and response (HISD Fine Arts Department, 2018). Students are empowered to become self-motivated, adaptable, productive, competent, and lifelong learners that are equipped to meet the demands of the global workforce. HISD fine arts teachers have the flexibility to deliver fine arts programming in a personalized manner, while ensuring all students are exposed to similar information taught in classrooms throughout the district (HISD Fine Arts Department, 2018).

*".....Educating the whole student has the capacity to build better citizens, communities, and a better future for individuals who experience fine arts" (HISD Fine Arts Department, 2018).*

## Texas Fine Arts Curriculum Standards

The State of Texas identifies four arts disciplines: dance (grades 6–12), music (kindergarten-grade 12), theatre (kindergarten-grade 12), and visual arts (kindergarten-grade 12) (Texas Education Agency, 2016) (**Figure 2**). The HISD fine arts curriculum extends beyond the state's expectations from Early Childhood Centers (ECCs) to grade 12.

The fine arts Texas Essential Knowledge and Skills (TEKS) describes what every student should know and be able to do by the end of each grade level or course. Similar to HISD, the TEKS are organized into strands of learning, including foundations; creative expression; historical and cultural relevance; and critical evaluation and response. The TEKS specifies that school districts that offer a kindergarten through grade 12 education must offer an enrichment curriculum that includes fine arts. School districts must ensure that sufficient time is provided for teachers to teach and for students to learn all required learning standards, including fine arts.

**Figure 3**: Crespo Elementary Students Performing the Lion King

At the elementary level, schools must provide TEKS-based instruction to all students in art, music, and theatre at each grade level (kindergarten-grade 5). Elementary students are required to demonstrate proficiency in all fine arts disciplines at the appropriate grade levels (Figure 3).

Comparatively, at the middle school level, Texas students should have the opportunity to take courses in at least three of the four fine arts disciplines. Schools that provide grade 6 instruction in self-contained elementary classes are required to provide instruction for grade 6 students in all of the middle school courses for all four disciplines. Middle school students must complete one full year of fine arts courses during grades 6, 7, or 8. Students are required to demonstrate proficiency in the course.

Fine arts at the high school level include courses in visual arts, dance, music, and theatre. However, high-school courses could also include, but are not limited to, music studies, theatre, musical theatre, and technical theatre (**Figure 4**). High schools must offer TEKS-based instruction in at least two of the four fine arts disciplines. High school students must complete one credit of fine arts to graduate from high school under any high school graduation program.

## Arts Integration

The HISD Fine Arts Department is committed to supporting arts-rich campuses throughout the district, not only through high-quality fine arts instruction, but also across the curriculum—including language arts, math, science, and social studies. Arts integration is an approach to teaching that intentionally aligns learning in the arts with all other content areas (**Figure 5**). This alignment creates an engaging and dynamic learning environment

**Figure 4**: Kashmere Marching Band Competes at HISD Marching Band Festival

**Figure 5**: Helms Elementary Students Demonstrating Arts Integration

in support of the whole child.

The Fine Arts Department promotes integrating the arts into the foundation curriculum by supporting the creation and dissemination of arts-integrated lessons, fostering partnerships with outside non-profit arts organizations and teaching artists, providing professional development to teachers and campus leaders, and by creating a community of like-minded educators that wish to deepen their use of the arts within their daily routines (HISD Fine Arts Department, 2018). HISD partnered with nearly 100 community organizations during the 2017–2018 academic year to support arts integration. Some of the organizations are depicted in **Appendix A** (p. 14).

Considering the research on the social and academic impact of fine arts on youth (Miller et al., 1998; National Endowment for the Arts, 2012) and the educational goals of the HISD Fine Arts Department, this evaluation measured the impact of fine arts on students' academic achievement, disciplinary outcomes, and attendance. The evaluation took into account teachers' fine arts certification and students' enrollment in fine arts rich programs. An assumption was made that students enrolled in Fine Arts Magnet schools should have received a more robust fine arts education beyond students enrolled in non-Fine Arts Magnet schools. Thus, Fine Arts Magnet students served as the treatment group and non-Fine Arts Magnet students were identified as a valid comparison group. Student outcomes were compared with districtwide performance in essential reading and mathematics content areas.

**Research Questions:**

1. What key fine arts initiatives were implemented in HISD during the 2017–2018 academic year to build on students' knowledge and skills?
2. What were the demographic characteristics of fine arts students relative to participation in Fine Arts Magnet treatment schools and non-Fine Arts Magnet comparison schools?
3. How did fine arts students at treatment and comparison schools perform on the 2018 STAAR reading and mathematics assessments, considering teachers' fine arts certification area and districtwide performance?
4. To what extent did the reading and mathematics performance of fine arts students improve in treatment and comparison groups over the past two years?
5. What were the best predictors of fine arts students' 2018 STAAR reading performance, considering their demographic characteristics, previous year test performance, and group status?
6. What were the attendance rates of fine arts students in the targeted groups during the 2017–2018 academic year compared to the 2016–2017 year?
7. What were the rates of disciplinary actions of fine arts students in the targeted groups during the 2017–2018 academic year compared to the previous year?

**Review of the Literature**

The National Endowment for the Arts (2012) maintains that "At-risk students who have access to the arts tend to have better academic results, better workforce opportunities, and more civic engagement" (p. 1). Students not offered education in the arts lose an opportunity to experience a wider array of cognitive, social, and emotional dispositions that the arts may promote (Gadsden, 2008).

There have been numerous research studies that examined the relationship between arts participation and academic achievement among youth. Specifically, a positive, causal relationship was observed between students' participation in "classroom drama" within the regular classroom curriculum and verbal achievement (Hetland & Winner, 2004; Kardash & Wright, 1987). Hetland (2000) reports positive effects of music listening and spatial reasoning as well as music instruction and spatial reasoning, particularly among children from economically-disadvantaged backgrounds.

Academic benefits for students were observed in content-area courses (Deasy, 2002; Hattie, 2009), improvements in concentration, intrinsic motivation (Shernoff & Vandell, 2007), problem solving skills (Catterall, 2007), and educational aspirations (Marsh & Kleitman, 2002). Non-academic benefits of arts participation were found to be associated with enhanced self-worth (Blomfield & Barber, 2011), empathy (Hunter, 2005), well-being, healthy social relationships (Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006), leadership skills (Hancock, Dyk, & Jones, 2012), and reduced risky behavior (Miller et al., 1998).

Forgeard et al. (2008) found that instrumental music training may enhance auditory discrimination, vocabulary, and non-verbal reasoning skills among youth. The study included 59 public school, 8 to 12-year old children, who received at least three years of musical training and a control group that received no musical training. Children who received musical training outperformed control-group children in language development. Moreover, the longer children spent in musical training, the more likely they were to outperform children who did not receive training. Southgate and Roscigno (2009) investigated the association between music training and academic achievement among 13–17 years old children who attended in- and out-of-school parental involvement activities. Music involvement had a positive association on students' mathematics and reading scores and course grades.

Wood (2008) found that dance and movement may be effective toward helping students learn mathematical content as well as improve mathematics knowledge retention. A study on the effect of traditional dance concluded that traditional dances can help students understand symmetry and reinvent mathematical ideas (Rosenfeld, 2013). Although Kim (2002) observed improvements in the performance of seventh-grade creative dance students on a critical thinking skills assessment, students' average score increases were not statistically significantly different from those of standard dance students.

Vicario and Chambliss (2001) observed a positive correlation between experience and confidence in girls who participated in dance. Other studies noted that dance students have more creative thinking abilities, higher levels of abstractness, and higher levels

of originality than students who did not participate in dance (Manley & Wilson, 1980; Minton, 2003). Werner (2001) observed that integrating dance and mathematics in an intense co-teaching model affected students' attitudes toward learning math.

In spite of the research on the benefits of fine arts, many schools may consider the arts as non-essential to a well-rounded education, particularly, when challenged with the task of improving reading and mathematics achievement among students (Eisner, 2002; Rolling, 2006). Consequently, arts programs may be among the first to undergo funding cuts, leaving students with limited arts experiences throughout their education.

**Methods**

This quasi-experimental study measured the impact of fine arts instruction on the academic performance, attendance, and disciplinary outcomes of targeted student groups. The methodology used to identify the study population and data sources used for measurement are described below.

**Study Population**

An electronic database of teachers who were certified in one of the four Fine Arts areas (i.e., visual arts, theatre, dance, and music) during the 2017–2018 academic year was acquired from HISD Fine Arts Department staff. However, outcomes for students with certified music and instrumental teachers were disaggregated in the database and reported separately. Students were, then, linked to teachers using class rosters in the Cognos database system. Students of 182 certified visual arts, 138 certified instrumental music, 111 certified music, 64 certified theatre, and 56 certified dance teachers were identified for analyses.

To reduce the threats to validity, treatment and control groups were established, consisting of Fine Arts Magnet school students (treatment group) with non-Fine Arts Magnet school students (comparison group), considering that these student groups are likely to come from family backgrounds with highly-motivated parents who provide high quality educational opportunities for their children (Frankenberg & Siegel-Hawley, 2008; U.S. Department of Education, 2014). Districtwide data, relative to academic achievement, were also presented to provide an additional level of control in specific content areas. Classifications of schools into Fine Arts Magnet schools and non-Fine Arts Magnet schools were based on lists provided by the HISD Office of School Choice on May 7, 2018 (**Appendix B**, p. 15–16).

**Data Collection and Analyses**

Teacher-student linkages were made using class rosters extracted from the Cognos data system on July 2, 2018. The Chancery database was used to gather demographic characteristics of the study population. Academic achievement data were obtained from State of Texas Assessments of Academic Readiness (STAAR) data files (June 27, 2018). Only English reading and mathematics performance was assessed, considering the preponderance of research that links performance in these areas to student success (Espin & Deno, 1993; Duncan et al., 2007; Balfanz, Herzog, & Mac Iver, 2007; Kena et al., 2016). Algebra I and English I End-of-Course (EOC) exam results were also used to measure academic achievement at the secondary level in this evaluation.

Descriptive statistics were calculated to determine the percentage of students at or above the Approaches Grade Level passing standard on the first administration of the 2018 English STAAR Grades 3–8 and STAAR English I and Algebra I EOC examinations. According to the Texas Education Agency (2017), a student achieving the Approaches Grade Level standard is likely to succeed in the next grade or course with targeted academic intervention. Students in this category typically demonstrate the ability to apply the assessed knowledge and skills in familiar contexts (Texas Education Agency, 2017).

Paired samples t-tests were conducted for students with both 2017 (pretest) and 2018 (posttest) scale scores on the first administration of reading and mathematics STAAR 3–8. The results of only students whose scores reflected successive grade level testing in the previous year (2017) and the current year (2018) were used in the analyses. Paired t-test analyses compare each student's scale score in the previous year with the student's scale score in the current year to show gain in scale scores. The tests have been vertically aligned to allow for year-to-year comparisons. The level of statistical significance was $p < .05$, two-tailed test.

The difference-in-differences (DiD) technique was used to obtain an appropriate counterfactual to estimate a causal effect of the program on the paired STAAR 3–8 reading and mathematics scores between treatment and comparison groups (Bertrand, Duflo, & Mullainathan, 2004; Zhou, Taber, Arcona, & Li, 2016). Zhou et al. (2016) demonstrated that DiD can be applied to estimate treatment effects in a heterogeneous population, where the treatment and control cohorts varied greatly. "DiD offers a robust method for comparing diverse cohorts when other risk-adjustment methods may not be adequate" (Zhou et al., 2016, p. 414).

Multiple linear regression analyses were conducted to determine the best predictors of students' 2018 English STAAR 3–8 reading performance. The model controlled for students' 2017 STAAR reading scale scores, and whether the students were classified as economically disadvantaged, limited English proficient (LEP), gifted/talented, at risk, receiving special education services, and whether students were enrolled in treatment or comparison schools. The subset of students used in the analyses tested in successive grade levels three through eight, on the first administrations of both 2017 and 2018 English STAAR 3–8.

Attendance data and disciplinary actions for the 2016–2017 (pretest) and the 2017–2018 (posttest) academic years were extracted from the Cognos data system on September 11, 2018. Extracted attendance data included the number of excused absences, unexcused absences, and total absences for students who attended treatment schools and comparison schools during both years. A total of 17,557 students were included in the treatment group and 47,532 students were included in the comparison group. Paired samples t-tests were conducted to determine whether there were statistically significant differences in the pretest and posttest attendance means for each group. The level of statistical significance was $p<.05$.

Pretest (2016–2017) and posttest (2017–2018) disciplinary actions included the number of in-school suspensions, out-of-school suspensions, expulsions, and alternative placements for students who attended treatment schools and comparison schools during both years. A total of 17,559 students was represented among the treatment group and 47,534 students were included in the comparison group.

The DiD technique was used to estimate a causal effect of the program on students' disciplinary outcomes. Effect sizes were

also computed using disciplinary actions data and Hedge's g to measure the magnitude of the program impact. Hedge's g is a standard deviation-based measure used to compute the effect size for groups with different sample sizes. Hedge's g follows similar criteria to Cohen's d for determining the strength of an intervention with an effect size of 0.2 = small effect, 0.5 = moderate effect, and 0.8 = large effect. The What Work's Clearinghouse notes that an effect size of 0.25 standard deviations or larger is considered to be substantively important (What Works Clearinghouse, n.d.).

**Study Limitations**

There were several limitations of the study. Specifically, the study population only included students enrolled in fine arts classes during the 2017–2018 year and whose teachers were identified as certified in fine arts areas. The study assumed that the list of certified teachers was accurate. Further, the study population was limited to students who were enrolled in Fine Arts Magnet and non-Fine Arts Magnet schools during the 2017–2018 academic year. However, these limitations helped to generate more valid treatment and comparison groups and to establish equivalence between the groups by controlling for family background characteristics. The study did not control for whether or not students had multiple years of fine arts instruction. Measurement of student outcomes was limited to the availability of the data in HISD data systems; therefore, students who lacked data on variables of interest were excluded from the study. Other factors may have greatly influenced students' educational outcomes, including the quality of instruction (Camilli et al., 2010), and whether students self-selected to participate in the schools under investigation.

## Results

**What key fine arts initiatives were implemented in HISD during the 2017–2018 academic year to build on students' knowledge and skills?**

The HISD Fine Arts Department held several key events during the 2017–2018 academic year, including the Fine Arts Summit, Project aDOORe Houston, Visual Arts Showcase, Shakespeare Festival for Elementary Students, Carnegie Vanguard at UIL One Act Play, HISD Marching Band Festival, 4th Annual Beginning Choir Festival, and the HISD Piano Festival. A description of the events are presented below.

**Fine Arts Summit**

The HISD Fine Arts Department presented the first annual Fine Arts Summit, a full-day convening of all Fine Arts teachers from across the district during the 2017–2018 academic year. Professional development was provided over a variety of topics, incorporating essential content-level information and learning that was relevant to teachers' areas of expertise. The summit offered individualized tracks of professional development tailored to each of the four Fine Arts disciplines, with an additional track for any staff, including foundation teachers, who were interested in pursuing arts integration. The summit was led by district educators, administrators, college representatives, professors, and industry professionals.

Visual arts teachers experienced printmaking, assemblage, and advanced level watercolor techniques using materials donated by the community. They learned how to apply the techniques in their lesson plans. Dance teachers explored nonverbal expression and communication through movement, dance techniques, stage lighting, lesson plans, and concepts of shaping the future of dance education. Music educators engaged in best practices to support growth, student advancement, and development in music applications. All fine arts teachers were exposed to key points in the curriculum to facilitate classroom instruction. HISD Fine Arts teachers were provided a $100 stipend to attend the event.

**Figure 6:** Meyerland PVAMS Perform at Project aDOORe Exhibition at Hermann Park, 2017–2018

**Project aDOORe Houston and HISD Dancers Teamed up at Hermann Park**

On March 3, 2018, storm-damaged doors, refurbished and repurposed by HISD art students, traveled to the Herman Park for an exhibition. Dancers from Meyerland Performing and Visual Arts Middle School (PVAMS) and Bellaire High School eMotion Dance Company accompanied the exhibition (**Figure 6**). Meyerland's Dance Ensemble and Bellaire High School's eMotion Dancers performed original interpretation of the "Hope after Harvey." Determined to remember, rebuild, and re-imagine life after Hurricane Harvey, students expressed their feelings through original choreography.

Project aDOORe Houston's doors traveled around the city of Houston showing the works of art, depicting the events that came about during and after Hurricane Harvey. The doors traveled over 500 miles around the city and were viewed by over 25,000 people.

**Visual Arts Showcase**

HISD students displayed their artwork at the annual HISD 2018 Spring Visual Arts Showcase (**Figure 7**, **Appendix C**, p. 17). Campuses had the opportunity to display art collections, including

**Figure 7:** Visual Arts Showcase Display, 2017–2018

**Figure 8:** HISD Students at Shakespeare Festival, 2017–2018

art car and/or award-winning works of prekindergarten through twelfth-grade students. Each teacher was allowed to display 8–10 pieces of art. Over 800 works of art were exhibited on all floors of the Hattie Mae White Educational Support Center. A Certificate of Participation was awarded to students who displayed work in the exhibition. An evening reception for students' families, campus staff, and guests was held. The reception also honored the work created for Texas Children's Hospital in collaboration with H. Marion Art Consultants, Chicago. The 2018 Art Cars were also on display at the event.

**Shakespeare Festival for Elementary Students**

On April 14, 2018, five HISD Elementary Schools (Crespo, Patterson, Poe, Herod, and Sinclair) sent a company of theatre students to perform in HISD's first Shakespeare Festival for elementary students at Tanglewood Middle School (**Figure 8**). Each school performed an adaptation of a play by William Shakespeare. The author of each adapted script arranged the performance rights and promoted the event on a blog. HISD's Media Relations Department worked with the Fine Arts Department to create a press release and to report on the event.

**Carnegie Vanguard Advanced to State Meet for UIL One Act Play**

On April 25, 2018, Carnegie Vanguard High School (CVHS) performed at the 2018 State UIL One Act Play contest at the Round Rock ISD Performing Art Center. This was the fourth time that Carnegie advanced to State competition in UIL One Act Play, their third consecutive trip to State, and their fourth trip in the last five years. Their play, scenes from Speaking in Tongues by Andrew Bovell, was directed by the theatre director at CVHS and a student teacher from the University of Houston. Carnegie Vanguard advanced through five rounds of competition to get to the State contest. At the start of the 2017–2018 UIL One Act Play season, there were 251 6A High Schools participating from all across Texas. Only eight 6A High Schools advanced to the State competition.

**The HISD Marching Band Festival**

The 2017 HISD Marching Band Festival featured several top marching bands throughout the district. The festival provided an opportunity for students and directors to exhibit their marching band efforts of musicality and athleticism. The marching bands used a variety of styles and ranged in a variety of sizes. Some bands used this event as a pre-UIL evaluation, while others used the event as the highlight of their marching band season. With most high schools in the district having marching band programs, the HISD Marching Band Festival was an excellent way for the Houston communities to be represented on a large, public scale.

**Art Car Parade and Awards Ceremony**

Five of HISD's 21 entries in the 31st annual Houston Art Car Parade won trophies and cash prizes. In the category of Best Youth Entry, Frank Black Middle School students took second place with the Panthermobile. The Art Car Awards Ceremony was held at Smither Park. HISD art cars won in each of the three categories. Heights High School students won first place for their homage to the Rolling Stones, "It's Only Rock and Roll But I Like It." Sam Houston Math, Science, and Technology School students won second place for "Schools of Artists." The Arabic Immersion Magnet School won third place for their entry, "Bouma, the Global Flying Owl." HISD Visual Arts Curriculum Specialist won second place for "HERMESillac," a green Cadillac with fins and other decorations.

**4th Annual Beginning Choir Festival**

The HISD Fine Arts Department hosted the 4th Annual Beginning Choir Festival on April 14, 2018 at Meyerland PVAMS. For the first time in the history of the event, there were over 20 district schools to register and perform. HISD music teachers from elementary to high school brought their beginning choirs to experience the richness of music and to see other HISD school's musical talents on display. The HISD Fine Arts Department plans to increase the number of participating campuses during the 2018–2019 school year, allowing more students to put their artistry on display and expand students' music experiences.

**HISD Piano Festival**

The Fine Arts Department hosted the HISD Piano Festival, November 11, 2017 at Meyerland PVAMS. The HISD Piano Program was implemented in over 15 elementary to high schools during the 2018–2019 school year. Piano students from all over the district came to Meyerland to perform individually and in piano duets piano pieces that they have strived to master and perform.

## What were the demographic characteristics of fine arts students relative to participation in Fine Arts Magnet treatment schools and non-Fine Arts Magnet comparison schools?

The study population consisted of students whose teachers were certified in fine arts and who received instruction in fine arts by those teachers during the 2017–2018 academic year. The list of teachers were provided by staff in the HISD Fine Arts Department. Profiles of treatment and comparison-group students are presented in **Table 1** (**Appendix D**, p. 18). The data were extracted from the Chancery database. The main difference between treatment and comparison groups was the Magnet status of their campus. The treatment group attended a Fine Arts Magnet school; whereas, the comparison group still had access to all district fine arts activities, but they attended a non-Fine Arts Magnet school.

A total of 17,585 students were enrolled in treatment-group schools and 47,594 students were enrolled in comparison-group schools. No substantial differences existed between the groups relative to the proportion of students who were economically disadvantaged, at risk, gifted-talented, and limited English

proficient (LEP). However, the highest percentage of treatment and comparison-group students were Hispanic (49.8% and 60.0%, respectively), taking into account other ethnic/racial groups. In addition, 78.7% of treatment-group students were economically disadvantaged in proportion to 73.1% of comparison-group students. The comparison group was slightly more likely to be classified as gifted/talented (G/T) than the treatment group (26.3% and 20.0%, respectively). There was a higher percentage of limited English proficient (LEP) students in the treatment group than the comparison group (22.4% and 19.5%, respectively). At the same time, a higher percentage of treatment-group students was classified as at risk for dropping out of school considering comparison-group students (65.2% and 63.0%, respectively). Both groups had similar percentages of special education students (8%), while LEP students were slightly more represented in the treatment group than the comparison group (22.4% vs. 19.5%).

Taking into account districtwide performance, there was a lower percentage of Hispanic students in both treatment and comparison groups than students districtwide (49.8% and 60.0% vs. 61.8%), and a higher percentage of African American students in the treatment group compared to the district (37.4% vs. 24.0%). Moreover, there was a higher percentage of economically-disadvantaged treatment-group students (78.7%), and a lower percentage of economically-disadvantaged comparison-group students (73.1%) than students districtwide (74.9%). Both treatment and comparison-student groups had lower percentages of at-risk and LEP students relative to districtwide percentages of 71.6% and 31.5%, respectively.

## How did fine arts students at treatment and comparison schools perform on the 2018 STAAR reading and mathematics assessments, considering teachers' fine arts certification area and districtwide performance?

**Figure 9** presents the spring 2018 STAAR 3–8 English reading performance of fine arts students in the treatment and the comparison group by fine arts teacher certification area. **Table 2a** and **2b** in **Appendix E** (p. 19) provide the number of students tested in each subgroup on the first test administration. It is evident that, regardless of the type of fine arts teacher certification, the comparison group outperformed the treatment group on the reading STAAR. The highest percentage of students at or above the Approaches Grade Level standard in the treatment group had certified music teachers, followed by certified instrumental music teachers (70.7% and 70.2%, respectively). At the same time, the highest percentage of students at or above the Approaches Grade Level standard in the comparison group had certified dance teachers, followed by certified music teachers (77.9% and 77.1%, respectively). Fine arts students in both groups outperformed the district on the reading STAAR, regardless of the type of teacher certification.

**Figure 10** depicts the spring 2018 STAAR 3–8 English mathematics performance of students in the targeted groups. **Tables 3a** and **3b** in **Appendix F (**p. 20) provides the number of students tested in each subgroup on the first test administration. Similar to the reading results, comparison-group students outperformed students in the treatment group on the mathematics STAAR. The highest percentage of students at or above the Approaches Grade Level standard in the treatment group had certified music teachers, followed by certified instrumental music teachers (77.6% and

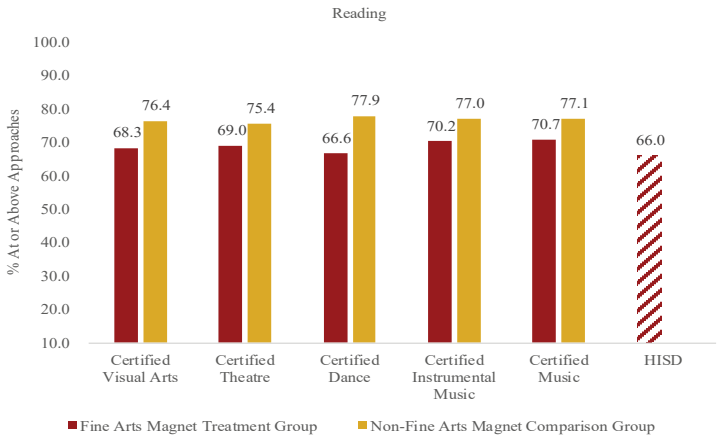



**Figure 9**: Fine Arts Students' STAAR 3–8 Reading Districtwide Performance and Performance by Teacher Certification Area and Group Status, 2018 (results are rounded to the nearest tenth)

76.6%, respectively). At the same time, the highest percentage of students at or above the Approaches Grade Level standard in the comparison group had certified music teachers, followed by certified instrumental music teachers (81.9% and 80.2%, respectively). Students in the comparison group outperformed the district on the mathematics subtest, regardless of the type of teacher certification. Districtwide performance was comparable to the performance of treatment-group students respective to certified dance teachers, with 72% of students scoring at or above the Approaches Grade Level standard. All other treatment student groups exceeded the performance of the district.

**Figure 11** (p. 8) presents STAAR English I EOC performance of the targeted student groups. **Table 4** in **Appendix G** (p. 21) provides the number of students tested in each subgroup. Treatment-group students with certified visual arts, theatre, instrumental music, and music teachers outperformed their comparison-group peers, achieving a higher proportion of students at or above Approaches Grade Level standard. Moreover, only students in the treatment group with certified theatre (66.0%) and music (86.2%) teachers achieved a higher percentage of students

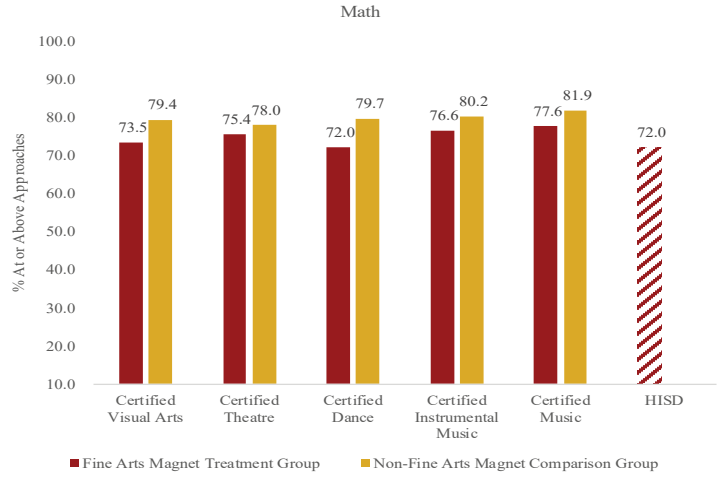



**Figure 10**: Fine Arts Students' STAAR 3–8 Math Districtwide Performance and Performance by Teacher Certification Area and Group Status, 2018 (results are rounded to the nearest tenth)

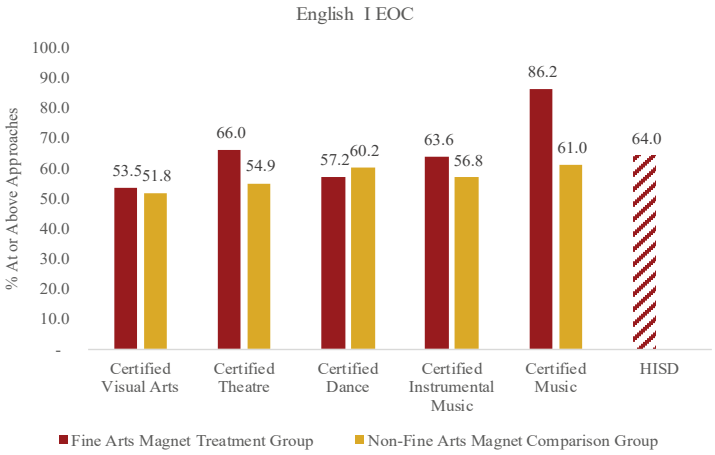



**Figure 11**: Fine Arts Students' STAAR English I EOC Districtwide Performance and Performance by Teacher Certification Area and Group Status, 2018 (results are rounded to the nearest tenth)

at or above the Approaches Grade Level standard compared to the district.

**Figure 12** depicts STAAR Algebra I EOC performance of the targeted student groups. **Table 5** in **Appendix H** (p. 22) provides the number of students tested in each subgroup. A higher proportion of treatment-group students with certified teachers in all fine arts areas scored at or above the Approaches Grade Level standard than the comparison-group. The treatment group students with certified dance (82.9%), instrumental music (87.3%), and music (89.1%) teachers outperformed the district (81.0%). In addition, comparison group students with certified instrumental music teachers outperformed the district (81.5% vs. 81.0%).

## To what extent did the reading and mathematics performance of fine arts students improve in treatment and comparison groups over the past two years?

A paired t-test was conducted to determine the extent that fine arts students improved their reading and mathematics performance from the 2016–2017 academic year to the 2017–2018 academic year. The results of only students whose English STAAR 3–8 reading and mathematics scale scores reflected successive progression in grade level testing from the previous year to the 2017–2018 academic year were used in the analyses.

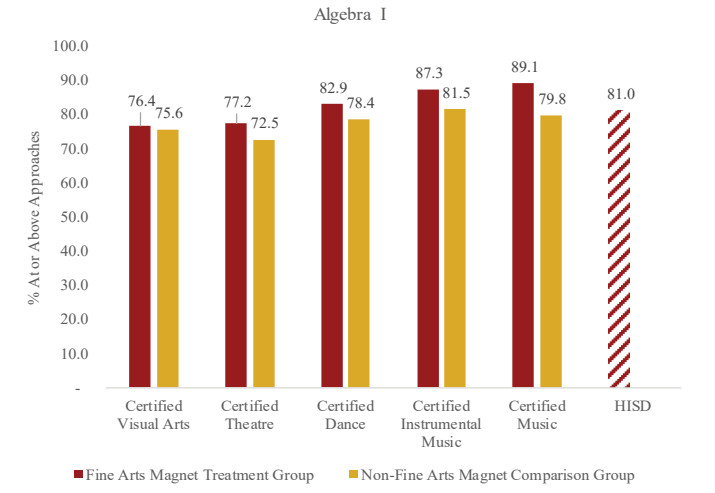



**Figure 12:** Fine Arts Students' STAAR Algebra I EOC Districtwide Performance and Performance by Teacher Certification Area and Group Status, 2018 (results are rounded to the nearest tenth)

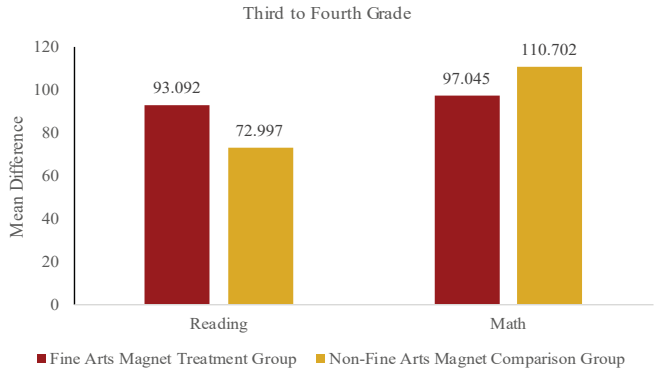



**Figure 13**: Paired T-test Analyses, Students with Two Years of Reading and Math STAAR, Successive Progression from Third (2017) to Fourth (2018) Grade

**Figure 13** and **Table 6a** in **Appendix I** (p. 23) shows a statistically significant increase in the 2017 and 2018 mean reading and mathematics scale scores of both the treatment and comparison student groups as they progressed from third to fourth grades ($p < .001$). The largest increases were among the treatment group in reading (mean difference = 93.092 vs. 72.997) and the comparison group in mathematics (mean difference = 110.702 vs. 97.045).

**Figure 14** and **Table 6b** in (Appendix I (p. 23) presents the 2017 and 2018 STAAR 3–8 reading and mathematics performance of fine arts students that were progressively tested in fourth grade then fifth grade in the respective years. There was a statistically significant increase in the mean reading and mathematics scale scores of students in both the treatment and comparison groups ($p< .001$). The largest increases were among the treatment group students in reading (mean difference = 72.181 vs. 70.625) and mathematics (mean difference = 71.215 vs. 60.447).

**Figure 15** (p. 9) and **Table 6c** in Appendix I (p. 23) provides the 2017 and 2018 STAAR 3–8 reading and mathematics performance of fine arts students that progressively tested in fifth and sixth grades. There was a statistically significant increase in the mean reading scale scores of students in both the treatment and

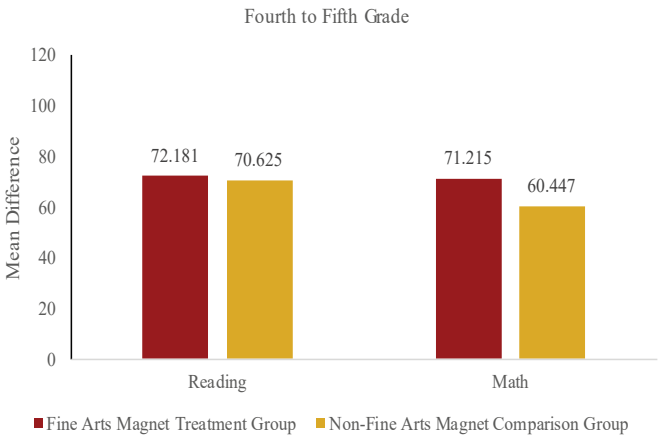



**Figure 14**: Paired T-test Analyses, Students with Two Years of Reading and Math STAAR, Successive Progression from Fourth (2017) to Fifth (2018) Grade

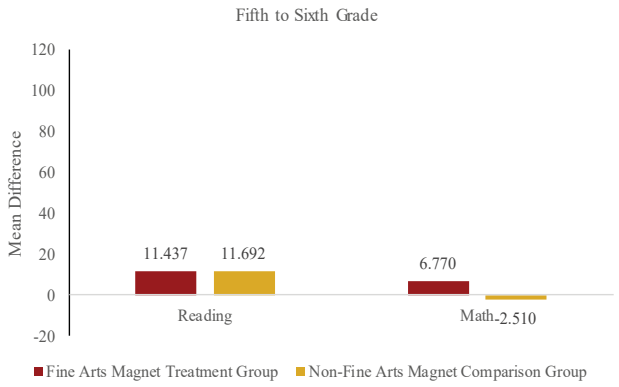



**Figure 15**: Paired T-test Analyses, Students with Two Years of Reading and Math STAAR, Successive Progression from Fifth (2017) to Sixth (2018) Grade

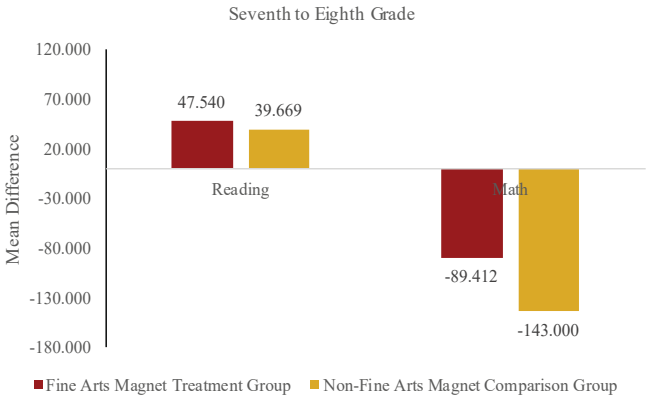



**Figure 17**: Paired T-test Analyses, Students with Two Years of Reading and Math STAAR, Successive Progression from Seventh (2017) to Eighth (2018) Grade

comparison groups ($p < .001$). The mean differences were fairly similar for both groups (11.437 and 11.692, respectively). Moreover, there was an increase in the mathematics mean scale score of students in treatment schools (6.770), and a decrease in the mean scale score of students in comparison schools (-2.510). The mean difference was statistically significant for treatment-group students ($p< .001$), and not statistically significant for comparison-group students ($p = .178$).

**Figure 16** and **Table 6d** in Appendix I (p. 24) provides the 2017 and 2018 STAAR 3–8 reading and mathematics performance of fine arts students that progressively tested from sixth to seventh grades. There was a statistically significant increase in the mean reading scale scores of students in both treatment and comparison groups ($p < .001$). The mean differences were 81.905 and 82.100, respectively. Moreover, there was an increase in the mathematics mean scale score of students in treatment schools (43.606) and comparison schools (32.912). The mean difference were statistically significant ($p <.001$).

**Figure 17** and **Table 6e** in Appendix I (p. 24) shows the 2017 and 2018 STAAR 3–8 reading and mathematics performance of fine arts students that progressively tested in seventh and eighth grades. There was a statistically significant increase in the mean reading scale scores of students in both treatment and comparison groups ($p< .001$). The mean difference was higher for the treatment student group compared to the comparison student group (47.54 and 39.669, respectively). The mathematics performance of both groups yielded decreases in the mean scale scores over the two years. However, the largest decrease was among the comparison group (-143.900) rather than the treatment group (-89.412). The mean differences were statistically significant ($p< .001$).

Difference-in-differences (DiD) analyses (**Table 7**, Appendix I, p. 25) revealed that there is a benefit in treatment-group participation over the comparison group as evidenced by a higher mean reading score of 20.1 points as students progressed from third to fourth grade, 1.6 points from fourth to fifth grade, and 7.8 points from seventh to eighth grade. Benefits of treatment-group participation in mathematics was also evident by 10.8 points as students progressed from fourth to fifth grade, 9.3 points from fifth to sixth grade, and 10.7 points from sixth to seventh grade. A lower DiD in mathematics scores were observed among treatment group students as they progressed from seventh to eighth grade. Nevertheless, the treatment group benefited by 54.5 points.

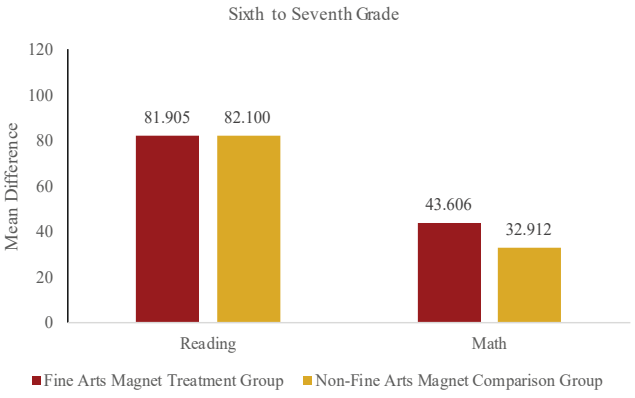



**Figure 16**: Paired T-test Analyses, Students with Two Years of Reading and Math STAAR, Successive Progression from Sixth (2017) to Seventh (2018) Grade

## What were the best predictors of fine arts students' 2018 STAAR reading performance, considering their demographic characteristics, previous year test performance, and group status?

Multiple linear regression analyses were conducted to determine the best predictors of the study samples' 2018 English STAAR 3–8 reading performance. The model controlled for the students' 2017 STAAR reading scale scores, and whether the students were classified as economically disadvantaged, limited English proficient (LEP), gifted/talented, at risk, receiving special education services, and whether students were enrolled in Fine Arts Magnet or non-Fine Arts Magnet schools (magnet school status). The findings are presented in **Table 8** (p.10) for the subset of students who tested in successive grade levels three through eight, on the first administrations of both 2017 and 2018 English STAAR 3–8.

Regarding students who progressed from third grade to fourth grade, the predicted STAAR reading scale score for special education students would be 32.140 points lower than for non-special education students. This finding was statistically significant ($p<.009$). The model also found that the predicted reading scale score for Fine Arts Magnet students would be 20.358 points higher than non-Fine Arts Magnet students ($p<.026$), and gifted/talented students would be 46.933 points higher than non-gifted/talented students ($p<.001$). Although statistical significance ($p<.05$) was not found, the predicted scale score for economically-disadvantaged students would be 15.484 points lower than for non-econom-

**Table 8: Multiple Linear Regression Predicting 2018 English STAAR 3–8 Reading Performance**

| | 3rd to 4th | 4th to 5th | 5th to 6th | 6th to 7th | 7th to 8th |
|---|---|---|---|---|---|
| Variable | | | | | |
| Constant | 725.249*** | 753.730*** | 681.721*** | 652.211*** | 908.461*** |
| 2017 STAAR | .547*** | .552 | .589*** | .654*** | .501*** |
| Group Status | 20.358* | 4.316 | -1.515 | -5.17* | -3.081 |
| Econ. Status | -15.484 | -10.107* | -15.973*** | -4.950 | -10.804** |
| Gifted/Talented | 46.933* | 43.260*** | 45.609*** | 30.937*** | 29.698*** |
| Special Ed. | -32.140** | -35.102*** | -37.797*** | -41.422*** | -63.521*** |
| At Risk | -19.064 | -27.083*** | -38.523*** | -39.784*** | -43.012*** |
| LEP | 9.705 | -2.321 | -1.005 | -9.543* | -43.614*** |
| $R^2$ | .597 | .583 | .650 | .691 | .646 |

*** p < .0001, ** p < .001, *p<.05
Data Source: 2017 and 2018 STAAR 3-8 test files, Spring Administration

ically disadvantaged students, and LEP students would be 9.705 points lower than non-LEP students.

The model for students who progressed from fourth grade to fifth grade predicted that the STAAR reading scale score of economically-disadvantaged students would be 10.107 points lower than for non-economically-disadvantaged students, the score for special education students would be 35.102 points lower than for non-special education students, and the score for at-risk students would be 27.083 points lower than for non-at-risk students. These findings were statistically significant (p<.043, p<.0001, p<.0001, respectively). Gifted/talented students were predicted to attain a reading scale score that would be 43.260 points higher than non-gifted/talented students and the previous scale scores all students were predicted to increase by .552 scale points from 2017 to 2018 (p<.0001).

The model predicting the 2018 STAAR reading scale scores for students who progressed from fifth grade to sixth grade are shown in Table 8. The model predicted that the STAAR reading scale score of economically-disadvantaged students would be 15.973 points lower than the scale score of non-economically-disadvantaged students, the predicted score of special education students would be 37.797 points lower than for non-special education students, and the score of at-risk students would be 38.523 points lower than the score of non-at-risk students. These findings were statistically significant (p<.0001 for each group). Gifted/talented students were predicted to attain a reading scale score 45.609 points higher than non-gifted/talented students and the previous scale score of all students was predicted to increase by .589 scale points (p<.0001).

The model for students who progressed from sixth grade to seventh grade yielded similar findings. Specifically, the model predicted that the STAAR reading scale score of special education students would be 41.422 points lower than the score of non-special education students, at-risk students would receive a score that is 39.784 points lower than non-at-risk students, and LEP students would receive a score that is 9.543 points lower than non-LEP students. These findings were statistically significant (p<.0001, p<.0001, and p<.05, for each group). Gifted/talented students were predicted to attain a reading scale score that is 30.937 points higher than non-gifted/talented students, while the previous scale score of all students was predicted to increase by .654 scale points from 2017 to 2018 (p<.0001).

Findings for students who progressed from seventh grade to eight grade can be found in Table 8. The model predicted that the STAAR reading scale scores of special education students would be 63.521 points lower than the scores of non-special education students, at-risk students would receive scores that are 43.012 points lower than non-at-risk students, and LEP students would receive scores that are 43.614 points lower than non-LEP students. These findings were statistically significant (p<.0001 for each group). Gifted/talented students were predicted to have reading scale scores that are 29.698 points higher than non-gifted/talented students and the previous scale scores of all students were predicted to increase by .501 scale points from 2017 to 2018 (p<.0001).

Table 8 also reveals that, as the paired sample of students progressed through grade levels, their academic advantage as gifted/talented students tended to decrease over time based on the groups' predicted scores. The study also found that the predicted scores of special education, at-risk, and LEP students worsened over time.

## What were the attendance rates of fine arts students in the targeted groups during the 2017–2018 academic year compared to the 2016–2017 year?

The mean attendance rates for fine arts students in the treatment and the comparison groups are displayed in **Figure 18** and **Tables 9a** and **9b** in **Appendix J** (p. 26). The 2016–2017 data were used as the pretest and the 2017–2018 data were used as the posttest. The mean excused, unexcused, and total absences for both groups were similar at pretest. However, there were increases in the mean unexcused absences for the respective groups from pretest to posttest (4.3

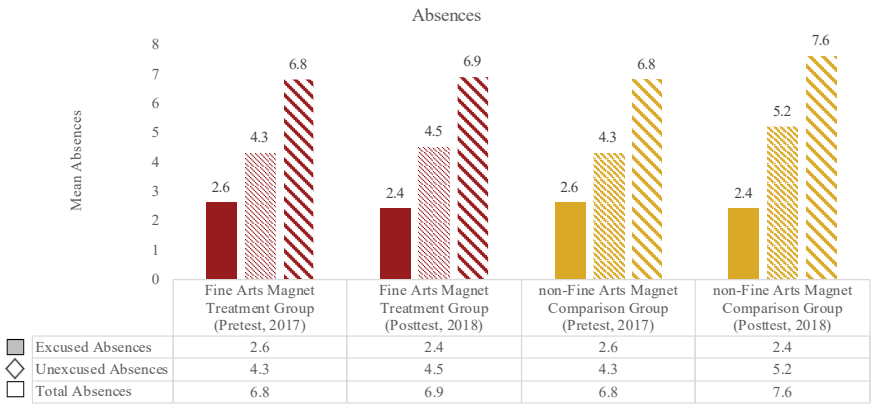
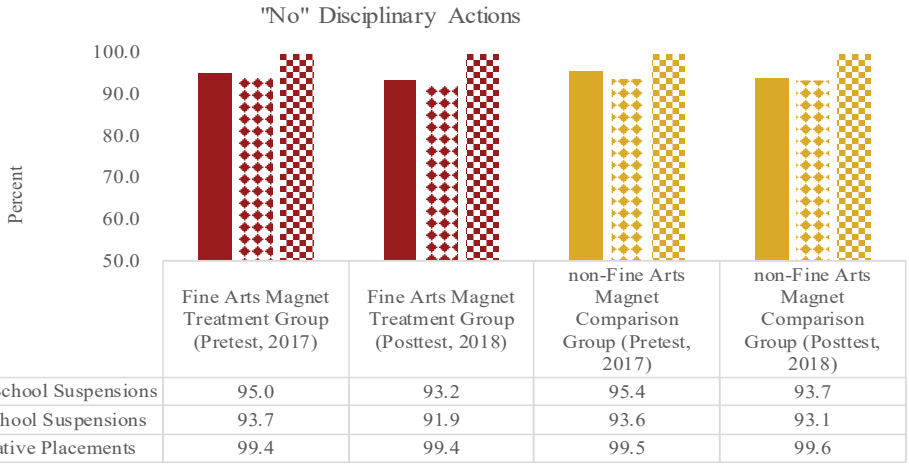



**Figure 18**: Attendance of Treatment and Comparison Group Students, 2017 vs. 2018 (Source: Cognos database; numbers rounded to the nearest tenth.)




| | Fine Arts Magnet Treatment Group (Pretest, 2017) | Fine Arts Magnet Treatment Group (Posttest, 2018) | non-Fine Arts Magnet Comparison Group (Pretest, 2017) | non-Fine Arts Magnet Comparison Group (Posttest, 2018) |
|---|---|---|---|---|
| "No" In-of-School Suspensions | 95.0 | 93.2 | 95.4 | 93.7 |
| "No" Out-School Suspensions | 93.7 | 91.9 | 93.6 | 93.1 |
| "No" Alternative Placements | 99.4 | 99.4 | 99.5 | 99.6 |

**Figure 19**: "No" Disciplinary Actions of Treatment and Comparison Group Students, 2017 vs. 2018 (Source: Cognos database; numbers rounded to the nearest tenth; no students in either group had expulsions.)

vs. 4.5 and 4.3 vs. 5.2). Consequently, the mean number of total absences for the treatment and comparison groups increased over the two-year period (6.8 vs. 6.9 and 6.8 and 7.6, respectively). A key finding was that the percentage increase in the mean total absences was substantially lower for the treatment group (1.5%) than the comparison group (11.8%).

### What were the rates of disciplinary actions of fine arts students in the targeted groups during the 2017–2018 academic year compared to the previous year?

Disciplinary actions rates were measured for the targeted groups during the 2016–2017 (pretest) and the 2017–2018 (posttest) academic years. The findings are depicted in **Figure 19** and **Tables 10a** and **10b** in **Appendix K** (p. 27). Outcomes presented in Figure 19 reflect a 2% decrease in the percentage of treatment-group students with "no" in-school suspensions over the two-year period, while the comparison group experienced a 1.8% decrease in the percentage of students with "no" in-school suspensions (95.0% vs. 93.2% and 95.4% and 93.7%, respectively). Moreover, there was a 1.9% decrease in the percentage of treatment-group students with "no" out-of-school suspensions; whereas, the percentage of comparison-group students with "no" out-of-school suspensions decreased by .5%. The percentage of "no" alternative placements remained constant for treatment-group students, but increased slightly for comparison-group students by .1%.

Difference-in-differences analyses (**Table 10c**, Appendix K, p 27) revealed that there was a benefit in treatment group participation over the comparison group as evidenced by a lower mean in-school suspension rate of .16 points and a lower mean out-of-school suspension rate .08. At the same time, there was a benefit in comparison-group participation relative to alternative placements (.02).

**Figure 20** depicts effect sizes based on the mean disciplinary actions of treatment and comparison-group students. It is evident that the Fine Arts Magnet program had a small, positive effect on in-school suspensions relative to the non-Fine Arts Magnet program (Hedge's g = 0.2022). The effect of the Fine Arts program on out-of-school suspensions and alternative placements were positive but negligible.

## Discussion

The HISD Fine Arts Department emphasizes the importance of a quality fine arts education, led by certified fine arts teachers, to support the development of the whole child. Consistent exposure to fine arts has been found to enhance students' critical thinking skills, responsible decision-making behavior, and cultural awareness. Students have expanded opportunities to develop their abilities and habits of mind that empower them to learn across multiple content areas.

This evaluation investigated the impact of fine arts instruction on student achievement, attendance, and disciplinary outcomes by comparing outcomes of students who attended Fine Arts Magnet schools (treatment group) with students who attended non-Fine Arts Magnet schools (comparison group), controlling for teachers' fine arts certification area and students' enrollment in fine arts classes during the 2017–2018 academic year. The study used a retrospective design, and students were not randomized to treatment or control groups. An underlying assumption of the study was that Fine Arts Magnet students received a more robust fine arts education; therefore, representing a reliable treatment group. Comparison-group students had similar background characteristics as treatment-group students, which strengthened the validity of the study. Additional comparisons were made, in some

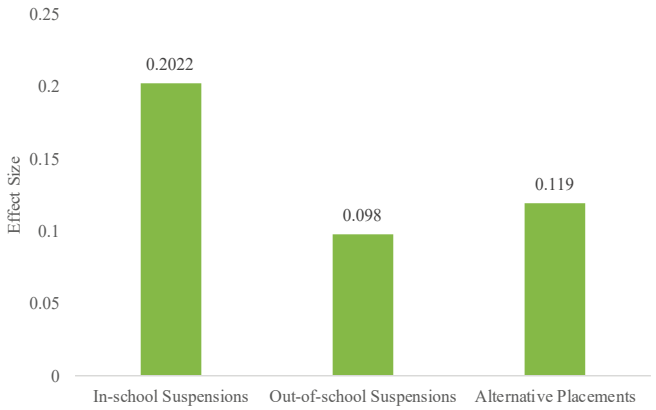



**Figure 20**: Effect Sizes Comparing Treatment and Comparison-Groups (Note: Hedge's g: small effect = 0.2, moderate effect = 0.5, and large effect = 0.8)

academic areas, to the performance of students districtwide.

The study found that treatment and comparison-group students, typically, outperformed their peers districtwide on the 2018 STAAR 3–8 English reading and mathematics subtests, relative to the percentage of students who scored at or above the Approaches Grade Level standard, regardless of the type of fine arts teacher certification. Comparison-group students, typically, outperformed treatment-group students under similar conditions. On the 2018 Algebra I EOC exam, higher percentages of treatment-group students scored at or above this standard relative to comparison-group students. Moreover, treatment-group students outperformed comparison-group students on the 2018 English I EOC exam in four of five teacher certification areas.

Paired t-test analyses showed statistically significant improvements in STAAR 3–8 reading and mathematics scale scores as both groups successively progressed to fourth, fifth, and seventh grades from 2017 to 2018. Sixth and eight-grade students in both groups also showed statistically significant improvements in reading from 2017 to the 2018.

The study found that the best predictors of STAAR 3–8 reading performance across grade levels for a paired sample of students was their gifted/talented, special education, and at-risk indicators. However, as the students progressed through grade levels, their academic advantage as gifted/talented students decreased over time based on the groups' predicted scores. The study also found that the predicted scores of special education, at-risk, and LEP students worsened over time.

Difference-in-differences analyses revealed benefits in treatment group participation relative to reading and mathematics performance over time across grades three through eight. DiD also showed benefits in program participation as evidenced by a higher decrease in-school and out-of-school suspensions of treatment-group students over comparison-group students. Moreover, the decrease in the proportion of treatment group students with "no" in-school suspensions revealed a small, positive effect of the program. The mean increase in total absences was substantially lower for the treatment group (1.5%) than the comparison group (11.8%) from 2017 to 2018.

In consideration of study findings, there was evidence of benefits of fine arts instruction toward improving students' reading and mathematics performance, attendance, and disciplinary outcomes. Future research could measure the dosage effect of fine arts instruction for students enrolled in a coherent sequence of fine arts courses, with multiple years of fine arts instruction. Additional areas of interest includes measurement of the influence of using a holistic approach to teaching fine arts through arts integration, and how access to diverse arts experiences influence student engagement and academic achievement.

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## Appendix A

| HISD Community Arts Partners, 2017–2018 | | |
|---|---|---|
| AFA | Houston Center for Contemporary Crafts | Music For All |
| Alley Theatre | Houston Center for Photography | National Endowment for the Arts |
| American Festival for the Arts | Houston Grand Opera | National Museum of Funeral History |
| Americans for the Arts | Houston International Festival | Orange Show |
| Art Car Museum | Houston Murals of John Thomas Biggers | Prairie View School of Music |
| Art League of Houston | Houston Museum of Natural Science | Project Row Houses |
| Artist Boat | Houston Symphony | Rice Gallery – Rice University |
| Arts Access Initiative | Houston Theater District | Rice University – Shepherd School of Music |
| Bayou City Arts Festival | Houston Zoo | Rothko Chapel |
| Blaffer Gallery – University of Houston | Houston Youth Symphony | Sam Houston State University School of Music |
| Buffalo Bayou Art Park | JCC Houston | Society for the Performing Arts |
| Buffalo Soldier Museum | John C. Freeman Weather Museum | South West Alternate Media Project |
| Byzantine Fresco Chapel | Jung Center of Houston | St. Thomas – School of Music |
| Chester Pitts Charitable Foundation | Lawndale Art Center | Stages Repertory Theatre |
| Children's Museum of Houston | Main Street Theater | Texan French Alliance for the Arts |
| Community Artist Collective | MECA (Multi Cultural Education and Counseling through the Arts) | Texas Accountants and Lawyers for the Arts |
| Contemporary Arts Museum Houston | MENC: The National Education Music Company | Texas Music Administrators Conference |
| Country Music Association Foundation | Menil Collection | Texas Southern School of Music |
| Cultural Arts Council of Houston Harris County | Mercury Boroque | The Grammy Foundation |
| Da Camera | Miller Outdoor Theatre | The Hobby Center for Performing Arts |
| Ear Candy Charity | Moores School of Music, University of Houston | The Mockingbird Foundation |
| Elle Fitzgerald Charitable Foundation | Mr. Holland's Opus Foundation | The University of Houston, School of Theatre and Dance |
| Ensemble Theatre | Museum of Fine Arts, Houston | Theatre Under the Stars (TUTS) |
| Glassell School of Art | Museum of Health and Medical Science | VH1 Save the Music Foundation |
| Harp Suzuki Association of the Americas | Museum of Printing History | Via Colori, benefiting Center for Hearing and Speech |
| Hobby Center for Performing Arts | Music Doing Good | Young Audiences |
| Holocaust Museum Houston | | |
| Houston Arboretum | | |
| Houston Art Dealers Association | | |
| Houston Arts Alliance | | |
| Houston Arts Partners | | |
| Houston Ballet | | |
| Houston Baptist University Dept. of Music | | |
| | | |

## Appendix B
## Fine Arts Magnet Treatment Group Schools
## n=27

| Fine Arts Magnet Schools (Treatment Group) | Level | Theme Description |
|---|---|---|
| Atherton ES | ES | Fine Arts |
| Bruce ES | ES | Music |
| Burbank ES | ES | Fine Arts |
| Burrus ES | ES | Fine Arts |
| Codwell ES | ES | Fine Arts |
| Cook Jr ES | ES | Fine Arts |
| Crespo ES | ES | Fine Arts |
| Crockett ES | ES | Performing and Visual Arts |
| Garden Villas ES | ES | Music |
| Kashmere Gardens ES | ES | Fine Arts |
| Longfellow ES | ES | Creative/Performing Arts |
| Lovett ES | ES | Fine Arts |
| Macgregor ES | ES | Music & Science |
| Parker ES | ES | Music |
| Poe ES | ES | Fine Arts |
| Scroggins ES | ES | Fine Arts |
| High School for the Performing and Visual Arts | HS | Performing and Visual Arts |
| Kashmere HS | HS | Fine Arts |
| Westbury HS | HS | Performing and Visual Arts |
| Gregory-Lincoln Education Center | K-8 | K-8 Fine Arts |
| Fleming MS | MS | Fine Arts |
| Key MS | MS | Fine Arts |
| Lawson MS | MS | Fine Arts |
| Marshall MS | MS | Fine Arts |
| Meyerland Performing and Visual Arts MS | MS | Performing & Visual Arts |
| Ortiz MS | MS | Fine Arts |
| Pershing MS | MS | Fine Arts |
| **Note**: List provided by the HISD Office of School Choice, May 7, 2018 | | |

## Appendix B (cont'd)
## Non-Fine Arts Magnet Comparison Group Schools, 2017–2018
## (n=82)

| Elementary Schools (N=37) | Theme Description | Middle Schools (N=17) | Theme | High Schools (N=28) | Theme Description |
|---|---|---|---|---|---|
| Arabic Immersion School | Language Immersion | Baylor College of Medicine at Ryan MS | Medical and Health Science | Austin HS | Teaching Professions/Maritime |
| Askew ES | Vanguard | Black MS | Vanguard | Bellaire HS | World Languages |
| Bell ES | Physical Development | Burbank MS | Vanguard | Carnegie Vanguard HS | Vanguard |
| Berry ES | Environmental Science | Clifton MS | STEM | Challenge Early College HS | Early College |
| Blackshear ES | PK-6 Montessori | Fondren MS | IB | Chavez HS | Applied Science and Engineering |
| Carrillo ES | Vanguard | Hamilton MS | Vanguard | DeBakey HS | Health Professions |
| Cornelius ES | Math/Science | Hartman MS | Medical and Health Science | East Early College HS | Early College |
| DeZavala ES | Vanguard | Hogg MS | STEM | Energy Institute HS | Energy Institute |
| Durham ES | IB-PYP | Lanier MS | Vanguard | Furr HS | Petroleum Engineering Technology (FA)/The Green Institute |
| Elrod ES | Emerging Medical Scholars | Welch MS | | Houston Academy for International Studies | Early College |
| Garden Oaks K-8 | Montessori | M. C. Williams MS | STEM | Heights HS | Computer Technology |
| Hartsfield ES | Animal & Environmental Sciences | Pin Oak MS | Languages | High School for Law Enforcement & Criminal Justice | Law Enforcement & Criminal Justice |
| Harvard ES | STEM | Revere MS | STEM | Jones HS | Allied Health & Construction Technology (FA) |
| Helms ES | Dual Language | Rice K-8 | STEM | Lamar HS | Business Administration |
| Herod ES | Vanguard | Rusk K-8 | Health Science | Long Academy 6-8<br>Long Academy 9-12 | Allied Health Professions<br>Pharmacy Technology (FA) |
| Herrera ES | Integrated Technology | Stevenson MS | STEM | Mickey Leland 6-12 | College Preparatory |
| Kolter ES | Foreign Languages & Cultures | TH Rogers | K-8 Vanguard | Milby HS | STEM |
| Lantrip ES | Environmental Science | | | North Early College HS | Early College |
| Lockhart ES | STEM | | | Northside HS | Media Magnet for Culinary Arts and Hotel Management |
| Mandarin Immersion PK-8 | Mandarin Chinese | | | Scarborough HS | Network & Computer Administration (FA) |
| Oak Forest ES | Vanguard | | | Sharpstown International 6-12 | International Studies |
| Patterson ES | Literature | | | South Early College HS | Advanced Technology/Futures |
| Pugh ES | Science & Technology | | | Sterling HS | Aviation Sciences/ Logistics & Global Supply (FA) |
| Red ES | STEM | | | Waltrip HS | Research & Technology |
| River Oaks ES | Vanguard | | | Washington HS | Engineering Professions/Engineering Sciences (FA) |
| Roosevelt ES | Vanguard | | | Westside HS | Health Science (FA)/Integrated Technology |
| Ross ES | STEM | | | Yates HS | Communications/Maritime |
| Shadowbriar | STEAM | | | Young Women's 6-12 | College Preparatory |
| Sinclair ES | STEM | | | | |
| Stevens ES | STEAM | | | | |
| Travis ES | Vanguard | | | | |
| Valley West ES | STEM | | | | |
| Wainwright ES | Math & Science | | | | |
| Wharton K-8 | PK-8 Dual Language | | | | |
| Whidby ES | Health Science | | | | |
| Wilson Montessori PK-8 | Montessori | | | | |
| Windsor Village ES | Vanguard | | | | |

**Notes**: List provided by the HISD Office of School Choice, May 7, 2018
Futures Academy (FA)

## Appendix C


HISD
2018
VISUAL ARTS
SPRING
SHOWCASE
WHEN
May 17 th, 2018
6:00 pm - 7:30 pm
WHERE
Hattie Mae White Education Support Center
4400 West 18th Street
Houston, TX 77092
FEATURING • HISD Campus Visual Art Programs • Pre-K-12th Grade Student Artists Showcased • Award Winning HLS&R Artwork on Display • Distinguished Guests • Light Refreshments
WWW.HOUSTONISD.ORG/FINEARTS
#HISDFINEART
SHOWCASE DETAILS :
EXHIBITION
Works of art will be exhibited on all floors of the Hattie Mae White Educational Support Center.
INVITATIONS
Provided for art teachers, student artists and Administration.
RECEPTION
An evening reception for students and parents. The reception will also honor the young artists and campuses that will have work displayed at Texas Children's Hospital
ART CARS
2018 HISD Art Cars on Display.
MUSICAL PERFORMANCES
A variety of musical performances by various student performing groups.

## Appendix D

**Table 1: Demographic Characteristics of Fine Arts Magnet Treatment and the Non-Fine Arts Magnet Comparison Student Groups, 2017–2018**

| | Fine Arts Magnet Treatment Student Group (N = 17,585) | | Non-Fine Arts Magnet Comparison Student Group (N=47,594) | | Districtwide Students (N=214,175) | |
|---|---|---|---|---|---|---|
| **Race/Ethnicity** | **n** | **%** | **n** | **%** | **n** | **%** |
| Asian | 433 | 2.5 | 2,422 | 5.1 | 8,673 | 4.1 |
| Black | 6,569 | 37.4 | 10,680 | 22.4 | 51,437 | 24.0 |
| Hispanic | 8,754 | 49.8 | 28,536 | 60.0 | 132,449 | 61.8 |
| White | 1,547 | 8.8 | 5,143 | 10.8 | 18,625 | 8.7 |
| Other | 282 | 1.5 | 813 | 1.7 | 2,991 | 1.4 |
| **Gender** | | | | | | |
| Male | 9,184 | 52.2 | 23,268 | 48.9 | 108,642 | 50.7 |
| Female | 8,401 | 47.8 | 24,326 | 51.1 | 105,533 | 49.3 |
| **Eco Disadv.** | 13,840 | 78.7 | 34,792 | 73.1 | 160,474 | 74.9 |
| **At Risk** | 11,459 | 65.2 | 29,969 | 63.0 | 153,403 | 71.6 |
| **Special Ed** | 1,413 | 8.0 | 3,805 | 8.0 | 15,500 | 7.2 |
| **G/T** | 3,522 | 20.0 | 12,496 | 26.3 | 33,676 | 15.7 |
| **LEP** | 3,932 | 22.4 | 9,279 | 19.5 | 67,393 | 31.5 |
| **Source**: Chancery database, May 21, 2018 | | | | | | |

## Appendix E

**Table 2a: STAAR 3–8 English Reading Performance, Fine Arts Students Treatment and Comparison Groups, Percent At or Above Approaches Grade Level Standard, First Test Administration, Spring 2018**

| Reading | | Met Standard = At or Above Approaches Grade Level Standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Certified Visual Arts Teacher** | | | | | | | | |
| **Treatment Group** | n | n Met Standard | % Met Standard | | **Comparison Student Group** | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 4,991 | 3,411 | 68.3 | | **Non-Fine Arts Magnet** | 10,212 | 7,803 | 76.4 |
| **Certified Theatre Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 2,124 | 1,466 | 69.0 | | **Non-Fine Arts Magnet** | 2,605 | 1,965 | 75.4 |
| **Certified Dance Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 2,858 | 1,903 | 66.6 | | **Non-Fine Arts Magnet** | 2,377 | 1,851 | 77.9 |
| **Certified Instrumental Music Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 5,528 | 3,879 | 70.2 | | **Non-Fine Arts Magnet** | 4,190 | 3,228 | 77.0 |
| **Certified Music Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 4,496 | 3,178 | 70.7 | | **Non-Fine Arts Magnet** | 5,976 | 4,605 | 77.1 |

**Sources**: Cognos database for 2017–2018 class rosters to link teachers with students; English STAAR 3–8 database, spring 2018

**Table 2b: STAAR 3–8 English Reading Performance, Fine Arts Students Treatment and Comparison Groups, Percent At or Above Approaches Grade Level Standard, First Test Administration, Spring 2018**

| | Visual Arts | | Theatre | | Dance | | Instrumental Music | | Music | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Grade Level** | N | % | N | % | N | % | N | % | N | % |
| **Fine Arts Magnet Schools Treatment Group** | | | | | | | | | | |
| Third | 469 | 78.7 | 169 | 85.2 | 465 | 73.5 | 655 | 66.9 | 890 | 69.4 |
| Fourth | 574 | 71.4 | 222 | 75.7 | 391 | 74.7 | 724 | 64.6 | 1,056 | 67.3 |
| Fifth | 535 | 80.9 | 207 | 87.0 | 400 | 79.0 | 731 | 75.9 | 1,049 | 75.7 |
| Sixth | 1,274 | 65.5 | 534 | 61.2 | 626 | 47.1 | 1,253 | 64.5 | 551 | 64.8 |
| Seventh | 1,162 | 61.2 | 510 | 61.2 | 611 | 66.0 | 1,158 | 70.7 | 548 | 68.6 |
| Eighth | 977 | 66.9 | 482 | 69.5 | 365 | 69.9 | 1,007 | 78.6 | 402 | 80.1 |
| **Non-Fine Arts Magnet Schools Comparison Group** | | | | | | | | | | |
| Third | 1,205 | 76.0 | 93 | 76.3 | 146 | 86.3 | 173 | 83.2 | 1,345 | 77.2 |
| Fourth | 1,318 | 71.5 | 92 | 78.3 | 176 | 72.7 | 178 | 77.0 | 1,487 | 71.4 |
| Fifth | 1,459 | 78.6 | 82 | 78.0 | 195 | 86.7 | 207 | 82.1 | 1,626 | 78.5 |
| Sixth | 2,589 | 75.4 | 1,011 | 69.3 | 577 | 71.6 | 1,523 | 68.9 | 677 | 79.3 |
| Seventh | 1,875 | 76.5 | 742 | 79.4 | 633 | 79.0 | 1,209 | 79.2 | 498 | 82.1 |
| Eighth | 1,766 | 79.8 | 585 | 80.0 | 650 | 79.2 | 900 | 85.2 | 343 | 82.5 |

## Appendix F

**Table 3a: STAAR 3–8 English Math Performance, Fine Arts Students Treatment and Comparison Groups, Percent At or Above Approaches Grade Level Standard, First Test Administration, Spring 2018**

| Math | | Met Standard = At or Above Approaches Grade Level Standard | | | | | |
|---|---|---|---|---|---|---|---|
| **Certified Visual Arts Teacher** | | | | | | | |
| **Treatment Group** | n | n Met Standard | % Met Standard | **Comparison Group** | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 4748 | 3492 | 73.5 | **Non-Fine Arts Magnet** | 9646 | 7659 | 79.4 |
| **Certified Theatre Teacher** | | | | | | | |
| | n | n Met Standard | % Met Standard | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 2035 | 1535 | 75.4 | **Non-Fine Arts Magnet** | 2410 | 1880 | 78.0 |
| **Certified Dance Teacher** | | | | | | | |
| | n | n Met Standard | % Met Standard | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 2789 | 2007 | 72.0 | **Non-Fine Arts Magnet** | 2172 | 1731 | 79.7 |
| **Certified Instrumental Music Teacher** | | | | | | | |
| | n | n Met Standard | % Met Standard | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 5245 | 4020 | 76.6 | **Non-Fine Arts Magnet** | 3738 | 2997 | 80.2 |
| **Certified Music Teacher** | | | | | | | |
| | n | n Met Standard | % Met Standard | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 4390 | 3406 | 77.6 | **Non-Fine Arts Magnet** | 5836 | 4778 | 81.9 |

**Sources**: Cognos database for 2017–2018 class rosters to link teachers with students; English STAAR 3–8 database, spring 2018

**Table 3b: STAAR 3–8 English Math Performance, Fine Arts Students Treatment and Comparison Groups, Percent At or Above Approaches Grade Level Standard, First Test Administration, Spring 2018**

| | Visual Arts | | Theatre | | Dance | | Instrumental Music | | Music | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Grade Level** | N | % | N | % | N | % | N | % | N | % |
| **Fine Arts Magnet Schools Treatment Group** | | | | | | | | | | |
| Third | 469 | 78.3 | 169 | 81.7 | 466 | 75.3 | 656 | 72.7 | 890 | 73.6 |
| Fourth | 572 | 79.7 | 221 | 80.1 | 391 | 79.3 | 722 | 74.9 | 1056 | 78.9 |
| Fifth | 534 | 82.2 | 206 | 85.4 | 405 | 87.7 | 728 | 83.0 | 1054 | 83.2 |
| Sixth | 1274 | 74.6 | 534 | 72.8 | 624 | 60.1 | 1250 | 75.1 | 550 | 73.5 |
| Seventh | 1141 | 64.2 | 504 | 69.2 | 607 | 66.7 | 1112 | 73.7 | 546 | 73.6 |
| Eighth | 758 | 72.2 | 401 | 76.3 | 296 | 71.3 | 777 | 82.4 | 294 | 79.9 |
| **Non-Fine Arts Magnet Schools Comparison Group** | | | | | | | | | | |
| Third | 1239 | 78.1 | 93 | 77.4 | 172 | 87.2 | 172 | 79.7 | 1365 | 80.1 |
| Fourth | 1314 | 78.9 | 92 | 78.3 | 172 | 80.2 | 181 | 80.7 | 1491 | 79.1 |
| Fifth | 1461 | 83.6 | 82 | 76.8 | 195 | 89.2 | 208 | 92.8 | 1631 | 85.0 |
| Sixth | 2110 | 81.7 | 1011 | 76.4 | 574 | 78.9 | 1516 | 78.4 | 676 | 84.9 |
| Seventh | 1728 | 74.5 | 704 | 79.8 | 573 | 77.1 | 1094 | 78.7 | 450 | 79.1 |
| Eighth | 1321 | 78.3 | 428 | 79.2 | 486 | 77.0 | 567 | 83.1 | 223 | 84.8 |

## Appendix G

| Table 4: STAAR English I EOC Performance, Fine Arts Students Treatment and Comparison Groups, Percent At or Above Approaches Grade Level Standard, First Test Administration, Spring 2018 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **English I** | | **Met Standard = At or Above Approaches Grade Level Standard** | | | | | | |
| **Certified Visual Arts Teacher** | | | | | | | | |
| **Treatment Group** | n | n Met Standard | % Met Standard | | **Comparison Group** | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 391 | 209 | 53.5 | | **Non-Fine Arts Magnet** | 2618 | 1355 | 51.8 |
| **Certified Theatre Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 303 | 200 | 66.0 | | **Non-Fine Arts Magnet** | 1580 | 868 | 54.9 |
| **Certified Dance Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 222 | 127 | 57.2 | | **Non-Fine Arts Magnet** | 1168 | 703 | 60.2 |
| **Certified Instrumental Music Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 332 | 211 | 63.6 | | **Non-Fine Arts Magnet** | 1552 | 882 | 56.8 |
| **Certified Music Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 210 | 181 | 86.2 | | **Non-Fine Arts Magnet** | 726 | 443 | 61.0 |
| **Sources**: Cognos database for 2017–2018 class rosters to link teachers with students; STAAR EOC database, spring 2018 | | | | | | | | |

## Appendix H

| Table 5: STAAR Algebra I EOC Performance, Fine Arts Students Treatment and Comparison Groups, Percent At or Above Approaches Grade Level Standard, First Test Administration, Spring 2018 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Algebra I** | | **Met Standard = At or Above Approaches Grade Level Standard** | | | | | | |
| **Certified Visual Arts Teacher** | | | | | | | | |
| **Treatment Group** | n | n Met Standard | % Met Standard | | **Comparison Group** | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 505 | 386 | 76.4 | | **Non-Fine Arts Magnet** | 2259 | 1707 | 75.6 |
| **Certified Theatre Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 241 | 186 | 77.2 | | **Non-Fine Arts Magnet** | 1,182 | 857 | 72.5 |
| **Certified Dance Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 210 | 174 | 82.9 | | **Non-Fine Arts Magnet** | 1016 | 796 | 78.4 |
| **Certified Instrumental Music Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 466 | 407 | 87.3 | | **Non-Fine Arts Magnet** | 1495 | 1219 | 81.5 |
| **Certified Music Teacher** | | | | | | | | |
| | n | n Met Standard | % Met Standard | | | n | n Met Standard | % Met Standard |
| **Fine Arts Magnet** | 230 | 205 | 89.1 | | **Non-Fine Arts Magnet** | 638 | 509 | 79.8 |
| **Sources**: Cognos database for 2017–2018 class rosters to link teachers with students; STAAR EOC database, spring 2018 | | | | | | | | |

## Appendix I

**Table 6a: English STAAR 3–8 Paired T-test Analyses, Fine Arts Treatment and Comparison Group Students with 2 Years of Data, Successive Progression from Grades Third to Fourth, 2017 and 2018 (First Test Administration)**

| | Grade 3 | Grade 4 | | | | | |
|---|---|---|---|---|---|---|---|
| Student Groups | 2017 Mean Scale Score | 2018 Mean Scale Score | Mean Diff. | Std. Devia. | t | df | Sig. |
| **Reading** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1384.97 | 1478.06 | 93.092 | 121.938 | 10.688 | 196 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1404.14 | 1477.14 | 72.997 | 111.593 | 11.197 | 292 | .000 |
| | | | | | | | |
| **Math** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1425.52 | 1522.57 | 97.045 | 112.86 | 12.13 | 198 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1425.36 | 1536.06 | 110.702 | 102.014 | 18.858 | 301 | .000 |

**Table 6b: English STAAR 3–8 Paired T-test Analyses, Fine Arts Treatment and Comparison Group Students with 2 Years of Data, Successive Progression from Grades Fourth to Fifth, 2017 and 2018 (First Test Administration)**

| | Grade 4 | Grade 5 | | | | | |
|---|---|---|---|---|---|---|---|
| Student Groups | 2017 Mean Scale Score | 2018 Mean Scale Score | Mean Diff. | Std. Devia. | t | df | Sig. |
| **Reading** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1482.88 | 1555.06 | 72.181 | 100.493 | 21.295 | 878 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1500.08 | 1570.70 | 70.625 | 108.073 | 23.298 | 1270 | .000 |
| | | | | | | | |
| **Math** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1550.27 | 1621.48 | 71.215 | 102.665 | 20.554 | 877 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1566.63 | 1627.08 | 60.447 | 107.711 | 20.015 | 1271 | .000 |

**Table 6c: STAAR 3-8 Paired T-test Analyses, Fine Arts Treatment and Comparison Group Students with 2 Years of Data, Successive Progression from Grades Fifth to Sixth, 2017 and 2018 (First Test Administration)**

| | Grade 5 | Grade 6 | | | | | |
|---|---|---|---|---|---|---|---|
| | 2017 Mean Scale Score | 2018 Mean Scale Score | Mean Diff. | Std. Devia. | t | df | Sig. |
| **Reading** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1561.39 | 1572.82 | 11.437 | 88.78 | 5.114 | 1575 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1602.49 | 1614.18 | 11.692 | 97.183 | 6.691 | 3092 | .000 |
| | | | | | | | |
| **Math** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1628.59 | 1635.36 | 6.770 | 96.038 | 2.797 | 1574 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1674.49 | 1671.98 | -2.510 | 103.604 | -1.347 | 3089 | 0.178 |

| Table 6d: English STAAR 3–8 Paired T-test Analyses, Fine Arts Students with 2 Years of Data, Successive Progression from Grades Sixth to Seventh, 2017 and 2018 (First Test Administration) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Grade 6 | Grade 7 | | | | | |
| Student Groups | 2017 Mean Scale Score | 2018 Mean Scale Score | Mean Diff. | Std. Devia. | t | df | Sig. |
| **Reading** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1556.49 | 1638.4 | 81.905 | 86.513 | 37.692 | 1584 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1615.24 | 1697.34 | 82.100 | 94.964 | 45.763 | 2801 | .000 |
| | | | | | | | |
| **Math** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1613.41 | 1657.02 | 43.606 | 80.718 | 21.207 | 1540 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1664.14 | 1697.05 | 32.912 | 83.851 | 19.937 | 2579 | .000 |

| Table 6e: English STAAR 3–8 Paired T-test Analyses, Fine Arts Students with 2 Years of Data, Successive Progression from Grades Seventh to Eighth, 2017 and 2018 (First Test Administration) | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Grade 7 | Grade 8 | | | | | |
| Student Groups | 2017 Mean Scale Score | 2018 Mean Scale Score | Mean Diff. | Std. Devia. | t | df | Sig. |
| **Reading** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1631.32 | 1678.86 | 47.540 | 91.746 | 19.887 | 1472 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1690.75 | 1730.42 | 39.669 | 103.163 | 19.002 | 2441 | .000 |
| | | | | | | | |
| **Math** | | | | | | | |
| Fine Arts Magnet Treatment Group | 1645.46 | 1556.04 | -89.412 | 388.807 | -8.823 | 1471 | .000 |
| Non-Fine Arts Magnet Comparison Group | 1658.51 | 1515.51 | -143.900 | 486.058 | -14.234 | 2437 | .000 |

| Table 7: Difference-in-Differences (DiD) Analyses for Treatment and Comparison Student Groups on STAAR 3–8 Reading and Mathematics Tests, 2017–2018 vs. 2018–2019 | | | |
|---|---|---|---|
| | 2017 to 2018 Mean Difference | 2017 to 2018 Mean Difference | DiD |
| | Treatment Group | Comparison Group | |
| **Reading** | | | |
| **Grades 3 to 4** | 93.1 | 73.0 | 20.1 |
| **Grades 4 to 5** | 72.2 | 70.6 | 1.6 |
| **Grades 5 to 6** | 11.4 | 11.7 | -.3 |
| **Grades 6 to 7** | 81.9 | 82.1 | -.2 |
| **Grades 7 to 8** | 47.5 | 39.7 | 7.8 |
| **Math** | | | |
| **Grades 3 to 4** | 97.1 | 110.7 | -13.6 |
| **Grades 4 to 5** | 71.2 | 60.4 | 10.8 |
| **Grades 5 to 6** | 6.8 | -2.5 | 9.3 |
| **Grades 6 to 7** | 43.6 | 32.9 | 10.7 |
| **Grades 7 to 8** | -89.4 | -143.9 | 54.5 |
| **Note: Numbers are rounded to nearest tenth.** | | | |

## Appendix J

| Table 9a: Fine Arts Magnet Schools Treatment Students' Absences, 2017–2018 and 2018–2019 | | | | | |
|---|---|---|---|---|---|
| | **2017 Pre Mean** | **2017 n** | **2018 Post Mean** | **2018 n** | **Mean Diff.** |
| **Fine Arts Magnet Schools Treatment Group** | | | | | |
| **Excused Absences** | 2.56 | 15,879 | 2.37 | 17,557 | -.19 |
| **Unexcused Absenses** | 4.25 | 15,879 | 4.55 | 17,557 | .30 |
| **Total Absences** | 6.81 | 15,879 | 6.91 | 17,557 | .10 |
| Note: Data extracted from Cognos on September 11, 2018. A total of 1,608 students in the 2017 treatment group had no attendance data. | | | | | |

| Table 9b: Non-Fine Arts Magnet Schools Comparison Students' Absences, 2017–2018 and 2018–2019 | | | | | |
|---|---|---|---|---|---|
| | **2017 Mean** | **2017 n** | **2018 Mean** | **2018 n** | **Mean Diff.** |
| **Non-Fine Arts Magnet Schools Comparison Group** | | | | | |
| **Excused Absences** | 2.57 | 43,129 | 2.40 | 47,532 | -.17 |
| **Unexcused Absenses** | 4.25 | 43,129 | 5.16 | 47,532 | ,91 |
| **Total Absences** | 6.82 | 43,129 | 7.55 | 47,532 | .73 |
| Note: Data extracted from Cognos on September 11, 2018. A total of 4,405 students in the comparison group had no attendance data. | | | | | |

## Appendix K

| Table 10a: Fine Arts Magnet Schools Students' Disciplinary Actions, 2017–2018 and 2018–2019 | | | | | |
|---|---|---|---|---|---|
| n = 17,559 | 2017 Mean | 2017 n | 2018 Mean | 2018 n | Mean Diff. |
| **Fine Arts Magnet Schools Treatment Group** | | | | | |
| **In-school Suspensions** | 2.35 | 1,111 | 1.97 | 1,417 | -.38 |
| **Out-of-school Suspensions** | 1.96 | 880 | 1.79 | 1,195 | -.17 |
| **Expulsions** | - | 0 | - | 0 | - |
| **Alternative Placements** | 1.07 | 114 | 1.04 | 100 | -.03 |

| Table 10b: - Non-Fine Arts Magnet Schools Comparison Students' Disciplinary Actions, 2017–2018 and 2018–2019 | | | | | |
|---|---|---|---|---|---|
| n = 47,534 | 2017 Mean | 2017 n | 2018 Mean | 2018 n | Mean Diff. |
| **Non-Fine Arts Magnet Schools Comparison Group** | | | | | |
| **In-school Suspensions** | 1.91 | 3,039 | 1.69 | 13,292 | -.22 |
| **Out-of-school Suspensions** | 1.74 | 2,210 | 1.65 | 2,977 | -.09 |
| **Expulsions** | - | 0 | - | 0 | - |
| **Alternative Placements** | 1.07 | 232 | 1.02 | 212 | -.05 |

| Table 10c: Disciplinary Actions Difference-in-Differences (DiD) Analyses for Treatment and Comparison Student Groups, 2017–2018 vs. 2018–2019 | | | |
|---|---|---|---|
| | 2017 to 2018 Mean Difference | 2017 to 2018 Mean Difference | DiD |
| | Treatment Group | Comparison Group | |
| **In-school Suspensions** | -.38 | -.22 | .16 |
| **Out-of-school Suspensions** | -.17 | -.09 | .08 |
| **Alternative Placements** | -.03 | -.05 | .02 |