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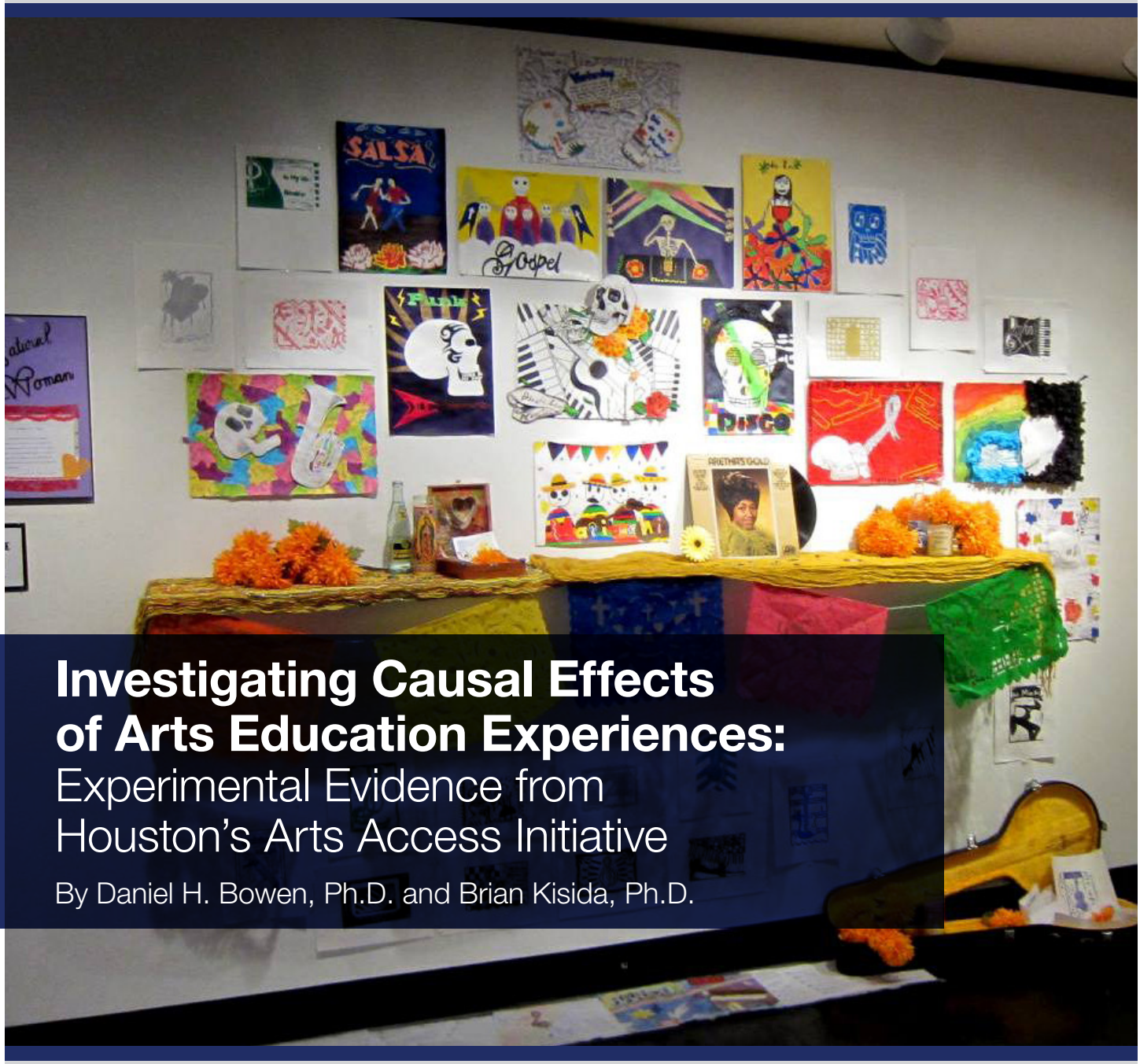

Investigating Causal Effects of Arts Education Experiences:
Experimental Evidence from Houston's Arts Access Initiative

By Daniel H. Bowen, Ph.D. and Brian Kisida, Ph.D.

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Research Brief
for the Houston Independent School District

Volume No. 7, Issue No. 3 | February, 2019

This study was made possible by the generous support
of the Houston Endowment, National Endowment for the Arts,
and the Spencer Foundation.

Research Brief

Investigating Causal Effects of Arts Education Experiences: Experimental Evidence from Houston's Arts Access Initiative

Daniel H. Bowen, Ph.D.[1]
Assistant Professor
Department of Educational Administration
& Human Resource Development
Texas A&M University

Brian Kisida, Ph.D.
Assistant Professor
Truman School of Public Affairs
University of Missouri

Following a steady increase throughout most of the 20th century, arts education opportunities in the United States have been in steady decline since the 1980s (Rabkin & Hedberg, 2011). Since the passing of the No Child Left Behind Act (2001), the emphasis on standardized testing in "core subjects" has coincided with notable declines in school-facilitated arts exposure (Gadsden, 2008). The arts have intrinsic benefits for students, but advocates also contend that the arts play a vital role in public education because they positively affect social and emotional learning, enhance skills and knowledge that transfer to student performance in other academic subject areas, and enhance artistic ability and creativity, which are valuable skills in today's economy (Winner, Goldstein, & Vincent-Lancrin, 2013). However, the arts remain a prime target for cuts when education administrators and policymakers face accountability-driven tradeoffs (Yee, 2014). Moreover, evaluations of education programs and policies increasingly rely on empirical evidence, yet the causal benefits of the arts have rarely been rigorously investigated with experimental methods (Winner et al., 2013). As a result, policymakers and administrators struggle to make the case for the arts in K-12 education, and advocates lack evidence to demonstrate the costs that come with decreases in access.

An increasingly common strategy for addressing K-12 arts educational inequities is the formation, support, and expansion of school-community arts partnerships. Typically, these partnerships consist of school- and district-level administrators, cultural institutions, philanthropists, government officials, researchers, and a "backbone" organization that facilitates these collaborations (Bowen & Kisida, 2017). Houston's Arts Access Initiative (AAI) has epitomized this strategy as a multi-sector, collaborative effort aimed at advancing student access to the arts through "strategy, partnerships, data collection, and advocacy." The AAI vision statement was "that every student in Houston will have the opportunity to benefit cognitively, creatively, emotionally, and academically through the arts," with an emphasis on foundational goals of equity, impact, and sustainability.

After conducting a district-wide campus inventory with schools throughout the Houston Independent School District (HISD), AAI stakeholders developed strategies to primarily serve schools with the lowest levels of arts resources, through forging and enhancing school-community partnerships with local cultural institutions and teaching-artists. School participation in the Initiative was optional, and applicants were required to commit to the mission of the Initiative, engage in strategic arts planning with the AAI director and staff, designate a campus-level arts liaison to coordinate and facilitate AAI-related efforts, participate in teacher and principal arts integration professional development, attend AAI peer-network mentoring sessions, and provide a monetary match, earmarked for arts experiences through teaching-artist residencies, in-school professional artist performances, field trips, and programs that take place before/after regular school hours.

1 Corresponding author; email: dhbowen@tamu.edu


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Demand for AAI participation exceeded supply in the first two years of implementation (2015–16 and 2016–17). Forty-six campuses applied to participate in the first year of the AAI, and 35 additional campuses applied to participate in the second year. After consulting with our research team, the AAI stakeholders agreed to randomly allocate participation among 42 schools in these first two years of implementation and deferring AAI participation for the other applicants. In addition to being an impartial method for selecting AAI schools, this process was conducive to conducting a cluster randomized controlled trial, making it the first ever large-scale randomized control trial of an arts education program implemented in an authentic educational setting. School principals randomly assigned to the AAI treatment worked with the AAI director and staff to select arts programs that aligned with their schools' goals. AAI schools had an average budget of $14.67 per student, which was used to provide an average of 9.86 arts partner-provided educational experiences (39 percent of programs were provided in-kind). Fifty-four percent of AAI student experiences were primarily theatre-based, 12 percent dance, 18 percent music, 16 percent visual arts, and one school selected a creative writing program; 31 percent of these student experiences were provided through on-campus professional artist performances, 27 percent were field trip experiences, 33 percent were teaching-artist residencies, and 9 percent were programs provided outside of regular school hours.

Outcome Measures

The HISD administrative data outcomes of interest for this study include whether a student received a disciplinary infraction, number of absences, and State of Texas Assessments of Academic Readiness (STAAR) standardized achievement gains in reading, math, science, and writing. We also developed survey constructs using preexisting, established instruments to assess other outcomes. These survey outcomes were student-school engagement (i.e., whether students enjoy and find school interesting), college aspiration (i.e., stated intention to go to college), arts-facilitated empathy (i.e., whether students use works of art to try and better understand what life is like for other people), compassion for others (i.e., the desire and concern for the wellbeing of other people), tolerance (i.e., whether students are more likely to accept and appreciate differences in opinions and personal views), desire to participate in cultural consumption (i.e., the stated intention to go to art museums, theater, music concerts, and dance performances as an adult), disposition for arts transfer (i.e., whether students see the value of the arts with enhancing their learning in other subject areas, and vice versa), and perceived value of the arts (i.e., an appreciation for the arts and the work that artists do). The full list of survey items, by outcome, along with item sources and a measure of construct internal consistency is provided in the full report. Original survey data were collected at the end of the second year of AAI implementation (2016–17), and student responses were then linked to their administrative records.

Sample

The analytical sample for this study is restricted to 4th–8th grade HISD students with baseline standardized math and reading test scores that serve as controls throughout our analyses. This sample consists of 10,548 students when examining administrative data outcomes and 8,614 students when analyzing original survey data outcomes. Thirty-six of the 42 schools served students at the elementary level, with students in grades PK-5, and six were middle schools with students in grades 6–8. Eighty-six percent of the students in this sample were eligible for free or reduced-price lunch; 71 percent identified as Hispanic/Latinx, 24 percent as African-American; and 29 percent were receiving "limited English proficiency" (LEP) education services.

Results

Results by outcome, for the overall as well as subgroup samples, are provided in tables 1 and 2. We find three statistically significant, positive results, for the full sample. Increasing students' arts educational experiences reduces the proportion of students receiving disciplinary infractions by 3.6 percentage points; increases writing achievement by 0.13 of a standard deviation; and bolsters students' compassion for others by 0.08 of a standard deviation. Estimates are typically in the positive direction for all other outcomes, but they fail to achieve traditional levels of statistical significance.

We also examine potential sources of variation in AAI impacts by investigating student subgroup effects. We find numerous positive impacts, particularly on survey measures, with elementary, LEP, and gifted and talented (GT) student subgroups. In addition to these subgroups exhibiting more-pronounced effects on writing achievement and compassion for others, these students also demonstrate positive treatment effects on school engagement, college aspirations, arts-facilitated empathy, disposition for arts transfer, and perceived value of the arts. There is also some evidence to suggest negative impacts with middle school students; specifically, these students exhibit negative effects in terms of school engagement and college aspiration.

Limitations

While random assignment to the AAI treatment allows us to confidently infer a causal relationship between the treatment and assessed outcomes, we remain less certain about the extent to which these results would be achieved in other contexts. In order to participate in the AAI, principals had to commit and have the desire to improve their schools' arts educational offerings. Such results may not be achievable with schools that lack leaders who are as dedicated to providing and supporting the arts on their campuses. Another limitation is that, when defining the treatment for this study, we are restricted to the provision of matching funds and other AAI supports that foster, facilitate, and deliver school-community arts partnerships. However, we do not know which particular aspects or types of offerings were more likely to bring about desired effects. Finally, these analyses are (currently) restricted to shorter-term outcomes, and it remains to be seen if these effects will ultimately compound, serve as a one-time boost, or diminish over time. Critical next steps in this field of study will be to examine whether particular formats and varieties of arts educational programs are more successful in generating desired effects, and examining longer-term impacts.

Implications

We find that increases in students' arts learning experiences significantly improve educational outcomes. Fostering and supporting these educational experiences lead to improvements in student discipline, writing achievement, and compassion for others. These results are robust and support hypotheses and prior findings that the arts can play a critical role in positively affecting student educational outcomes. We also find that outcomes are more likely to be statistically significant and positive, as well as larger in magnitude with elementary, LEP, and GT students. The AAI disproportionately served elementary schools in its pilot phase, making program delivery at this school level the primary focus in the initial years. Therefore, the attention given to serving schools at the elementary level may have better ensured that desired effects were achieved. Perhaps further consideration should be given to whether strategies should be substantially altered when providing such experiences with secondary schools. A possible explanation for these strong, positive effects with LEP and GT students is that test-based accountability pressures have yielded circumstances that have narrowed the scope of K-12 educational opportunities. Therefore, the reinjection of the arts in these schools likely expanded and enriched offerings and opportunities, thus improving student engagement, particularly with students who were more likely to have been adversely affected by school responses to these accountability pressures.

The results of this large-scale randomized control trial provide critical evidence that increasing students' arts educational experiences has positive impacts on meaningful outcomes in addition to their intrinsic benefits. The narrowing of educational offerings and objectives to those that more-directly tie to accountability assessments has had adverse effects on the arts in K-12 education. Moreover, despite the logic behind narrowing these educational offerings and objectives, the findings from this evaluation suggest that substantial influxes of arts educational experiences do not appear to be detrimental to student growth in outcomes that are closely tied to accountability assessments (e.g., math and reading test score achievement). Therefore, we find evidence to support the contention that these reductions pose significant costs. Arts learning experiences benefit students in terms of reductions in disciplinary infractions, increases in compassion for others, and improvements in writing achievement. Education policymakers should be mindful and considerate of these multifaceted educational benefits when assessing the opportunity costs that come with decisions pertaining to the provision of the arts in schools.

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Table 1. *Administrative Data Outcomes by Subgroup*

Population	N	Discipline	Absences	Math	Reading	Science	Writing
Overall	4,063–10,548	**-0.036* (0.015)**	0.061 (0.128)	0.014 (0.063)	-0.019 (0.019)	-0.046 (0.065)	**0.127** (0.046)**
Elementary	2,547–5,565	-0.002 (0.007)	0.192 (0.136)	0.013 (0.042)	-0.029 (0.032)	0.009 (0.049)	**0.179** (0.065)**
Middle	1,516–4,983	**-0.073* (0.028)**	-0.087 (0.209)	-0.006 (0.121)	-0.009 (0.021)	-0.144 (0.132)	0.030 (0.023)
Female	2,009–5,140	-0.020 (0.011)	0.238 (0.142)	0.019 (0.070)	-0.021 (0.022)	-0.022 (0.067)	**0.136** (0.047)**
Male	2,054–5,408	**-0.053** (0.020)**	-0.100 (0.177)	0.010 (0.057)	-0.019 (0.021)	-0.062 (0.066)	**0.106* (0.050)**
Af.-Amer.	950–2,503	**-0.049** (0.015)**	-0.275 (0.304)	0.058 (0.045)	-0.062 (0.035)	0.061 (0.059)	0.031 (0.063)
Hisp-Latx.	2,856–7,436	-0.035 (0.018)	0.130 (0.147)	-0.016 (0.073)	-0.012 (0.022)	-0.064 (0.073)	**0.134* (0.057)**
Not FRL	602–1,421	**-0.059** (0.022)**	**0.562* (0.221)**	0.086 (0.082)	0.050 (0.044)	-0.083 (0.135)	0.225 (0.116)
FRL	1,485–3,875	**-0.027* (0.013)**	0.112 (0.117)	-0.026 (0.087)	-0.031 (0.020)	-0.073 (0.074)	**0.124* (0.057)**
Poverty	1,975–5,255	**-0.039* (0.018)**	-0.077 (0.173)	0.020 (0.045)	-0.031 (0.025)	-0.007 (0.050)	**0.094* (0.042)**
LEP	1,110–3,089	-0.023 (0.017)	-0.079 (0.185)	-0.030 (0.056)	-0.025 (0.031)	0.007 (0.062)	**0.266* 0.100**
GT	731–1,927	-0.014 (0.010)	0.127 (0.149)	0.210 (0.166)	0.047 (0.035)	0.005 (0.150)	0.175 (0.094)

Note: ** statistically significant (two-tailed) at $p < 0.01$; * significant at $p < 0.05$; standard errors in parentheses adjusted for school-grade clustering. Substantial variations in sample sizes are due to the fact that the science and writing tests are only administered to two grade levels, per year: 5th and 8th for science and 4th and 7th for writing. Discipline is an indication for whether or not a student received a disciplinary infraction over the course of the school year; therefore, a negative coefficient for this outcome reflects a decrease in the proportion of students receiving at least one disciplinary infraction. Test scores are standardized with a mean of zero and a standard deviation of one.

Table 2. *Survey Data Outcomes by Subgroup*

Population	N	School Engagement	College Aspiration	Arts Empathy	Compassion	Tolerance	Cultural Consumption	Arts Transfer Disposition	Values Art
Overall	6,241–6,325	0.093 (0.051)	0.015 (0.018)	0.039 (0.036)	**0.080* (0.032)**	-0.004 (0.036)	0.029 (0.036)	0.054 (0.038)	0.060 (0.042)
Elementary	3,613–3,660	**0.260** (0.056)**	**0.069** (0.021)**	**0.097* (0.047)**	**0.150** (0.038)**	0.041 (0.040)	0.074 (0.050)	0.079 (0.047)	0.054 (0.055)
Middle	2,628–2,665	**-0.136* (0.047)**	**-0.053* (0.018)**	-0.021 (0.045)	0.010 (0.048)	-0.050 (0.064)	-0.005 (0.040)	0.030 (0.057)	0.091 (0.064)
Female	3,152–3,185	**0.120* (0.058)**	0.020 (0.020)	0.069 (0.044)	0.059 (0.040)	-0.012 (0.043)	0.051 (0.041)	0.048 (0.051)	0.042 (0.049)
Male	3,093–3,140	0.067 (0.053)	0.008 (0.023)	-0.004 (0.042)	**0.094* (0.042)**	-0.003 (0.041)	-0.004 (0.049)	0.054 (0.039)	0.068 (0.046)
Af.-Amer.	1,444–1,472	**0.146* (0.070)**	-0.040 (0.023)	-0.047 (0.059)	0.046 (0.041)	-0.110 (0.068)	0.030 (0.056)	0.069 (0.064)	0.032 (0.066)
Hisp-Latx.	4,333–4,386	0.065 (0.055)	0.042 (0.021)	0.049 (0.038)	**0.089* (0.043)**	0.010 (0.039)	0.027 (0.043)	0.025 (0.035)	0.046 (0.038)
Not FRL	840–848	**0.162* (0.073)**	-0.030 (0.036)	0.078 (0.114)	0.091 (0.063)	-0.012 (0.067)	0.033 (0.079)	0.114 (0.102)	0.207 (0.115)
FRL	2,345–2,381	0.077 (0.060)	0.025 (0.025)	0.064 (0.044)	0.092 (0.048)	-0.007 (0.046)	0.042 (0.044)	0.070 (0.049)	0.091 (0.055)
Poverty	3,058–3,098	0.086 (0.056)	0.022 (0.018)	-0.008 (0.039)	0.062 (0.038)	0.001 (0.044)	0.012 (0.040)	0.009 (0.039)	-0.021 (0.041)
LEP	1,970–1,993	**0.207** (0.072)**	**0.100** (0.024)**	**0.133* (0.058)**	**0.222** (0.056)**	0.041 (0.048)	**0.165* (0.065)**	**0.137* (0.061)**	**0.115* (0.057)**
GT	1,265–1,281	**0.158* (0.073)**	0.042 (0.027)	**0.201** (0.069)**	**0.232** (0.046)**	**0.136** (0.051)**	0.092 (0.056)	**0.176** (0.065)**	**0.232** (0.074)**

Note: ** statistically significant (two-tailed) at $p < 0.01$; * significant at $p < 0.05$; standard errors in parentheses adjusted for school-grade clustering.

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