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Access to arts education in America: the availability of visual art, music, dance, and theater courses in U.S. high schools

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ABSTRACT

The purpose of this study was to understand the contextual, school-level factors associated with the availability of arts education courses in the high schools of the United States. In the study, course offerings for a nationally representative sample of $N = 940$ high schools that were part of the National Center for Education Statistics High School Longitudinal Study of 2009 (HSLS) were analyzed to understand whether there were common school characteristics linked to the availability of visual art, music, dance, or theater courses. Results suggest that the strongest and most consistent school factor related to arts course availability was school size. As enrollment increased, so did the likelihood of offering any arts course or more than one of the arts disciplines. Traditional public schools had the greatest likelihood of offering arts education, followed by Catholic schools, and non-Catholic private schools. Public charter high schools were the least likely to offer courses in the arts. Proportion of students eligible for free- or reduced-price lunch was also associated with the probability of offering arts courses, with decreased arts availability at schools serving greater proportions of students eligible for the National School Lunch Program. Neither urbanicity nor region of the country were significantly associated with arts availability. The analyses reported in the article are both aggregated across all disciplines and disaggregated for each art form.

KEYWORDS

Arts course offerings; access to arts education; school characteristics; High School Longitudinal Study of 2009

Collectively, the arts education offered in the public schools of the United States represents the nation's largest public investment in the esthetic and artistic development of the nation's children. The value and impact of school-based arts education reverberates through the entire nation's artistic economy and community: Data from the National Endowment for the Arts *Survey of Public Participation in the Arts* show that formal, school-based arts education experiences in childhood are strongly associated with later adult arts engagement as creator, performer, patron, or donor/financial supporter (Elpus, 2018). Although much of the political rhetoric in support of arts education seeks to highlight research on the potential far-transfer benefits of arts education beyond arts learning and arts engagement (e.g., Guhn et al., 2020), the more direct association between investments in arts education and future arts involvement may be an additional reason that K-12 arts education *as a concept* enjoys broad popular support in public opinion polls (e.g., Americans for the Arts, 2018).

Arts learning and arts engagement have intrinsic value in the education of children. The *Every Student Succeeds Act*, the most recent iteration of the federal elementary and secondary education legislation, name checks both "music" individually and "the arts" collectively as components of the "well-rounded curriculum" that American schools should be designed to deliver. Education in the arts promotes habits of mind and ways of thinking that enhance the student experience of school and the outcomes of schooling (Eisner, 2002; Gara & Winsler, 2019; Hetland et al., 2013; See & Kokotsaki, 2016). Thus, rather than serve merely at the periphery of a complete education, esthetic and artistic education should be seen as vital to mission of schools.

Despite the perceived and demonstrated value of arts education, there is not yet a consistent policy for the universal availability of arts education in the nation's schools, and a relative lack of published data to understand how access to arts education is distributed. In 2019, Governor Pat Murphy of New Jersey

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announced formally that New Jersey had become "the first state in the nation to document universal access to arts education for all students" (Morrison, 2019). However, even in a state touting its achievement of universal access to arts education, the very research underlying that announcement found that only 6% of schools in New Jersey offered students access to all four of the arts disciplines—that is, visual art, music, dance, and theater—despite access to all of four of these disciplines being explicitly required *by state law* (Morrison, 2019). Of the arts disciplines, visual art and music were far more widely available in New Jersey schools than were dance or theater with the between-discipline access gaps much wider in the elementary and middle schools than they were in the high schools. The 2019 New Jersey data echo a trend that has been documented nationally in earlier reports from the National Center for Education Statistics (NCES). In a report for NCES sharing nationally representative data from the 2009-2010 school year, Parsad and Spiegelman (2012) found that while formal music instruction was available at 91% of public secondary schools and formal visual art was available at 89% of secondary schools, the availability of theater and dance instruction lagged considerably behind that of the other two arts disciplines. Formal theater instruction was offered at 45% of American secondary schools and formal dance instruction was only available at 12% of secondary schools nationwide.

The Parsad and Spiegelman data, while beneficial as national baseline numbers, are aging somewhat. The report, too, suffers a few weaknesses that diminish its overall usefulness to arts education scholars, practitioners, and policymakers. Because of the overview nature of Parsad and Spiegelman (2012) report, the authors offer little speculation or concrete justification for the uneven access to comprehensive arts education they find, other than to note that the offering of various arts disciplines consistently "varied by [a school's] concentration of poverty, measured by the percentage of students eligible for free or reduced-price lunch" (p. 14). Beyond the concentration of poverty among students served by a school, there is little to no rigorous national research exploring the factors that are associated with the comprehensiveness of a school arts education offerings. Additionally, it was beyond the scope of Parsad and Speigelman's work to explore the comprehensiveness of their responding school's arts programs. That is, each discipline was categorized simply as being "offered" or "not offered," with no clear distinction made between schools that offered only one music or art course from those with sequential curricula in all four areas. The intensiveness of the arts study that resulted in an art form being coded as "offered" also had a wide range: in the data underlying the report, it is plain that elementary schools, for example, were considered as "offering" music instruction even if that instruction was provided for just 20 minutes once per week.

From the Parsad and Spiegelman (2012) report, then, it is impossible to understand from the full range of contextual factors which contribute to making a school's offered curriculum truly "arts rich" or "arts poor" (Ruppert & Nelson, 2006; Thomas et al., 2013). For example, there are many documented cases of schools with high concentrations of student poverty offering exceptional arts education programs, such as the Turnaround Arts schools (Stoelinga et al., 2015) and some of the A + arts integration schools in North Carolina and elsewhere (Noblit et al., 2008). Other contextual factors, such as state educational policies (e.g., arts graduation requirements), school size (in terms of enrollment), the number of arts educators per capita, school urbanicity, and the average proportion of a school's graduating students going on to postsecondary education remain unexplored or explored only at the state level in the literature.

Likely due to general interest from the education policy community, the status of the arts in charter schools, as distinct from traditional public schools, has been examined in the research literature. Austin and Russell (2008) established this line of research in music education in a survey of 122 charter schools in 15 U.S. states. They found that while music instruction was present in many charter schools, availability was uneven and the intensity of programs (e.g., curricular vs. extra-curricular, and the frequency and duration of instruction) varied widely. Austin and Russell concluded that charter schools were considerably less likely to offer music programs than were traditional public schools. Hammel and Fischer (2014) examined the accessibility of arts education to students with special needs at the charter schools of New Orleans; they suggest that access to arts education is so uneven in the charter-heavy district that new schools should be required to demonstrate how they will offer arts education as part of the charter application, review, and approval process.

School size—that is, the total number of students enrolled at any one particular school—is another school characteristic often debated in the education policy and reform literature that has had relatively little examination in the arts education literature. Research in the broader education field has shown

that school size is associated with more comprehensive course offerings (Haller et al., 1990), but students attending smaller schools, especially newer smaller schools, may have better overall academic outcomes than students attending larger schools (Leithwood & Jantzi, 2009; Schwartz et al., 2016). In one of few arts education studies to explore school size as a variable, Gillespie and Hamann (1998) found that school size was positively associated with the likelihood that a school would offer a curricular orchestra program. In another, Thomas and colleagues (2013) considered school size in the creation of their school arts-richness index, noting that large schools may have greater breadth of arts offerings but lower student percentage enrollment.

At present, much of the research literature examining the status of arts education in American schools explores the uptake of arts education at the student-level, often with little consideration for the provision of arts education at the school-level. That is, we know more about the demographic characteristics of the *students* who are enrolling in arts subjects (Elpus, 2014; Elpus & Abril, 2019; Gara & Winsler, 2019; Winsler et al., 2019) than we do about the characteristics of the *schools* that offer comprehensive arts instruction. The present study sought to address this gap in the evidentiary base in an effort to provide actionable data to arts education practitioners and policymakers.

Purpose of the Study and Research Questions

The purpose of this study was to develop a national profile of the availability of arts education in American high schools and to understand what school-level contextual factors are associated with the comprehensiveness of high school arts education offerings. The study was designed to address the following research questions:

1. What is the proportion of high schools in the United States that offer curricular coursework in: music, visual art, dance, and theater? What types of courses are most commonly offered within each discipline (e.g., music: band, choir, orchestra, AP Music theory; visual art: 2D studio art, ceramics, sculpture; theater: acting, playwriting; dance: techniques, repertoire, choreography, etc.)?
2. In schools where any arts courses are offered, what is the average number of arts courses and arts disciplines offered?
3. How does the availability of arts education in American high schools vary by school characteristics and contextual factors? Specifically, how do arts offerings vary with: school control and type, school urbanicity, region of the country, school socioeconomic profile (racial/ethnic composition, percent eligible for free/reduced lunch), school size (expressed in terms of student enrollment), and school schedule type (e.g., block vs. traditional)?

Method

Data Source and Preparation for Analysis

Data for the present study were drawn from two components of the High School Longitudinal Study of 2009 (HSLS), an ongoing large, nationally representative survey study of high schools and high school students in the United States conducted by NCES. HSLS is the most recent data collection effort in NCES's series of national surveys on American secondary schools and students. HSLS traces a nationally representative cohort of American students ($N = 21{,}440$) who were freshmen (i.e., ninth graders) in one of 940 public and private high schools participating in the study during the 2009-2010 academic year. The sample for HSLS was complexly drawn in two stages: a series of randomly selected high schools from across the nation served as the primary sampling unit, and then students were randomly selected for participation from within the participating schools.

In addition to surveying students, HSLS surveyed a school administrator (typically the principal), a school counselor, and two teachers who were currently working with the sampled students. For HSLS, school characteristics were collected from school administrators and counselors as well as imputed from the Common Core of Data and the Private School Universe Survey, separate annual federal data collections of school information. Additionally, HSLS collected administrative data about the school's course offerings (i.e., course catalogs) in a later wave at the same time that sample members' high school transcripts were collected. In the present study, I make use of school-level data only—demographic and other characteristics and the courses offered by the school—to generate a profile of the arts courses available in the nation's public and private high schools. For all analyses, I employed the appropriate school-level weight, as well as balanced repeated replication (BRR) variance estimation, to ensure that all reported quantities are nationally representative and robust to the sampling procedures employed by HSLS.

Course offering outcomes

As part of the student high school transcript data collection in the 2013 update wave to HSLS, NCES collected complete high school course catalogs from the participating schools. Course data from all catalogs, including verbatim course titles, credit level, and other pertinent course information, were recorded in an HSLS course offering dataset. NCES then applied version 2.0 "School Courses for the Exchange of Data" (SCED) coding to each course offered. I identified arts courses offered at each school on the basis of the SCED codes applied to the data.

As arts courses are not a main focus element of HSLS, I manually verified the coding on all courses that had been coded as arts courses (N of courses = 30,810) to ensure that the applied code indicated the correct arts discipline and subarea based on the verbatim course title from the course catalog. I corrected errors for a limited number of courses where codes had been clearly misapplied. This was necessary because some arts course titles may appear misleading to those without arts education expertise; this lack of arts expertise among the staff coding course titles leads to understandable, yet still inaccurate, miscoding of the data. For example, a course titled "Jazz Ensemble" would be immediately recognized by an arts education expert to refer to an instrumental ensemble despite the existence of, and codes for, vocal jazz ensembles. In the very few cases ($N < 150$) where the course titles remained ambiguous, I visited the school website to examine course offering and catalog descriptions that were publicly available.

Once course coding was verified, I determined which schools offered which courses and generated a set of binary indicator variables for each arts discipline (visual art, dance, theater, and music) and for the key subareas within those disciplines. I use these binary indicator variables as the source of the descriptive data and as the outcome variables in univariate and multivariate analyses of characteristics associated with the offering of arts courses.

Importantly, I note that the *availability* of a course as indicated by a school's course catalog does not necessarily mean that any particular course *ran*. In other words, just because a school has a course on the books that students can elect, it does not necessarily follow that enough students elect the course in any one particular year for the course to be staffed and actually occur. Indeed, in some instances, school administrators can choose not to staff or run a course even when some minimum threshold of student election has been met. In other cases, course catalog updates may lag the elimination of offered courses from the curriculum. This limitation, inherent in all uses of course catalog data to research the classes offered to students at American high schools, means that the estimates of availability presented here are somewhat of a "best-case" scenario for arts education.

Empirical Approach

Research Question (1)

To answer Research Question (1), I computed the survey-weight-adjusted proportion of schools offering (1) any arts courses, (2) each of the four arts disciplines, and (3) each individual type of arts course—that is, the subareas within the arts disciplines. I computed the proportions separately for all high schools, for public high schools, for Catholic high schools, and for non-Catholic private high schools. I report the proportions as top-line percentages.

Research Question (2)

To answer Research Question (2), I computed survey-weight-adjusted means for the number of courses and number of arts disciplines offered across all high schools in the nation.

Research Question (3)

I answer Research Question (3) in two steps. First, I estimated bivariate associations between school characteristics and the offering of any arts course and the offering of the specific arts disciplines. To compute these estimates for categorical school characteristics (such as the urbanicity of the school), I used the Rao-Scott adjusted χ^2 (Rao & Scott, 1984), a survey-adjusted test of the independence of two categorical variables, analogous to the Pearson χ^2 statistic used to analyze data arising from a simple random sample. A significant result on the Rao-Scott statistic indicates that the characteristic in question is associated with arts course availability. For continuous characteristics, such as the size of the school expressed in terms of student enrollment, I used a bivariate survey-adjusted logistic regression model.

I further analyzed the relative importance of each significant univariate characteristic by estimating multivariate survey-adjusted logistic regression models. In the multivariate models, I used as predictors any characteristic that was found to be associated with arts course offerings in the univariate analyses. The outcome measure for these models is the offering of (1) any arts course, (2) any visual art course, (3) any dance course, (4) any theater course, and (5) any

music course. From the logistic regression models, I computed coefficients, odds ratios, and predicted probabilities to understand the nature of the associations between school characteristics and the likelihood of offering the various arts courses.

Results

Availability of Arts Education in American High Schools

Arts courses are not universally available in American high schools. The analysis showed that 82% of all high schools in the nation offered at least one course in one or more of the four major arts disciplines: visual art, dance, theater, and music.

Among all public high schools, 88% offered at least one arts course in any discipline. While 12% of public high schools offered no arts instruction, 12% offered only one of the four arts disciplines, 28% offered two arts disciplines, 31% offered three arts disciplines, and 17% offered all four major arts disciplines. Not all public high schools in the United States are considered alike; public high schools are categorized into at least five major "types." These types are regular (or traditional) public high schools, public charter high schools, special program or magnet schools, vocational schools, and alternative schools. There was significant variation in the availability of arts education at public high schools by public school type, $F(3, 1090) = 10.4$, $p < .001$. Fully 92% of traditional public high schools offered at least one arts course and 96% of special program or magnet schools offered at least one arts course. Among alternative education schools, 83% offered at least one arts course and 71% of vocational high schools offered at least one arts course. Public charter schools, by far, have the lowest availability of arts courses: only 37% of public charter high schools offered *any* arts instruction at all.

In private high schools, there were fewer opportunities for students to study the arts. Only 63% of all private high schools offered any arts instruction. While 37% of private schools offered no arts courses, 1% offered only one of the four major arts disciplines, 28% offered two arts disciplines, 26% offered three arts disciplines, and 8% offered all four major arts disciplines. Similar to the public schools, there was variation in arts course offerings by the type of private school. By far, Catholic schools make up the largest proportion of nonpublic high schools in the nation. Among Catholic high schools, 83% offered at least one arts course; this is much closer to the public school availability estimate than the overall private school availability estimate. The bulk of the disparity between public schools and private schools is driven by the lower levels of arts availability in non-Catholic private schools. Arts courses were only available in 57% of non-Catholic private high schools.

Availability by Arts Discipline and Course

The four arts disciplines, and the subareas of courses within those disciplines, are not equally available in American high schools. Visual art was the most available arts discipline; at least one course in visual art was offered in 79% of all high schools. Music was the second-most available arts discipline; at least one course in music was offered in 74% of all high schools. Courses in theater were available at 46% of high schools. The availability of dance lagged far behind the other arts disciplines; courses in dance were offered in only 16% of schools.

Among the four arts disciplines, availability varied by school characteristics. Tables 1–4 display the availability of arts courses within discipline across school control and, for private schools, whether the school was a Catholic school or a non-Catholic private school. Course titles in Tables 1–4 are categories of courses from each discipline as grouped by SCED coding. Generally speaking, non-charter public high schools offered the greatest opportunities for arts study, followed by Catholic schools and non-Catholic private schools. Public charter schools consistently offered the fewest opportunities for students to study the arts.

Arts Course Counts at Arts-Offering Schools

Across all schools, public and private, that offered at least one arts discipline, the average number of unique arts courses offered was 22.68 ($SE = 1.87$). In traditional public high schools with arts courses, the average number of unique courses offered was 24.91 ($SE = 2.29$). At charter high schools offering at least one arts course, the average number of unique courses offered was 20.28 ($SE = 9.58$). The relatively wide variation among arts-offering charter schools reflects some bimodality in the distribution: about 58% of the minority subset of charter schools offering any arts courses offered six or fewer distinct arts classes, while the remainder had relatively high counts of the number of distinct arts courses appearing in their catalogs. In private schools (both Catholic and non-Catholic) with arts programs, the average number of arts courses offered was smaller, 13.09 ($SE = 1.70$). Focusing only on the Catholic schools, the average number of arts courses available at schools with arts

Table 1. Percentages of American high schools offering visual arts courses.

Course	All Schools	Public Schools	Private Schools	Catholic Schools	Non-Catholic Private Schools
Any Visual Art	79%	86%	56%	83%	50%
Comprehensive Art	59%	64%	43%	58%	39%
Drawing or Painting	42%	43%	39%	59%	34%
Ceramics	30%	33%	22%	33%	19%
Photography	27%	30%	15%	26%	13%
Sculpture	20%	22%	14%	33%	10%
Art Portfolio	19%	22%	11%	30%	6%
Art History	14%	16%	9%	19%	6%
Art Appreciation	12%	14%	4%	15%	1%
Visual Communication	12%	13%	7%	16%	5%
Cinematography/Videography	12%	13%	10%	16%	8%
AP Art History	11%	12%	8%	11%	7%
AP Drawing	11%	12%	7%	18%	4%
AP 2-dimensional	10%	13%	4%	13%	1%
Crafts	9%	10%	8%	13%	7%
Multimedia	9%	10%	5%	9%	5%
Animation	9%	9%	6%	1%	7%
Printmaking	8%	9%	4%	6%	4%
AP 3-dimensional	8%	8%	6%	6%	<1%
Advertising Design	5%	6%	<1%	<1%	<1%
Jewelry	4%	5%	<1%	<1%	<1%
IB Art	3%	4%	<1%	1%	<1%
Textiles	2%	3%	<1%	<1%	<1%
Calligraphy	1%	1%	<1%	4%	<1%

Note. The difference in proportions between public and private schools offering any visual art is significant, $F(1, 290) = 14.24$, $p < .001$. Among public schools, 63% of charter schools offered at least one visual arts course and 89% of non-charter schools offered at least one visual arts course. The difference is significant, $F(1, 200) = 16.90$, $p < .001$. Cell sizes among charter schools are too small to estimate the specific course types.

Table 2. Percentages of American high schools offering music courses.

Course	All Schools	Public Schools	Private Schools	Catholic Schools	Non-Catholic Private Schools
Any Music Course	74%	78%	62%	80%	57%
Band	65%	73%	40%	65%	34%
Choir	65%	69%	53%	74%	48%
Music Theory (including AP)	29%	31%	21%	32%	18%
General Music	27%	29%	20%	20%	20%
Orchestra	18%	21%	9%	16%	7%
Guitar	11%	14%	4%	10%	3%
Piano	11%	13%	4%	13%	1%
Music Technology	7%	9%	2%	2%	2%
Individual Instrument Lessons	7%	8%	6%	11%	5%
IB Music	3%	4%	<1%	1%	<1%
World Music Ensemble	2%	3%	2%	1%	2%
Composition/Songwriting	2%	3%	<1%	1%	<1%

Note. The difference in proportions between public and private schools offering any music is significant, $F(1, 290) = 4.26$, $p = .02$. Among public schools, 27% of charter schools offered at least one music course and 81% of non-charter schools offered at least one music course. The difference is significant, $F(1, 200) = 17.50$, $p < .001$. Cell sizes among charter schools are too small to estimate the specific course types.

programs was 17.36 ($SE = 1.45$). Non-Catholic private schools with arts programs averaged 11.44 ($SE = 2.31$) unique arts courses.

Visual art

In traditional public schools with visual art programs, the average number of unique visual arts courses offered was 10 ($SE = 0.84$). At public charter schools with visual arts programs, the average number of visual arts courses offered was 9.18 ($SE = 4.46$). In private schools (both Catholic and non-Catholic) with visual arts programs, the average number of courses available was 6.89 ($SE = 0.77$). In the Catholic schools offering visual art, the mean number of unique courses was 8.39 ($SE = 0.46$). At non-Catholic private schools offering visual art, the average number of visual art courses offered was 6.21 ($SE = 1.09$).

Music

In traditional public high schools with music programs, the average number of unique music courses offered was 12.61 ($SE = 1.32$), while at charter high schools with music programs, the average number of music courses offered was 9.53 ($SE = 4.20$). In private schools with curricular music, the average number of music courses offered was 4.76 ($SE = 0.66$). Among Catholic schools with music programs, the average number of music courses offered was 6.28 ($SE = 0.77$). In non-Catholic private schools offering any music, the average number of music courses offered was 4.21 ($SE = 0.87$).

Table 3. Percentages of American high schools offering theater courses.

Course	All Schools	Public Schools	Private Schools	Catholic Schools	Non-Catholic Private Schools
Any theater	46%	48%	39%	45%	37%
Theater Arts	28%	28%	27%	26%	27%
Comprehensive Theater	19%	21%	14%	15%	14%
Acting	16%	17%	11%	19%	8%
Stagecraft	15%	17%	9%	19%	6%
Musical Theater	6%	7%	4%	11%	2%
Theater Production	5%	6%	3%	3%	3%
Directing	3%	3%	3%	4%	2%
Playwriting	2%	2%	2%	3%	2%
Theater History	2%	2%	2%	1%	2%
IB Theater	2%	3%	<1%	<1%	<1%

Note. The difference in proportions between public and private schools offering any theater was not significant, $F(2, 330) = 1.26$, $p = .28$. Among public schools, 30% of charter schools offered at least one theater course and 49% of non-charter schools offered at least one theater course. The difference was not significant, $F(1, 200) = 1.56$, $p = .21$. Cell sizes among charter schools are too small to estimate the specific course types.

Table 4. Percentages of American high schools offering dance courses.

Course	All Schools	Public Schools	Private Schools	Catholic Schools	Non-Catholic Private Schools
Any dance	16%	18%	9%	21%	6%
General Dance	12%	14%	5%	16%	2%
Dance Technique (e.g., ballet, jazz, modern, etc.)	5%	6%	5%	8%	4%
Choreography	4%	4%	<1%	4%	<1%
Dance Repertoire	3%	3%	2%	8%	<1%
World Dance	2%	2%	<1%	<1%	<1%
Dance Improvization	1%	2%	<1%	<1%	<1%
Dance History/Appreciation	<1%	<1%	<1%	<1%	<1%
IB Dance	<1%	<1%	<1%	<1%	<1%

Note. The difference in proportions between public and private schools offering any dance is significant, $F(2, 350) = 6.07$, $p = .004$. Among public schools, 11% of charter schools offered at least one dance course and 18% of non-charter schools offered at least one dance course. The difference was not significant, $F(1, 200) = 0.69$, $p = .41$. Cell sizes among charter schools are too small to estimate the specific course types.

Dance

In traditional public schools with dance programs, the average number of unique dance courses offered was 5.83 ($SE = 1.01$). At charter schools with dance programs, the average number of unique dance courses offered was 3.26 ($SE = 1.49$). In private schools with dance programs, the average number of dance courses offered was 3.06 ($SE = 0.68$). At Catholic schools with dance programs, the average number of unique courses in dance offered was 3.94 ($SE = 0.60$). Among non-Catholic private schools offering dance courses, the average number offered was 2.16 ($SE = 1.38$).

Theater

In public schools with theater programs, the average number of unique theater courses offered was 5.27 ($SE = 0.56$). In charter schools with theater programs, the average number of theater courses offered was 3.79 ($SE = 1.77$). In private schools with theater programs, the average number of theater courses offered was 2.87 ($SE = 0.65$). In Catholic schools with theater programs, the average number of unique theater courses available was 3.66 ($SE = 0.40$). Among non-Catholic private schools with theater programs, the average number of theater courses offered was 2.62 ($SE = 0.86$).

School Control, School Type, and Arts Availability

School Control

In the descriptive results above, it is readily apparent that the public high schools tend to have greater availability of the various arts disciplines and courses than do private high schools as a whole. It is also clear that in most cases, the Catholic high schools have greater availability of arts education than do private high schools which are not affiliated with the Catholic Church. Here, the variation by school control is subjected to statistical scrutiny using the Rao-Scott adjusted χ^2 (Rao & Scott, 1984) to determine whether the differences in availability by school control are statistically significant.

Availability of any arts education. Table 5 summarizes the availability of any arts course and any course within the four major arts disciplines by school control. The differences in availability are statistically significant, $F(2, 310) = 13.08$, $p < .001$. Adjusted residuals indicate that lower availability in non-Catholic private schools is the largest significant contributor to the overall association between school control and arts availability.

Availability of visual art education. As seen in Table 5, the availability of visual arts courses appears to vary

Table 5. Percentages of High schools offering courses in the arts disciplines by school control.

Course	Public Schools	Catholic Schools	Non-Catholic Private Schools
Any Arts Course**	88%	83%	57%
Any Visual Arts Course**	86%	83%	49%
Any Music Course*	78%	80%	57%
Any Theater Course	48%	45%	37%
Any Dance Course	18%	21%	6%

Note. **indicates availability is significantly associated with school control, $p < .001$.
*indicates availability is significantly associated with school control, $p = .02$.

by school control, with more public and Catholic high schools offering visual arts courses than non-Catholic private schools. The difference is statistically significant, $F(2, 290) = 14.24$, $p < .001$.

Availability of music education. Similar to visual arts education, Table 5 shows differences in availability of music education by school control, with fewer non-Catholic private high schools offering music courses than either public or Catholic high schools. The association between school control and music offering is statistically significant, $F(2, 290) = 4.27$, $p = .02$.

Availability of theater education. Theater courses are available at considerably fewer high schools than are courses in visual art or music. Accordingly, the differences among percentages of public, Catholic, and non-Catholic private schools that offer theater courses are smaller, and the association between school control and theater availability was *not* statistically significant, $F(2, 330) = 1.2$, $p = .28$.

Availability of dance education. Although dance was by far the least available of the four major arts disciplines, there is a somewhat different pattern of dance availability by school control than for the other disciplines. Dance courses were most available in Catholic high schools, with 21% of Catholic high schools offering at least one credit-bearing dance course, as compared to 18% of public high schools and just 6% of non-Catholic private high schools. The association between school control and dance availability was statistically significant, $F(2, 350) = 6.07$, $p = .004$.

Public School Type

In the descriptive results above, there appears to be some evidence that arts availability in the public high schools may be associated with the specific type of high school. Arts availability *seems* to be more prevalent in non-charter high schools than in charter high schools; here the potential disparities are analyzed with Rao-Scott adjusted χ^2 (Rao & Scott, 1984) to determine whether the differences in availability by public school type are statistically significant. The analysis is further refined from the descriptive results above by categorizing public high schools in the HSLS sample into one of five possible "types:" (1) a regular, non-charter and non-magnet high school; (2) a charter high school; (3) a non-charter special program or "magnet" school; (4) a vocational or technical school; or (5) an alternative education school.

Availability of any arts education. Table 6 summarizes the availability of arts education courses, overall and by arts discipline, in public schools by type. The differences in availability across public school types for any arts education are statistically significant, $F(3, 1090) = 10.41$, $p < .001$.

Availability of visual art education. As seen in Table 6, visual arts education is considerably less available in public charter high schools than in public high schools of any other type. The differences in visual art availability by public school type are statistically significant, $F(3, 1090) = 7.92$, $p < .001$.

Availability of music education. Table 6 shows that among public schools, far fewer public charter high schools offer music than do regular high schools, magnet high schools, vocational/technical high schools, or alternative education high schools. Under 30% of public charter high schools offer even one credit-bearing course in music. The association between public school type and music offering is statistically significant, $F(3, 1030) = 6.32$, $p < .001$.

Availability of theater education. Theater courses, being available at fewer public high schools overall than visual art or music courses, present a somewhat different availability pattern than the other arts disciplines. While theater was least available in public charter high schools (with only 30% of public charter schools offering any credit-bearing courses in theater), it was most readily available in vocational/technical high schools (63%). This is possibly due to greater technical theater coursework at vocational schools (courses such as lighting design, stagecraft, scenic design, and costume design) which are considered

Table 6. Percentages of Public Schools Offering Courses in the Arts Disciplines By School Type.

Course	Regular High School	Charter High School	Special Program or Magnet School	Vocational or Technical School	Alternative Education School
Any Arts Course*	92%	37%	96%	71%	83%
Any Visual Arts Course*	89%	37%	96%	60%	82%
Any Music Course*	81%	27%	96%	63%	51%
Any Theater Course	51%	30%	49%	63%	<1 %
Any Dance Course	18%	11%	31%	<1%	28%

Note. *indicates availability is significantly associated with public school type, $p < .001$.

theater courses as coded in SCED and the need for attendant theater productions and courses to be supported by student theatrical technicians. Regular high schools had fewer opportunities to pursue theater curricularly, with only 51% of regular public high schools offering credit bearing courses in theater. Fewer than 1% of alternative high schools appear to have had curricular theater courses, though this may be a sampling artifact due to the relatively low number of alternative high schools participating in HSLS. Overall, there was no statistically significant association between public school type and theater availability, $F(3, 1050) = 1.49$, $p = .22$.

Availability of dance education. Of the four arts disciplines, dance has the least availability in public schools, with 18% of regular public high schools, 11% of charter high schools, 31% of magnet high schools, less than 1% of vocational/technical high schools, and 28% of alternative high schools offering any credit bearing coursework in the discipline. Note, however, that the low percentage of vocational/technical high schools reported here may be an artifact of the HSLS data due to relatively low numbers of participating vocational schools in the dataset. The association between public school type and dance availability was not statistically significant, $F(3, 1060) = 0.56$, $p = .64$.

School characteristics associated with arts course offerings in public schools

Bivariate analyses

Urbanicity

Urbanicity refers to the status of the school's location in terms of its population and its proximity to a major city. Using a framework relying on definitions used by the U.S. Census Bureau for the 2010 decennial census, NCES categorizes a school's urbanicity in one of four ways: (1) city, (2) suburb, (3) town, or (4) rural. Generally speaking, cities are large, urban centers with relatively high populations and population densities in what NCES refers to as a "principal city." Suburbs are quite near, but outside the boundaries of, a "principal city," but remain inside an "urbanized area." The Census considers "urbanized areas" to be places with populations of 50,000 or more. Towns are located inside an "urban cluster," outside the boundaries of a "principal city" and outside the boundaries of an urbanized area but are generally located within 35 miles of an urbanized area. "Urban clusters" are places with a population greater than 2,500 but less than 50,000. Rural areas are defined by the Census Bureau as all areas not within an urbanized area or an urban cluster. Distance to the urbanized area is not a deciding factor in the designation of rurality: rural areas can be on the fringe of a urbanized area (within 5 miles), distant from an urbanized area (between 5 and 25 miles away), or remote to an urbanized area (greater than 25 miles away). "Suburbs" and "towns" are primarily differentiated by their location *within* (suburbs) or *outside* (towns) the urbanized area itself.

Urbanicity and availability of any arts education

Table 7 summarizes the availability of arts education by urbanicity. Public high schools located in cities had the lowest availability of arts coursework—78% of city schools offered at least one course in one of the four arts disciplines. This was less than the availability in suburban public high schools (90%), public high schools located in towns (90%), and in rural public high schools (91%). However, the differences in availability by urbanicity were not statistically significant, $F(3, 571) = 1.04$, $p = .37$.

Urbanicity and visual art education

As seen in Table 7, there was slight variation in the availability of visual art courses by urbanicity, with 90% of schools located in towns and suburbs offering at least one visual art course, compared to 86% of rural schools and 77% of city schools. The differences in availability of visual art education by urbanicity were not statistically significant, $F(3, 570) = 0.69$, $p = .55$.

Urbanicity and music

Descriptive results in Table 7 show that greater proportions of schools in towns and suburbs offered

Table 7. Percentages of Public Schools Offering Courses in the Arts Disciplines By Urbanicity.

Course	City	Suburb	Town	Rural
Any Arts Course	78%	90%	90%	91%
Any Visual Art Course	77%	90%	90%	86%
Any Music Course	72%	87%	86%	74%
Any Theater Course	57%	65%	54%	36%
Any Dance Course	33%	33%	10%	9%

Table 8. Percentages of Public Schools Offering Courses in the Arts Disciplines By Region of the Country.

Course	Northeast	Midwest	South	West
Any Arts Course	86%	89%	84%	97%
Any Visual Art Course	85%	83%	82%	97%
Any Music Course	82%	85%	81%	59%
Any Theater Course	41%	33%	61%	57%
Any Dance Course	7%	10%	28%	25%

music courses than did the proportions of rural or city schools. The differences in availability were not statistically significant, $F(3, 540) = 0.90$, $p = .43$.

Urbanicity and theater

Urbanicity and theater offerings were significantly related, $F(3, 590) = 3.69$, $p = .01$. Although theater was less commonly available overall than music or visual art, theater was considerably more prevalent in schools located in suburbs (65%), cities (57%), and towns (54%) than at schools located in rural areas, where only 36% of schools offer curricular theater courses for credit.

Urbanicity and dance

The availability of dance courses was significantly related to school locale, $F(3, 530) = 8.90$, $p < .001$. Dance was available for credit at 33% of public high schools in the suburbs, 33% of public high schools in cities, but only 10% of schools located in towns and 9% of schools located in rural areas.

Region of the Country

Schools in HSLS are geographically categorized using the Census-designated regions of *Northeast* (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont), *Midwest* (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin), *South* (Alabama, Delaware, District of Columbia, Florida, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia), and *West* (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming).

Arts education availability by region

Table 8 summarizes the availability of any arts education and the various arts disciplines by region of the country. Public high schools in the western United States had the greatest availability of arts education; fully 97% of schools in the West offered at least one arts course. The differences by region in arts availability were not statistically significant, $F(3, 560) = 0.81$, $p = .48$.

Visual arts education availability by region

The western United States had the greatest availability of visual arts education in the public high schools—97% of public high schools in the West offer at least one credit bearing course in the visual arts. In the Northeast, 85% of schools offered at least some visual art, followed by 83% of schools in the Midwest and 82% of schools in the South. The differences by region were not statistically significant, $F(3, 560) = 1.00$, $p = .39$.

Music availability by region

The pattern of availability for music courses by region of the country was sharply different than the pattern for visual art instruction. Whereas visual art education was available in 97% of high schools in the West, music courses were only available at 59% of public high schools in the West. The greatest proportion of music availability was in the Midwest, where 85% of schools offered at least one credit bearing course in music, followed by the Northeast (82%) and the South (81%). The differences by region were not statistically significant, $F(2, 470) = 1.28$, $p = .28$.

Theater availability by region

The pattern of availability for theater courses differed from that of music and visual art courses. More public high schools located in the South (61%) offered theater courses for credit than did schools in the West (56%), Northeast (41%), or Midwest (33%). However, similar to the other disciplines, the disparities by region were not statistically significant, $F(2, 360) = 1.83$, $p = .17$.

Dance availability by region

Region of the country was significantly associated with the availability of curricular dance courses, $F(3, 500) = 4.02$, $p = .01$. Dance was available at 28% of public high schools in the South, 25% of public high schools in the West, 10% of public high schools in the Midwest, and just 7% of public high schools located in the Northeast.

Proportion of Students Receiving Free or Reduced-Price Lunch

The proportion of students in a public school receiving free or reduced-price lunch (FRL) through the National School Lunch Program is a frequently used proxy for the socioeconomic status of the community served by a public school (Harwell & LeBeau, 2010). Although the proportion of students receiving FRL is not a perfect proxy for the community's socioeconomic status, it is a useful benchmark that can be used to approximate the amount of poverty *concentrated* within the neighborhoods served by any one school. Concentrated poverty is a key concept in educational research because it has been shown to be associated with poor educational outcomes (Iceland & Hernandez, 2017).

Availability of any arts education and FRL

As the percentage of students eligible for FRL increases, the likelihood that a public school will offer any arts education courses decreases, slightly for each marginal one-unit change in percentage, but significantly (coefficient = −0.03, OR = .97, p = .02). Marginal predicted probabilities based on this bivariate logistic regression model show that a public high school with 0% of students eligible for FRL has a 97% chance of offering at least one credit-bearing arts course, whereas a school with 50% of students eligible for FRL has only an 89% chance of offering any arts courses. Public schools with 100% of students eligible for FRL have only a 68% chance of offering any arts courses.

Visual art education and FRL

As the percentage of students eligible for FRL increases, the likelihood that a public high school offers visual art decreases slightly, but statistically significantly (coefficient = −.02, OR = 0.98, p = .03). Marginal predicted probabilities based on this bivariate logistic regression model show that a public school with 0% of students eligible for FRL has a 95% chance of offering a visual arts course, while a school with 50% of students eligible for FRL has only an 86% chance of offering a visual arts course, and a school with 100% of students eligible for FRL has only a 66% chance of offering any visual arts.

Music education availability and FRL

The availability of music courses was significantly linked to the percentage of students in a school eligible for FRL (coefficient = −.02, OR = .98, p = .01). Schools with no students eligible for FRL had a .90 probability of offering music for credit, whereas schools with 50% of students eligible for FRL had only a .78 probability. Schools where 100% of students were eligible for FRL had only a .58 probability of offering credit bearing courses in music.

Theater education and FRL

Unlike the disciplines of music and visual art, the availability of theater courses at public high schools did not vary significantly by proportion of students eligible for FRL (coefficient = −.009, OR = .99, p = .09). Although theater courses were available at fewer schools serving greater proportions of students eligible for FRL, the overall smaller number of schools offering theater does not allow the disparity to be measured with enough precision to be statistically significant.

Dance education and FRL

The availability of dance courses was not significantly associated with the proportion of students in the school eligible for FRL, $F(9, 2880) = 1.18$, p = .31.

Student Ethnic/Racial Composition

Ethnic/Racial composition and availability of any arts courses

The proportion of students within a public high school who identify as White or another race/ethnicity was not significantly associated with the offering of any arts education courses, $F(4, 1180) = 1.52$, p = .20.

Ethnic/Racial composition and availability of visual art courses

The proportion of students within a public high school who identify as White or another race/ethnicity was not significantly associated with the offering of visual arts education courses, $F(4, 1150) = 1.31$, p = .26.

Ethnic/Racial composition and availability of music courses

The racial composition of schools was significantly associated with the offering of music courses, $F(5, 1780) = 3.93$, p = .001. Generally, as the proportion of white students in a school increases, the likelihood of the school offering music courses increases; however, there is an interesting turn in the proportion of schools offering music: as the proportion of white students in a school exceeds 70%, the likelihood of offering music courses begins to decrease. Other variables may account for this pattern; for example, schools genuinely enrolling 100% white students may be located in poorer areas than schools that are

predominantly white but still have some measurable amount racial and ethnic diversity. Alternatively, this result may be due to a cohort effect or sampling artifact of the schools in HSLS. Further research on this question is needed.

Ethnic/Racial composition and availability of theater courses

The proportion of students within a public high school who identify as White or another race/ethnicity was not significantly related to the availability of theater courses, $F(5, 1820) = 1.97$, $p = .07$.

Ethnic/Racial composition and availability of dance courses

The proportion of students within a public high school identifying as White or another race/ethnicity was not significantly associated with the offering of dance courses, $F(3, 960) = 2.34$, $p = .07$.

School Schedule

Arts educators have often worried that changes from a "traditional schedule" (e.g., an 8- or 9-period school day) to a "block schedule" (e.g., a schedule featuring fewer courses per day taught in longer time periods) might lead to reduced uptake and availability of arts education courses within schools. Administrators at HSLS schools were asked to indicate if their schools followed a "traditional" schedule, a "block" schedule, or a combination featuring elements of both block and traditional scheduling.

Availability of any arts education and scheduling paradigm

The availability of any arts courses in any discipline was not significantly associated with a public high school's indicated scheduling paradigm, $F(2, 640) = 2.62$, $p = .07$. Despite the lack of statistical association between scheduling and arts availability, arts programs were somewhat rarer at schools that had moved to some form of block or combined scheduling. While arts courses were available at 94% of public high schools with traditional schedules, arts courses were only available at 81% of schools with block schedules and 81% of schools with combined schedules.

Availability of visual arts education and scheduling paradigm

Similar to the offering of any arts education courses, the availability of visual arts education coursework in a school was not significantly associated with the school's scheduling paradigm, $F(2, 680) = 0.83$, $p = .43$. Despite the lack of statistical significance, a greater proportion of schools on traditional schedules offered visual arts courses than did the proportions of schools with block or combined scheduling. Of schools with traditional schedules, 90% offered at least one credit-bearing visual arts course, while 80% of block scheduling schools and 80% of combined block/traditionally scheduled schools offered visual art courses.

Availability of music education and scheduling paradigm

A slightly greater proportion of schools on traditional schedules offered music (80%) than did schools on block (76%) or combined schedules (72%). However, the differences were small enough that the availability of music courses and school scheduling paradigm were not significantly associated, $F(2, 620) = 0.24$, $p = .76$.

Availability of theater education and scheduling paradigm

Scheduling paradigm and theater offerings were not significantly related, $F(2, 680) = .42$, $p = .65$.

Availability of dance education and scheduling paradigm

Scheduling parading and dance offerings were not significantly related, $F(2, 690) = 1.76$, $p = .17$.

School Size

School size and any arts offerings

Using bivariate logistic regression, schools of 200 students were estimated to have about a .86 probability of offering at least one arts course of any type, while schools of 1,000 had a .90 probability of offering at least one arts course and schools of 4,000 had a .97 probability of offering at least one arts course in any discipline. Although the trend clearly showed greater probabilities of arts offerings at larger high schools, the effect of school size on the overall probability was not statistically significant (coefficient = 0.0004, OR = 1.0004, $p = .18$).

School size and visual arts offerings

Schools of 200 students were estimated to have about a .82 probability of offering at least one visual art course, while schools of 1,000 students had a .88 probability and schools of 4,000 had a .98 probability of offering at least one visual art course. Though there is an evident trend toward greater probability

of offering visual art courses in larger schools, the bivariate logistic regression model was not statistically significant (coefficient = 0.0006, OR = 1.0006, $p = .08$).

School size and music offerings

School size and music offerings were significantly associated with each other; larger schools had a greater probability of offering music courses than did smaller schools (coefficient = 0.0014, OR = 1.0014, $p = .003$). Schools with 200 students had a .67 probability of offering at least one credit-bearing music courses, while schools of 1,000 had a .87 probability. Schools of 2,800 or more had a .99 probability of offering credit-bearing music courses.

School size and theater offerings

School size was significantly related to the probability that a school would offer credit-bearing curricular theater (coefficient = 0.002, OR = 1.002, $p < .001$). Schools of 200 had only a .25 probability of offering theater for credit, while schools of 1,000 had a .64 probability. Schools of 3,000 or more had a .99 probability of offering theater courses for credit.

School size and dance offerings

Similar to all of the other analyses of school size, dance availability was significantly associated with school size (coefficient = 0.002, OR = 1.002, $p < .001$). A public high school of 200 students had only a 7% probability of offering curricular dance for credit, while schools of 1,000 had a 19% probability. Schools of 2,000 had a 52% chance of offering dance and schools of 3,400 or more had a 90% or greater probability of offering dance courses.

Multivariate Analyses

Through all of the bivariate analyses, only a few key school characteristics were consistently associated with a school's offering of any arts education or any one of the four major arts disciplines. These were (1) the school's status as a regular public school high school, a public charter high school, or a private school; (2) the proportion of students within the school eligible for free- or reduced-price lunch; and (3) the size of the school as expressed by total student enrollment. To better understand the relationships among these variables and the offering of arts courses, multivariate logistic regression models for the following theoretical model were estimated:

$$\ln\left[\frac{P(Offer_j)}{1-P(Offer_j)}\right] = \alpha + \beta_1 PercentFRL_j + \beta_2 PublicSchool_j + \beta_3 PercentFRL_j \times PublicSchool_j + \beta_4 Charter_j + \beta_5 TotalEnrollment_j + \varepsilon$$

where $P(Offer_j)$ is the probability that school j would offer arts courses (or a course in one of the arts disciplines), $PublicSchool_j$ is a binary indicator variable set to 1 if the school is public high school and 0 if the school is a private high school, $PercentFRL_j$ is the percentage of students in the school eligible for free- or reduced-price lunch, $Charter_j$ is a binary indicator variable set to 1 if the school operates as a charter school, and $TotalEnrollment_j$ is the total reported enrollment of the school in the 2009-2010 school year. The interaction term between $PercentFRL_j$ and $PublicSchool_j$ allows the effect of free and reduced-price lunch to vary between the public and private schools, as exploratory analyses suggested it did. I estimated this model using logistic regression.

School characteristics and the offering of any arts

Table 9 presents the results of the logistic regression models for the offering of any arts course and any arts course within each of the four major disciplines. As seen in Model (1) of Table 9, which is the model for the relationship among school characteristics and the offering of any curricular arts instruction, public schools were 17 times more likely to offer arts courses than were nonpublic schools. However, charter schools were considerably less likely than non-charter schools to offer any arts courses; charter schools were 93% less likely to offer any arts instruction than were non charter schools. There was a significantly different relationship between students eligible for free- or reduced-price lunch in private and public schools. As the percentage of FRL students in a public school increased, the likelihood that school would offer any arts instruction deceased; however, in the private schools the trend was reversed and additional lower-SES students in a school increased the potential that arts would be offered. This trend is possibly an artifact of the Catholic/non-Catholic school divide noted earlier: Catholic high schools are more likely to offer the arts *and* more likely to serve students of lower socioeconomic statuses than are the non-Catholic private schools.

Logistic regression models interpreted as odds ratios are sometimes unintuitive to understand due to the multiplicative (rather than additive) nature of odds ratios. As such, to better understand the models we

Table 9. Logistic Regression Models for Offering of Arts Courses by Discipline.

	(1) Any Arts	(2) Visual art	(3) Music	(4) Theater	(5) Dance
Percent of students eligible for FRL	1.03	1.04	1.03	0.99	0.99
	[0.03]	[0.03]	[0.03]	[0.02]	[0.02]
	(.293)	(.215)	(.285)	(.698)	(.667)
Public School	17.18***	13.11***	3.87*	0.89	0.91
	[13.45]	[10.41]	[2.41]	[0.36]	[0.53]
	(< .001)	(.001)	(.030)	(.775)	(.868)
Public School × Percent FRL	0.95*	0.95*	0.96	1.00	1.01
	[0.03]	[0.03]	[0.02]	[0.02]	[0.02]
	(.088)	(.082)	(.106)	(.995)	(.683)
Charter School	0.07**	0.09**	0.11**	0.74	1.15
	[0.06]	[0.08]	[0.09]	[0.56]	[0.82]
	(.001)	(.003)	(.006)	(.692)	(.846)
Total School Enrollment	1.0005	1.0008	1.002**	1.002***	1.002***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
	(.144)	(.054)	(.009)	(< .001)	(< .001)
Constant	1.30	0.86	0.94	0.33***	0.05***
	[0.62]	[0.43]	[0.45]	[0.08]	[0.02]
	(.580)	(.765)	(.900)	(< .001)	(< .001)

Note. Coefficients expressed as odds ratios. Standard errors in brackets, *p*-values in parentheses.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

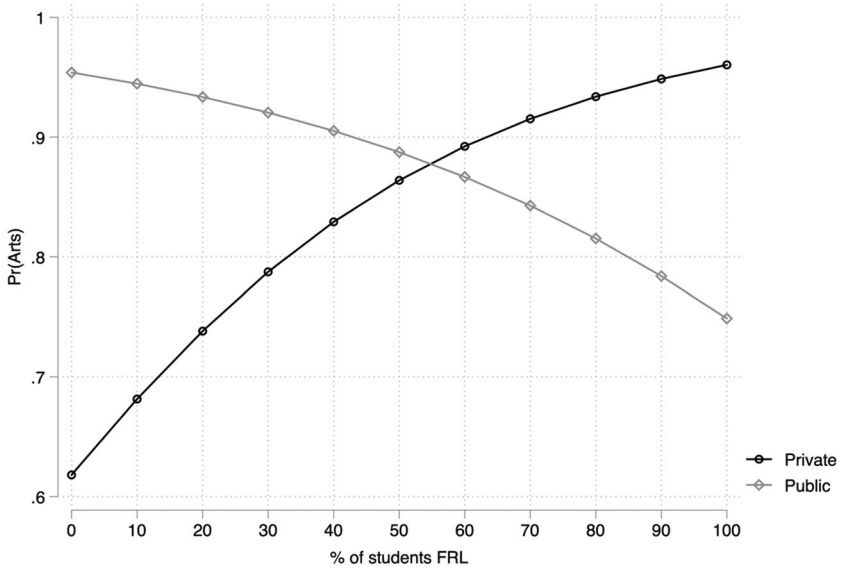

Figure 1. Probability that a high school would offer any arts instruction, by school control and percentage of students eligible for free or reduced-price lunch.

present, we have calculated from our models the predicted probabilities that a school would offer the arts as a function of the various characteristics. The overall probability that any school (public or private) would offer arts instruction was .83. In the public high schools, the probability was .90 and in the private schools it was .79. In non-charter schools, the probability that a school would offer the arts was .85, but in charter schools, the probability was only .38. For each 1,000 additional students enrolled in a school, the probability that the school offered the arts increased by roughly .05. In the smallest schools, the probability that the school would offer any arts instruction was .80, while in the largest schools the probability was .97.

Data visualizations using the predicted probabilities illuminate the relationships between school characteristics and the likelihood of offering arts instruction. Figure 1 shows the relationship between FRL and the likelihood of offering an arts course for both public and private high schools. Figure 2 shows the relationship between school size and the offering of arts programs for public and private schools. Figure 3 shows the relationship between FRL student proportion and the likelihood of offering any arts instruction in the public schools only, separated into charter and non-charter public high schools. Figure 4 shows the relationship between school size and the likelihood of offering any arts instruction for the public high

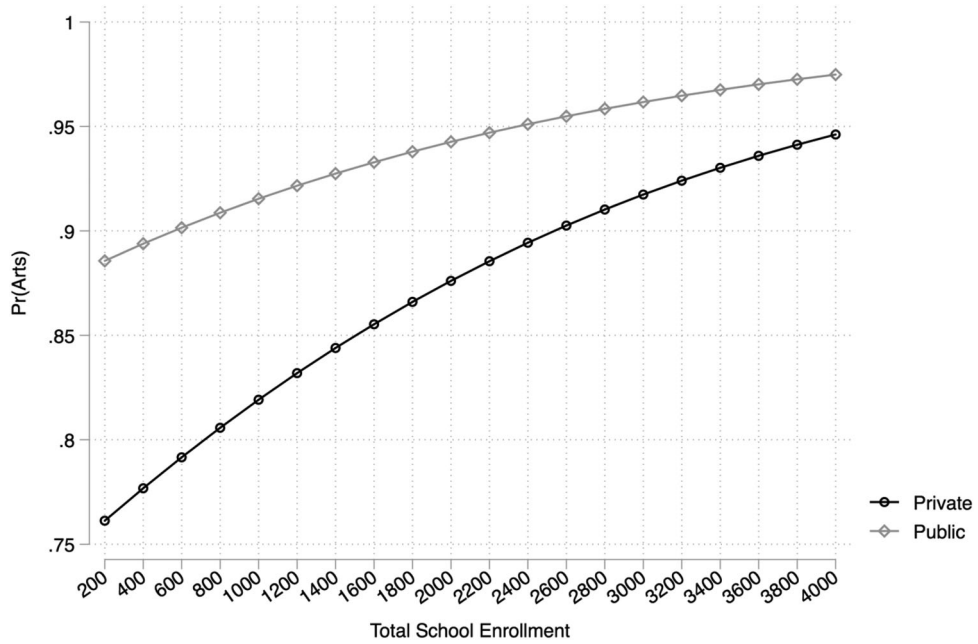

Figure 2. Probability that a school would offer any arts instruction by total school enrollment and school control.

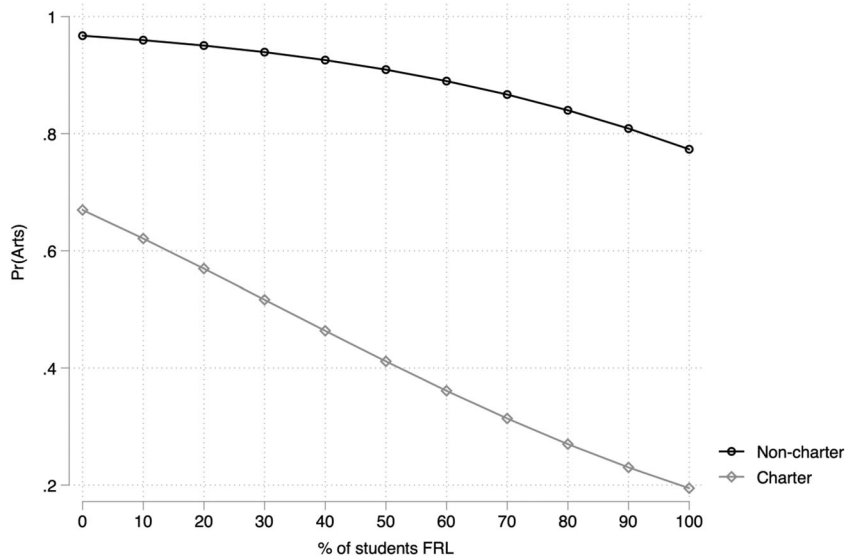

Figure 3. Probability that a public high school would offer any arts instruction by percentage of students eligible for free or reduced-price lunch and charter school status.

schools only, separated into charter and non-charter public high schools.

School characteristics and offering visual art

Model (2) in Table 9 presents the results of the logistic regression examining the probability of offering visual arts instruction as a function of various school characteristics. Public schools were 13 times more likely to offer visual art instruction for credit than were non-public schools. Charter schools lagged behind non-charter schools in the offering of visual art — charter schools were 91% less likely than other schools to offer any visual art instruction for credit. School size was significantly related to the probability that a school would offer visual arts instruction as was the proportion of students within the school eligible for free- or reduced-price lunch, even when controlling for school size and the other characteristics included in the model.

Predicted probabilities computed from the logistic regression model further explain these relationships. Whereas all schools considered together had a .79 probability of offering any visual art instruction, the probability for public high schools was .88 and the probability for private schools was .78. Charter schools

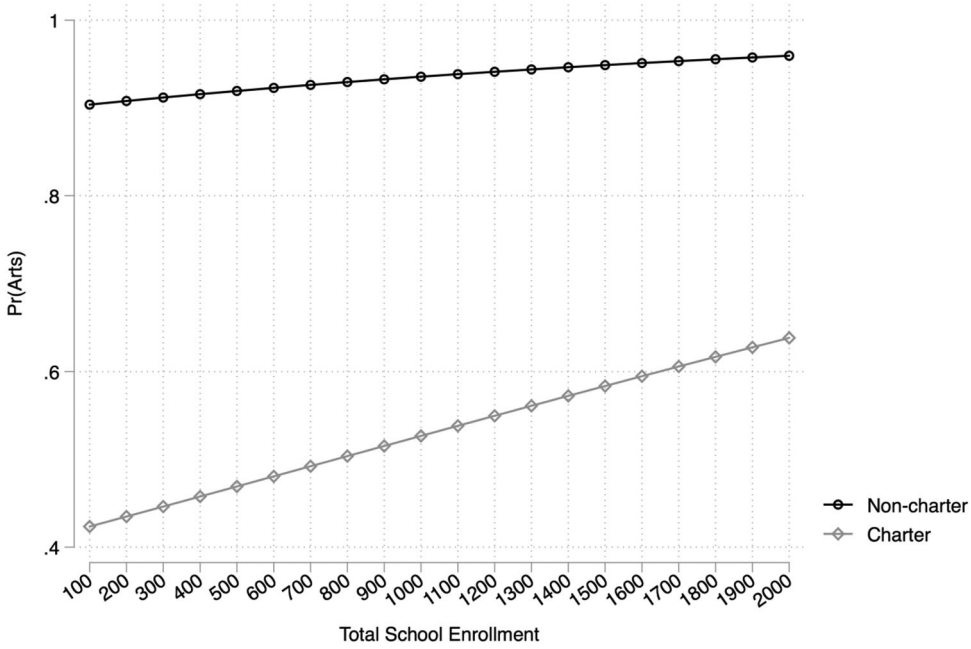

Figure 4. Probability that a public high school would offer any arts instruction by total school enrollment and charter school status.

had only a .39 probability of offering any visual arts instruction. For each additional 1,000 students in a school, the probability that visual arts would be offered increased by .08, with the smallest observed schools having a .74 chance of offering visual art and the largest schools observed having a .99 probability.

School characteristics and offering music

Model (3) in Table 9 presents the results of the logistic regression for the likelihood that a school would offer any courses in music based on the school's characteristics. Public schools were more likely to offer music than nonpublic schools, but the gap was considerably smaller than for visual art. Predicted probabilities suggest that the difference between public and private schools matched on school size is quite small. Charter schools were again less likely than non-charter schools to offer music—charter schools were 89% less likely than non-charter schools to offer music courses. Unlike visual art, the proportion of students in a school who were eligible for FRL was *not* significantly related to music offering once other school characteristics are controlled.

Predicted probabilities from the model show that among all high schools there was a .75 probability of offering any music. In charter schools, the probability was considerably less—charter high schools had only a .35 probability of offering music courses for credit. As school size increased, so did the probability that a school would offer music courses. For each additional 1,000 students enrolled in a school, the probability rose .17. The smallest schools observed had a .60 chance of offering music while the largest schools observed had a .999 probability of offering at least one curricular music course.

School characteristics and offering theater

Model (4) in Table 9 presents the results of the logistic regression for the likelihood that a high school would offer any courses in theater. Since theater is far less common than either music or visual art, fewer school characteristics are significantly related to the offering of theater than they are to the offering of visual art of music. In fact, as Table 9 shows, only school size, as expressed in terms of total school enrollment, is a significant predictor of whether a school would or would not offer a theater course. An increase of 1,000 students was associated with a .37 gain in probability. The smallest schools observed had a .20 chance of offering any theater for credit while the largest schools observed had a .999 probability of offering at least one curricular theater course.

School characteristics and offering dance

Model (5) in Table 9 presents the logistic regression results for the likelihood that a high school would offer any courses in dance. Similar to theater, as dance is the least commonly available art form, there were not very many school characteristics that were significantly related to the offering of dance, with the

notable exception of school size. As school size increased by 1,000 students, the probability that a school would offer curricular dance increased .24. The smallest schools observed had only a .05 probability of offering any dance, whereas the largest schools observed had a .99 probability of offering dance courses for credit.

Discussion

In the present study, I sought to understand the association between certain school-level contextual factors and the curricular arts education offerings of high schools in the United States. Through bivariate and multivariate analyses, there were three main consistent findings: (1) school size is positively, and somewhat strongly, associated with the comprehensiveness of a high school's arts offerings; (2) there is a stark lack of arts availability in public charter high schools compared to traditional public high schools; (3) there is a clear association between the socioeconomic status of students attending a school and the availability of arts education at the school; and (4) except for music, arts availability does not seem to be related to the proportion of students of color who attend a high school. Here, I consider each of these findings in somewhat more detail and contend with the policy implications of each.

Evidence from HSLS analyzed here shows a strong relationship between a high school's size—as expressed by the total number of students enrolled at the school—and the likelihood that the school would offer one or more of the four main visual and performing arts disciplines. School size is a commonly researched characteristic; prior research has, at varying times, favored larger schools or smaller schools as policy prescriptions (Leithwood & Jantzi, 2009). While the research on the academic benefits of smaller school size is somewhat mixed (e.g., Schwartz et al., 2013), there is clear evidence in the literature that larger schools tend to have more comprehensive course offerings (Haller et al., 1990; Monk & Haller, 1993), and the potential impact of school size on the characterization of a school as "arts-rich" has also been considered in the literature (Thomas et al., 2013).

For the nationally representative sample of schools that comprise the HSLS cohort, it is clear that larger schools afford their students more opportunities to study the arts. This association is somewhat intuitive: schools with larger student populations will tend to employ greater numbers of teachers and may therefore have the financial resources to employ greater numbers of arts teachers, including specialist teachers in the less widely available arts disciplines of dance and theater. Schools serving larger numbers of students are also more likely to occupy larger physical plants; larger school buildings (or, in some cases, campuses) likely afford greater opportunity for specialized arts learning facilities that may not exist at smaller schools. Taken together, the greater likelihood of larger schools to offer the arts may be reflected in the greater likelihood of these schools to have more teacher and facility resources. Arts practitioners, arts advocates, and school policymakers interested in advancing the status of arts education in American high schools should become familiar with this evidence in order to more effectively advocate for greater comprehensive arts education in smaller high schools. Targeting advocacy and policymaking efforts at smaller schools, which are at present less likely to offer comprehensive arts education, may be a more efficient use of limited advocacy resources. When school communities consider the adoption of "small school" initiatives, the potential for less comprehensive arts education offerings as a result should be considered as a possible unintended consequence.

Evidence from HSLS analyzed here also suggests that school type is associated with the availability of arts education. Traditional public schools and Catholic schools were far more likely to offer any arts instruction—and to offer more arts disciplines—than were public charter schools or non-Catholic private schools. At present, there is no well-established line of research comparing the status of arts education within the subdivisions of private schooling. In some ways, the market forces at play in the non-Catholic private school sector may allow families to "vote with their feet"—families that desire a comprehensive arts education and private schooling for their children would be more likely to attend one of the fewer independent schools with thriving and comprehensive arts programs, whereas those without strong feelings on the comprehensiveness of arts education might be just as well served at independent schools without comprehensive arts offerings. There is an emerging line of research exploring the status of the various arts disciplines within the charter school sector (Austin & Russell, 2008; Elpus, 2012; Gratto, 2002; Hammel & Fischer, 2014); most of the results look as grim as those reported here. As public charter high schools become an option for greater numbers of American students, arts education researchers need to examine more evidence of what is or is not happening within the sector. In some states, policy is an ineffective lever

to effect change at charter schools; depending on the particulars of any one state's charter school authorizing legislation, freedom of the requirement to follow existing public school curricular policy is one of the main features of charter school management. In such legislative contexts, it becomes incumbent upon parents of students enrolled in charter schools to hold the leadership of the school accountable for providing students the well-rounded curriculum envisioned by the federal Every Student Succeeds Act, which enumerates both "music" and "the arts" as elements of a balanced American public education.

Even given the clear evidence here that charter high schools seem to be the least likely schools to offer comprehensive arts education, it remains unclear the degree to which there is variation within the charter school sector. Certainly, some charter schools have been established explicitly with an arts-focused or arts-integrated core mission. One possibility is that arts-rich charter schools are simply not represented in great enough numbers within the HSLS dataset to offset the relative lack of availability in the broader charter sector. Another possibility, not testable using the HSLS data, is that charter schools in certain contexts (e.g., across varying regions, and urbanicities) might be more likely to have a comprehensive arts education than the charter sector as a whole. This is an area that needs more research attention. It would be beneficial for future research to explore, for example, the degree to which freedom from local regulation contributes to the relative scarcity of comprehensive arts education among charter high schools and if there are any consistent factors contributing to variation of arts availability within the sector.

A growing body of literature in arts education considers differential arts course enrollment by student characteristics; this line of research is especially well-established for the student characteristic of race/ethnicity and in the discipline of music (Elpus, 2013; 2015; Elpus & Abril, 2011, 2019; Winsler et al., 2019). The present study adds an interesting contextual dimension when considering the relative socioeconomic and racial/ethnic homogeneity of music and arts students. Here, evidence from HSLS suggests that public high schools serving greater proportions of students in poverty are less likely to offer arts education. Thus, the benefits of arts education to personal and academic development (Eisner, 2002; Gara & Winsler, 2019; Hetland et al., 2013; See & Kokotsaki, 2016) appear to be systematically denied to students from lower socioeconomic status (SES) who attend schools with other low SES students. On the face of it, this fact seems unjust at best and antithetical to the "small-d" democratic principles of schooling in America at worst.

Interestingly, with the notable exception of music, arts courses were not necessarily less frequently available at schools serving greater proportions of students of color. This evidence naturally raises the question of how or why relatively equitable patterns of *access* yield relatively differential patterns of *uptake*. As a descriptive study, the evidence examined here can only lead to speculation on this issue, but one important speculation that needs to be mentioned is the possibility of limitations to this study due to the nature of the source data. In HSLS, the courses offered at schools are operationalized as those courses appearing on the school's official course catalog. Since HSLS only samples a limited number of students within any one school, it is not possible to infer whether a course that is "on the books" is not actually available from within-school course enrollments—this would require school-level census data of student transcripts. Thus, it remains possible that schools serving greater proportions of students of color may list arts courses in their official catalogs that are not, in practice, regularly offered. This would explain the disparity between supposed *access*, defined here as a course being "on the books," and *uptake*, defined in the student-level studies as a course appearing on student transcripts. Another possibility that cannot be ignored is that students of color may somehow be prevented or barred from electing to take the arts courses that are, in practice, offered at their schools, which would systematically create populations of arts students that are not representative of the student populations at the schools they attend. There is evidence in the literature that may support this speculation; students of color may be shuffled away from arts courses and toward remedial or "test prep" courses, as race and ethnicity have been linked to differential standardized test scores (Beveridge, 2009). Another possibility is that students of color may simply choose other subjects when presented with a mention of options for their scarce high school elective time, either due to personal preference (Kruse, 2016), parental pressure (McPherson et al., 2012), or some other intrinsic or extrinsic influence.

Policy remedies to ameliorate the uneven access to arts education in schools may take quite some time to be effective. Even in New Jersey, which at present mandates that all schools provide students opportunities to study all four visual and performing arts disciplines, access to dance and theater education is quite limited, especially in the middle and elementary

schools. Thus, those interested in promoting equal access opportunity must be aware that advocacy for legislation at the state level is not a suitable "end goal"—even in places such as New Jersey where the mandates exist, continued collection of accessibility data and monitoring of the true access afforded students to study visual art, music, dance, and drama must be pursued.

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