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The Benefits of Infusing the Arts in a College Preparatory Program

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Abstract

An extensive body of work has demonstrated the benefits of participating in the arts, including when it is integrated into other disciplines, for young adults. In addition, this work highlights the likely advantages of engagement with the arts for students from low-income backgrounds as they transition into elite postsecondary institutions. Such findings have shaped the organization of the Princeton University Preparatory Program (PUPP), a rigorous academic and cultural enrichment program which supports high-achieving, low-income public high school students, from the communities surrounding campus, prepare for admission to and success at selective colleges and universities. More specifically, PUPP provides its scholars with a studio art course during each of their three summers in the program and school-year trips to performances and museums. During their time in PUPP, scholars attend approximately 21 live performances and visit at least six different art museums.

In this paper, we add to the literature on art integration by examining whether, and how, the views of PUPP scholars on the arts programming they receive change over their time in the program. We also assess the PUPP alumni's perceptions of the extent to which PUPP's art and cultural activities influenced them. Taken together, these analyses of survey data help us understand whether there are differences in student views by the amount of art programming they receive ("dosage") and if there are sustained benefits of the arts integration and programming PUPP students receive ("fade-out"). We supplement this quantitative data with information from focus groups with a variety of stakeholders.

Although our quantitative analyses of survey data revealed no dosage or fade-out effects, our interview data highlighted the cumulative development of art skills and knowledge over time and confirmed that the program's arts and cultural activities provided contextual information and experiences useful for PUPP alumni in college. Along with prior work that shows PUPP scholars' overwhelmingly positive views of the arts programming, these findings point to the benefits of university-led college access programs that provide arts and cultural exposure for students' social and cultural capital and college preparation.

“The arts are not just a nice thing to have; they define who we are as a people” (Swarns, 2009, May 18) – Michelle Obama, Former First Lady of the United States and Princeton University Class of 1985

In her *I'm First* video (The Obama White House, 2014, February 4), Michelle Obama openly talks about some of the challenges she faced in her first year at Princeton University, such as not knowing how to pick classes or to bring the appropriately-sized sheets for dorm room beds. She acknowledged that her family did not have a history of participating in higher education, so being at a place like Princeton was quite new to her. As Mrs. Obama's story illustrates, finding success in college is a challenging endeavor, particularly for students who are the first in their families to attend. In this context, college access programs play an important role in bridging the divide between high school and postsecondary environments for many first-generation students. Many programs, including the one we study, support students in this transition by equipping them with not just the academic tools, but also with the cultural knowledge that is often assumed on college campuses. We study the importance of arts exposure and participation in a college access program for low-income, high-achieving students, with the aim of supporting selective college opportunity and success for first-generation and low-income students.

Arts exposure is important not only because it builds cultural knowledge, but also because there is a widening gap in access to arts education in our country's public schools. In a 2013 national survey teachers, approximately half of respondents reported a decline in the amount of instructional time and resources available to devote to art and music education over the prior 10 years (Van Fleet, 2013). Similarly, national data show a marked decrease in the percentage of elementary schools that offered dance and drama/theater classes from 1999-2000 to 2009-2010 (Parsad & Spiegelman, 2012). This research also indicates that schools serving more non-White students were less likely to offer music classes than those with fewer non-White students (Salvador & Allegood, 2014), and that schools with greater proportions of families living in poverty had less access to arts education resources than schools serving more affluent families (Kraehe et al., 2016).

Challenges experienced by art instructors and their students during the ongoing COVID-19 pandemic illustrate this divide. While some students and instructors were able to seamlessly transition to remote instruction when schools closed, students attending schools in lower-income areas faced significant challenges in furthering their art education. Notably, they were more likely to report problems with their digital technology and internet access and were less likely to have access to the art materials, tools, or equipment they needed to further their art education (Ackerman & Harlow, 2021; Sabool, 2021). A survey of music teachers conducted by the National Association for Music Education, revealed that music education, like education generally, suffered from lower student engagement during the pandemic (Shaw & Mayo, 2021). Students were unable to engage with their music education for a variety of reasons, including a lack of internet access, family health issues, and their own mental health problems. We hypothesize that many of these issues may have been more prevalent among disadvantaged students (Shaw & Mayo, 2021).

These disparities are troubling, as high school students who earn multiple credits in art classes are five times more likely to graduate than their peers who did not (Catterall et al., 2012).

Students who engage with art often are more likely to have college aspirations and be more civic-minded as well. For individuals from low-income households, exposure to the arts from middle school through high school results in a greater likelihood of voting, participating in a political campaign, visiting libraries as adults, and reading as adults than their non arts-engaged counterparts (Catterall et al., 2012).

Building on these findings, we report here the results of a study of the value of arts exposure and participation in a college access program helping prepare low-income, high-achieving students, the majority of whom will be first-generation college students, to excel at selective colleges. All our data were collected and analyzed prior to the pandemic. To set the stage for these results, we review the literature on the benefits of exposure to, and participation in, arts education and provide a brief overview of the program we studied. We then highlight some reasons *why* arts exposure might be beneficial to students in the transition from high school to college. After outlining our study's rationale and methodology, we provide the results from our quantitative and qualitative analyses and discuss their implications. In pursuing this work, our goal is to better understand the importance of arts participation and exposure in easing the transition to selective postsecondary institutions for first-generation students more generally.

Benefits of Participation in and Exposure to the Arts

Among adults in the U.S., there are differences in exposure to, and participation in, the arts, based on family income, education level, race/ethnicity, and age. That being said, when it comes to engaging in “benchmark” arts events—jazz, classical music, dance, and opera performances, musical and non-musical plays, and visits to an art museum or gallery—it is education more than income, race/ethnicity, or age that appears to be the main factor in predicting arts attendance. For instance, while the attendance rates at benchmark arts events for high school graduates is about 20%, attendance rates among those who have attended graduate school is roughly three times greater, at 66% (National Endowment for the Arts, 2015). This education differential also exists when we examine direct participation in the creation of art: almost three-quarters of American adults with graduate degrees have taken art classes at some point in their lives (both in and out of school), compared with only 36% of adults with high school diplomas. Additionally, 3% of Americans who earned a high school diploma report that they create visual art, compared with about 10% of those with a college degree (National Endowment for the Arts, 2015). Racial differences in attendance of benchmark arts events were documented by Hernandez (2018), who, using secondary data from the 2012 Survey of Public Participation in the Arts,ⁱ found that non-Hispanic White adults comprise the greatest proportion of the audience for benchmark arts activities.

This gap in access to, and participation in, arts based on demographic characteristics, is problematic, particularly for adolescents and young adults, because engaging with art and artmaking is positively associated with academic success, as well as with a developing sense of self. This is true for the creation of art or music. For instance, a year-long qualitative study of Boston-area schools found that visual arts courses teach students distinct kinds of thinking related to making observations, envisioning outcomes, innovation, and self-evaluation that students apply in other courses and outside school contexts (Winner & Hetland, 2008). Moreover, longitudinal analyses of nationally representative data from the National Education Longitudinal Study of 1988 suggest that students who were involved in either instrumental music or the theater arts were more mathematically proficient by their senior year of high school than their non-involved peers (Catterall et al., 1999). Furthermore, students in Columbus, Ohio who

took instrumental music courses performed better on the state's standardized tests than students who did not take such courses (Fitzpatrick, 2006). Importantly, these findings on the transfer of skills from arts to other courses or contexts holds for the overall population of adolescents and for those from low-income backgrounds (Catterall et al., 1999). In addition, the students who participated in the arts had better self-concept and motivation than those who did not, as well as higher levels of tolerance and empathy for others (Catterall et al., 1999). For instance, Degé et al. (2014) found a positive association between taking music lessons and academic self-concept, and studies of arts integration have demonstrated the impact on art, math, and reading skills for students overall and for disadvantaged students in particular (Martin et al., 2013; Moore & Linder, 2012; Pepler et al., 2014; Robinson, 2013).

Exposure to the arts is also associated with positive outcomes for students, including higher SAT scores and reading achievement (Winner et al., 2013). Nationally, elementary school students who received arts education performed better in mathematics and reading than those who did not (Todhunter-Reid, 2019). Moreover, students who were randomly selected by lottery to see live theater performances demonstrate higher levels of tolerance and perspective taking (Greene et al., 2018). In an earlier study by the same lead author, the research team found that by randomly assigning the timing of school tours, they could also test the impact of visiting an art museum on 3rd-12th grade students' ability to retain information and think critically, as well as their levels of historical empathy and tolerance. Their results showed that students who visited the museum earlier in the school year were more engaged in observing, interpreting, and evaluating art work that was new to them and demonstrated higher levels of historical empathy and tolerance (Greene et al., 2014). The authors found that the benefits of this intervention were consistently stronger for more disadvantaged students, including those who attended high-poverty schools and students of color, like those served by the program we study, the Princeton University Preparatory Program (PUPP).

The Princeton University Preparatory Program (PUPP) and its Arts Programming

PUPP was designed by Princeton University faculty and staff to provide rigorous academic and cultural enrichment programming to help high-achieving, low-income local public high school students prepare for admission to, and success within, selective colleges and universities, at which they are traditionally underrepresented (Hillman, 2012). Occurring during summers and academic years between the end of students' freshman year of high school and entry into college, PUPP activities are intended to provide academic enrichment, social and emotional skill development, college exposure, academic, college, and career counseling, student and family support, and arts and cultural enrichment. In addition, mentoring of PUPP alumni helps support them during college and beyond. We seek to understand if and how PUPP scholars' perspectives changed as a result of their participation in artmaking and exposure to arts and cultural events during PUPP.

PUPP provides each scholar with art studio experiences during their three Summer Institutes. PUPP faculty and staff understand and value these art courses as a discipline within general education, one that complements other subjects (Greer, 1984). The PUPP art studio courses aim to nurture students' willingness to take risks in their schoolwork, something that may decrease in adolescence (Clifford, 1988). It does so by encouraging them to make their own works of art based on their ideas and experiences. In this way, scholars learn that the study and practice of making art can help them understand and create objects that are metaphors for things of larger human import (Greer, 1984). Furthermore, scholars are taught to see art not only as a

way of understanding the world they inhabit, but also as a mechanism to engage with issues and problems that they encounter in their lives (Seidel et al., 2009). In their art courses, PUPP scholars explore their creativity and meaningfully connect their art to other subjects, as well as connecting theme explored during the Summer Institute. An example of a connecting theme is the country of Haiti, which scholars learned about through related units taught in their art, literature, science, sociology, and writing classes in a recent Summer Institute. In prior years, themes have included Nigeria, Islam, China, Asia and Asian-American immigration, the Native American experience, and Latin America. Although it is outside our study period, we note that the PUPP faculty re-created the studio art experience during the virtual Summer Institutes of 2020 and 2021. During this time, students received supplies from PUPP, and the art assignments they worked on focused on activities they could complete at home, such as found object art and photography using their smartphones.

PUPP scholars also take cultural enrichment trips throughout the year, which they did virtually during the COVID-19 pandemic. Over their three years in the program, PUPP scholars attend approximately 21 live performances and visit at least six different art museums. These excursions are believed to promote college preparation by exposing PUPP scholars to both classical and contemporary works of art, theater, opera, and dance (PUPP, 2014). As a part of each trip, scholars reflect on and discuss the works of art or performances they viewed. PUPP faculty and staff believe that such trips provide access to our collective cultural heritage, which can be especially important for lower-income students, who tend to have fewer opportunities for these kinds of experiences (Hampden-Thompson et al., 2008). That being said, PUPP faculty and staff recognize and respect the cultural and arts assets that students bring to the program. While program staff leverage these contributions through the curriculum, they see the cultural enrichment trips as opportunities that are aligned with what middle- and upper-income students experience prior to college.

How Might Arts Participation and Exposure through PUPP Benefit Students?

Taken together, the art studio courses and the opportunities to visit a range of museums and attend various arts performances build a complementary set of skills for PUPP scholars, who receive consistent exposure to the arts over the course of their three PUPP years. In three consecutive summers of art studio courses, students are encouraged to broaden their capacity for creative thinking. Such exercises build non-cognitive skills known as “studio habits of mind” (Hetland et al., 2015), which emphasize ways of thinking and behaviors that might not be explicitly taught in scholars’ schools, but could foster success in academic classes. For instance, by working on projects over the course of the six-week Summer Institute, students gain experience by working on a set of tasks for a sustained period of time. Presentations of individual and group art projects and engagement in verbal critiques of art provide opportunities for the development of communication skills.

Furthermore, scholars are steered toward making connections between methods or ideas introduced in their other courses or contexts and the projects they complete within the art studio courses. This strategy is based on the belief that the art studio classes might help scholars develop a more nuanced and hands-on understanding of the concepts they encounter in other aspects of their lives. Some researchers argue that this process of “transfer” might be the reason why students with greater levels of participation in the arts tend to have higher scores on standardized assessments such as

the SAT ® (e.g., Ruppert (2006)). Other research suggests that, although arts courses do not directly influence outcomes in other subjects, they provide opportunities for students to practice skills like persistence, innovative thinking, and problem solving—which, in turn, could help support learning in a variety of contexts (Winner & Hetland, 2000).

Because access to museums, operas, Broadway shows, and so forth is often determined by family socioeconomic status, one role of college access programs is to supplement the resources available to students. Without this organizational support, personal circumstances, such as having two working parents, fewer transportation options, limited local museum options, and not being able to afford the price of admission (Farrell & Medvedeva, 2010), might restrict the exposure of students from lower-income families to such events. By exposing scholars to such opportunities and events, we hypothesize that participating in PUPP enables students to develop their “cultural capital.”

Cultural experiences favored by those from more educated and upper socioeconomic backgrounds, such as arts and cultural performances, are what are often valued by those in “elite” institutions, such as the universities that PUPP scholars often aspire to, and do, attend (Bourdieu, 1986). For this reason, and in accordance with other studies of cultural capital, we define it as the concordance between individuals’ knowledge and behaviors and the expectations of those in the education system (Jack, 2014). We acknowledge that low-income and minority families value education, including arts education and exposure, as much as those in more affluent families and also possess their own forms of cultural capital (Goldthorpe, 2007). College access programs like PUPP, which provide high school students access to arts and cultural events, presuppose that their students may not have access to the requisite social and cultural capital these types of opportunities provide in their familial or community networks and will be more “college-ready” after exposure to said events (Musoba & Baez, 2009). In other words, exposure to arts and cultural events helps participants to “code-switch” and to feel that they belong in college, even in an elite environment, just as much as those raised in more affluent homes (Bourdieu, 1986; Coleman, 1988; Kisida et al., 2014; Millett, Saunders, & Kevelson, 2018). The implication is that the cultural experiences offered by PUPP enable an expansion of students’ worldviews, an outcome that is supported by recent research (Kisida et al., 2014). As one PUPP alumnus noted in an interview, “[PUPP is] where I built the social and cultural capital I needed to code-switch, to thrive in a world outside of my segregated community.”

PUPP programming is based on these suppositions, on the demonstrated benefits of arts exposure and participation outlined above and the documented value of cultural capital. This conceptualization of cultural capital follows Coleman (1988) in not explicitly distinguishing between having the opportunity to access cultural capital and being in possession of it (Musoba & Baez, 2009). Put differently, we assume that, because students have access to cultural capital during high school, their ability and agency to navigate institutions of higher education that value this form of capital are meaningfully improved.

This assumption is reasonable in light of the empirical evidence that arts exposure and participation may support and enhance the academic and social skills of low-income students (Catterall et al., 2012; Kisida et al., 2014; Walton, 2020; Wiggan & Walton, 2014). Past research indicates that when low-income students lack the cultural exposure that is valued as “capital” by colleges and universities, it likely leads to academic underperformance (Hurst, 2018; Jack, 2014, 2016; Lamont & Lareau, 1988). In contrast, having access to cultural capital decreases the

likelihood of academic undermatch with the institution where students enroll (Deutschlander, 2016).

Given the potential positive outcomes of arts education, increasing students' arts exposure and art making experiences might improve their academic performance by helping them develop skills that could be useful in myriad academic contexts. Thus, helping low-income students access cultural capital via arts exposure may be a pathway to better college outcomes for low-income and first-generation college students. Such exposure may be especially important for those who seek to attend selective colleges and universities, where a majority of their middle, upper-middle, and upper class peers are likely to have been exposed to these types of cultural experiences (DiMaggio, 1982; DiMaggio & Mohr, 1985).

Rationale for the Current Study

We define “arts participation and exposure” broadly to include scholars' participation in their art studio courses and cultural enrichment trips (which we sometimes call “cultural events”) that include visiting art museums and exhibits and attending theater, opera, and dance performances, among other activities. The competencies and knowledge generated by creating art and participating in cultural events may enable scholars to successfully navigate college social and academic settings. We highlight this, because, in our prior study, we found that PUPP graduates outperformed a comparison group of similar students who did not attend PUPP on high school outcomes, such as grade point average. PUPP graduates were also more likely to attend four-year colleges, particularly selective ones, and to graduate from college. than comparison group members (Millett & Kevelson, 2018a; Millett & Kevelson, 2018b). Building on this body of work, we believe that our findings in this study make two contributions to the literature.

Although prior research has not found differences in student outcomes—either academic or non-cognitive—based on amount of exposure to, or “dosage” of, arts education or arts integrated curricula (Cunnington et al., 2014; Winner & Hetland, 2000), prior studies of so-called dosage effects, i.e., effects based on amount of exposure, have not investigated cultural capital and college experiences as outcomes, and they have not focused on low-income, high-achieving students. Given the positive impact of arts participation and exposure for disadvantaged students found in other studies, it is possible that the greater cumulative levels of participation and exposure of PUPP scholars to the arts over their three years in the program has tangible benefits for students.

Furthermore, little empirical work has examined how sustainable the benefits of arts participation and exposure are for high school students. While some research has examined the importance of music lessons in childhood for long-term cognitive outcomes, e.g., Schellenberg (2006), and other scholars have argued that integrating art as a teaching methodology across the curriculum can enhance the long-term retention of content (Rinne et al., 2011). This work does not explicitly focus on participation in arts courses and cultural events among adolescents. Other studies have documented the persistence or fade-out of early childhood interventions designed to address academic and social skills gaps between poor and affluent students, finding that some effects do persist even into adulthood (Bailey et al., 2017). However, again, these programs did not target adolescents or focus on the arts or college preparation explicitly.

Adolescence is an important developmental period, during which young people hone their cognitive capacities. Moreover, it is a stage during which individuals grow increasingly aware of the importance of mutuality and reciprocity (Berndt, 1982; Steinberg, 2011), which can be heightened through participation in, and exposure to the arts. Our ability to study PUPP

scholars, who are participating in and being exposed to, the arts, and PUPP alumni, who may have different perspectives on their PUPP experiences as they continue to age and gain additional experience, enables us to empirically examine whether there are dosage effects or long-term benefits to the arts. Moreover, we take advantage of data on the perspectives of PUPP stakeholders to document how they perceive the focus on arts and cultural activities.

Our aim is to understand the relationship between levels of PUPP arts exposure and participation and students' experiences during their high school years, college, and beyond. In doing so, we also hope to shed light on how program design decisions influence students' experiences of arts programming. In particular, we ask:

1. To what extent do active PUPP participants' self-reports of their experiences of the PUPP cultural events, and the influence of those experiences on them, differ by length of program participation?
2. To what extent do alumni scholars' perceptions of how PUPP's arts and cultural activities influenced them differ by their status as a college student or a college graduate?
3. What are the perspectives of PUPP staff and faculty, parents, high school staff, and receiving college staff on PUPP's focus on arts and cultural activities?

As we describe in further detail below, we rely primarily on quantitative data to answer our first two research questions and qualitative data to address our third research question.

Methods

Sample

We conceptualized our study as examining the life cycle of a PUPP scholar in order to better understand the dosage effects of arts programming and its long-term influence on students. The Active Scholars are in the first phase, the immediate beneficiaries of the PUPP Program. In the second stage of the phase are the College Student Alumni—those who are enrolled in college and are applying what they learned in PUPP to their college experience. In the third phase of the cycle are the College Graduate Alumni—those who are college graduates.

We use data collected during a one-year evaluation of PUPP, completed in summer 2016, which included The Scholar Survey for active participants and the Alumni Survey for alumni, along with interviews and focus groups with staff and stakeholders. At the time of the evaluation, there were 71 Active Scholars, all of whom responded to the survey and thus are included in the data analyzed for this study. Of the 126 out of 248 PUPP alumni who responded to the Alumni Survey, 52 were College Student Alumni (41%), and 66 had already graduated from college ("College Graduate Alumni," 52%). The remaining Alumni Survey respondents were not college students or graduates and thus were not included in this study.

Most PUPP scholars and alumni who responded to our survey are from underrepresented racial and ethnic minority groups (see Table 1). The majority of College Student Alumni and College Graduate Alumni are Black or African American,ⁱⁱ and the majority of Active Scholars are Hispanic. The vast majority of College Student Alumni were members of the most recent PUPP graduating cohorts (2012–2015), while a few were members of earlier cohorts. Just under half of College Graduate Alumni were members of the first three PUPP cohorts (2004–2007), and the rest were members of the 2008–2011 cohorts. The College Student Alumni and College Graduate Alumni groups include more females than males, while the gender balance of Active Scholars was more equal (these differences were not tested for statistical significance).

Table 1*PUPP Scholar Survey and PUPP Alumni Survey Respondent Profile*

	Active Scholars (n=71)		College Student Alumni (n=52)		College Graduate Alumni (n=66)		Total (n=189)	
Gender	<i>N</i>	%	<i>n</i>	%	<i>N</i>	%	<i>N</i>	%
Female	39	54.9%	37	71.2%	47	71.2%	123	65.1%
Male	32	45.1%	15	28.8%	19	28.8%	66	34.9%
Race/Ethnicity*								
Asian	†	†	†	†	†	†	†	†
Black or African American	22	32.4%	30	65.2%	33	55.9%	85	49.1%
Hispanic	33	48.5%	16	34.8%	15	25.4%	64	37.0%
Native Hawaiian or Other Pacific Islander	†	†	0	0.0%	0	0.0%	†	†
White or Caucasian	6	8.8%	†	†	11	18.6%	17	10%
Other/Multi-racial	7	10.3%	†	†	†	†	7	4%
Cohort Year Group								
2004–2007	NA	NA	†	†	32	48.5%	32	17.2%
2008–2011	NA	NA	6	12.2%	34	51.5%	40	21.5%
2012–2015	NA	NA	43	82.7%	0	0.0%	43	23.1%
2016– (HS ^a Seniors)	23	32.4%	NA	NA	NA	NA	23	12.4%
2017– (HS Juniors)	24	33.8%	NA	NA	NA	NA	24	12.9%
2018– (HS Sophomores)	24	33.8%	NA	NA	NA	NA	24	12.9%

* Note: Multiple responses were allowed in this question.

† Cell counts of 5 or fewer are not reported in order to protect anonymity.

^a HS = high school.

Data and Analyses

For this study, we conducted secondary analyses of quantitative data from the PUPP Scholar Survey and PUPP Alumni Survey. We also analyzed qualitative data from interviews with program stakeholders, described below. We selected this mixed methods approach, because it enables the triangulation of quantitative and qualitative data to provide a richer and more comprehensive understanding of the study findings (Creswell & Plano Clark, 2010). An Institutional Review Board approved all materials developed for the PUPP evaluation.

The 27-item PUPP Scholar Survey addressed topics that included the experiences of scholars through the years in specific program activities with the perceived impact of PUPP on scholars and their families. For the analysis presented in this study, we used survey questions addressing scholars' experiences with PUPP cultural events and the influence of these events on them. To address the first research question, we compared survey item responses, all of which were reported on a five-point scale, from "Strongly Disagree" to "Strongly Agree," across the three grade-level groups of scholars participating in PUPP at the time of the survey: the PUPP graduating cohorts of 2016, 2017, and 2018. One-way analysis of variance tests (ANOVAs) were used to compare the mean ratings of scholars' experiences with PUPP cultural events and the influence of these events on them.ⁱⁱⁱ More specifically, we ran an analysis of variance (ANOVA)

test for each item to determine if the mean item rating varied across the three grade-level groups. Missing data varied by item; thus, sample sizes vary across the items used in this analysis.

The 90-question Alumni Survey was completed online. It addressed topics that included alumni scholars' experiences in PUPP, their perceptions of its impact on them, and their college and career activities and outcomes since completing PUPP. Items used for the secondary analysis presented in this study included one item asking alumni to rate the quality of the arts and cultural activities and items assessing the extent to which PUPP Alumni Survey respondents agreed that participating in PUPP arts and cultural activities affected their experiences in college. As with the first, to address the second research question, we compared survey item responses, all of which were reported on a five-point scale, from "Strongly Disagree" to "Strongly Agree," for the 52 College Student Alumni and the 66 College Graduate Alumni. For this analysis, we created dichotomous indicators of positive versus negative responses for each group and used them in chi-square tests of independence, contrasting the response frequencies of the two groups. Not all respondents answered all items, and missing and neutral responses were excluded; thus, item-level response sample sizes vary accordingly.

The qualitative data we used for this study come from the PUPP evaluation as well. We draw information from 48 in-depth in-person or telephone interviews and 10 focus groups with parents of PUPP scholars and alumni, PUPP leaders and staff, principals and guidance counselors from the six partner high schools, Princeton University administrators, and staff at a non-random convenience sample^{iv} of colleges attended by PUPP alumni. The majority of interviews and focus groups (37 interviews and 8 focus groups) were conducted in person, and a small number (11 interviews and 2 focus groups) were conducted by telephone. To address the third research question, interviews and focus groups were content analyzed to identify cross-cutting themes and subthemes. To complete the secondary analysis conducted for this study, two researchers coded all qualitative data using the NVivo analysis program (NVivo Qualitative Software Analysis Version 10, 2012). At the outset of each analysis, we developed a set of themes and codes. We revisited these themes and codes in discussions and refined them, as needed, to represent the interview findings more accurately.

Results

PUPP Scholars' Self-Reports of their Cultural Events Experiences

Our first research question focuses on those in the first phase of the PUPP experience: Active Scholars. In the overall Scholar Survey results reported for the PUPP evaluation, we found that the majority of Active Scholars reported that the PUPP cultural events had positive impacts. In order to determine dosage effects—whether or not these perceived positive impacts varied by the length of time students had participated in PUPP—we used one-way ANOVAs to compare the mean ratings on relevant survey items among PUPP 10th, 11th, and 12th grade students, who had been in the program for nearly one, two, or three years, respectively. We found no statistically significant differences ($p > .05$) among the three cohorts of Active Scholars that completed the PUPP Scholar Survey on items related to perceptions of impacts of cultural events (see Table 2), all of which were reported on a five-point scale that included "Strongly Disagree," "Disagree," "Neither Agree nor Disagree," "Agree," and "Strongly Agree."

Table 2

Active Scholars' Mean Rating of Agreement with Statements about the PUPP Cultural Events (e.g., Theater and Museum Trips)

	Grade 10 N=23 ^a <i>Mean</i> (<i>SD</i>)	Grade 11 N=23 ^a <i>Mean</i> (<i>SD</i>)	Grade 12 N=22 ^a <i>Mean</i> (<i>SD</i>)	Total N=71 <i>Mean</i> (<i>SD</i>)
PUPP cultural events were new experiences for me.	4.58 (0.58)	4.38 (0.92)	4.61 (0.58)	4.52 (0.71)
PUPP cultural events helped me to learn about people from different backgrounds than my own.	4.25 (0.79)	4.33 (0.92)	4.26 (0.62)	4.28 (0.78)
PUPP cultural events increased my appreciation for the performing arts.	4.08 (0.93)	4.21 (0.98)	4.22 (0.90)	4.17 (0.93)
Knowledge of a play or opera has helped me with my school work.	3.09 (1.04)	3.22 (1.13)	3.35 (1.11)	3.22 (1.08)
PUPP cultural events were not helpful for me.	2.04 (1.19)	2.00 (0.88)	1.82 (1.05)	1.96 (1.04)

Source: Item scale is 1-5, from Strongly Disagree to Strongly Agree.

* $p < .05$, ** $p < .01$, *** $p < .001$

^a Missing data varied by item and were excluded for each; thus, depending on the survey item, ns range from 23-24 for Grade 10, 23-24 for Grade 11, and 22-23 for Grade 12.

College Student Alumni and College Graduate Alumni Perceptions of PUPP's Arts and Cultural Activities

Our next research question focuses on those in the second and final phases of the PUPP experience: PUPP College Student Alumni and College Graduate Alumni. We opted to use chi-square tests of independence to analyze PUPP alumni survey data on perceptions of the influences of PUPP arts and cultural activities to compare College Student Alumni with College Graduate Alumni. For this analysis, we created dichotomous indicators of positive (“Strongly Agree” and “Agree”) versus negative (“Strongly Disagree” and “Disagree”) responses for each group, in order to understand whether or not the influence of PUPP waned over time. As we noted previously, we excluded neutral (“Neither Agree nor Disagree”) responses from these analyses. We expected that alumni who were beyond college and had entered the working world or continued on to graduate school may have had different perceptions of PUPP’s influence on their college experience than those in college.

Generally, both groups of alumni provided positive responses to Alumni Survey items in addressing their experiences of PUPP arts and cultural events; they tended to describe these events as “good” or “very good.” Although more College Student Alumni than College Graduate Alumni tended to agree with statements about the positive influence of PUPP arts and cultural activities on their college experiences (see Table 3), these differences were not statistically significant ($p > .05$), according to chi-square tests of independence. All (100%) College Student

Alumni felt that the PUPP cultural events were a good use of their time, compared to 94% of College Graduate Alumni.

Table 3

Percentage of PUPP College Student Alumni and College Graduate Alumni Agreeing that Participating in PUPP Arts and Cultural Activities Affected their Experiences in College

	College Student Alumni ^a	College Graduate Alumni ^a	Total
I felt that the cultural events were a good use of my time.	100.0% (N=52)	93.8% (N=64)	96.6% (N=116)
I drew on these experiences in classes.	98.0% (N=50)	90.5% (N=63)	93.8% (N=113)
I drew on these experiences in social situations with students.	95.8% (N=48)	90.5% (N=63)	92.8% (N=111)
I felt comfortable discussing artistic or cultural topics with my peers.	92.3% (N=52)	85.9% (N=64)	88.8% (N=116)
I drew on these experiences in social situations with faculty.	89.6% (N=48)	86.7% (N=60)	88.0% (N=108)
I was inspired to take a class to learn more about theater/drama, music or art.	68.0% (N=50)	60.3% (N=63)	63.7% (N=113)
I was inspired to participate in art, theater or music programs at my college.	68.1% (N=47)	50.8% (N=59)	58.5% (N=106)
I was inspired to major in the arts.	42.2% (N=45)	32.8% (N=58)	36.9% (N=103)

*p< .05, **p< .01, ***p< .001

^a Not all respondents answered all items, and missing responses were excluded; thus, item-level response Ns vary accordingly.

Overall, we can conclude that PUPP alumni tend to report positive impacts of their PUPP arts and cultural experiences on their arts-related college experiences. Although college enrollees may be more likely than those who already graduated to report positive influences, the lack of statistical significance indicates that these differences may be due in part to chance.

PUPP Stakeholders' and Participants' Perspectives on PUPP's Focus on Arts and Cultural Activities

As we noted earlier, we also conducted a content analysis of interview and focus group data from interviews with parents of PUPP scholars, PUPP staff and faculty, Princeton University administrators, partner high school leaders, and staff at colleges attended by PUPP alumni. The content analysis was focused specifically on identifying themes related to perceptions of PUPP arts and cultural activities and their impact on, and value for, participants.

Several relevant themes emerged from this analysis (see Table 4). We found substantial support for the theme that PUPP arts and cultural activities provide helpful contextual information and experiences that alumni are able to draw on in college (see first row of Table 4).

Notably, this theme emerged in the data we had collected across all types of PUPP stakeholders. It also aligns with the finding, presented in Table 3, that the vast majority of Alumni Survey respondents report drawing on their PUPP arts and cultural experiences in college. Interviewees described how they perceived PUPP arts and cultural activities as helpful for making students comfortable enough, and giving them the necessary arts and cultural knowledge, to participate in college conversations that touch on these topics. As one PUPP faculty member and Princeton University administrator noted in an interview,

When you're sitting in a classroom, when you're sitting at lunch with a faculty [member], because it's not unusual to see the faculty bringing students, having lunch with them at one of the restaurants at campus, it allows them to have a richer conversation. It allows them to feel empowered, too, to know that you're sitting in a classroom with others that have seen and watched and experienced these cultural things, and now you have something to contribute.

We also found that interviewees tended to describe PUPP arts and cultural events as helpful for relationship building, supportive of the personal development of scholars by helping them learn by pushing them outside of their comfort zones, supporting college success, and, perhaps most importantly, supporting the development of scholars' cultural capital. As one interviewee noted, "Having had those experiences does so much to reduce that level of, 'I'm in a foreign country. I don't know what people are doing.' I think cultural capital is a real key."

Moreover, several PUPP faculty and staff members noted that the PUPP arts experiences directly increased scholars' ability to critique and think critically about works of art. This dovetails with the finding in the original analysis of the Scholar Survey that the majority of scholars agreed that attending PUPP arts courses and visiting museums as a part of the Summer Institute improved their ability to think critically about works of art (Millett & Kevelson, 2018b).

Table 4*Content Analysis of PUPP Staff and Stakeholder Interview Questions on Arts Exposure and Participation*

Themes	Stakeholders	Supporting Quote
Arts & cultural experiences provide helpful context by exposing students to other cultures and other types of culture.	Parents, Receiving College Staff, PUPP Faculty and Staff, Princeton Administrators, and partner high school leaders	I think it only prepares them to have conversations. When you're sitting in a classroom, when you're sitting at lunch with a faculty [member], because it's not unusual to see the faculty bringing students, having lunch with them at one of the restaurants at campus, it allows them to have a richer conversation. It allows them to feel empowered, too, to know that you're sitting in a classroom with others that have seen and watched and experienced these cultural things, and now you have something to contribute.
Arts & cultural events build relationships.	Receiving College Staff, and PUPP Faculty and Staff	I love how the program is committed to taking students to theater....one thing I always got out of it was I often met students' parents at those kinds of trips, and I think that was very crucial for having a sense of a holistic kind of community involvement. Also, I think that the time I spent with students on those trips is probably the reason why I'm now still in touch with so many students, as opposed to just having been with them in the classroom.
Arts & cultural experiences foster personal development.	PUPP Faculty and Staff and Princeton Administrators	By the end of the summer, you get these students who would just be so withdrawn, so scared of putting themselves out there to make something, who, by the end of the summer, they're just beaming when they come to the classroom.
Arts & cultural experiences push participants outside their comfort zone.	Parents, Receiving College Staff, PUPP Faculty and Staff, and Princeton Administrators	Why this cultural stuff is important, is that if you've ever been put out of your comfort zone before, that will start to develop your ability to figure out how to do it later, and not allow it to affect you in a way that it's your first time being uncomfortable like that.
Arts & cultural experiences support college success.	Parents, Receiving College Staff, PUPP Faculty and Staff, and Princeton Administrators	Cultural capital is one of those hidden things. If they've been to a place when a professor asks them to go see something on campus, it's not this bewildering experience that they've never been to. I think that's actually another one of the genius points of it, is it's not just trying to focus on the classroom, but on all the kind of hidden cultural capital that students realize. It's like the

Themes	Stakeholders	Supporting Quote
Arts & cultural experiences support cultural capital.	Receiving College Staff, PUPP Faculty and Staff, and Princeton Administrators	this kind of sense of different forms of art or not having had that experience. Having had those experiences does so much to reduce that level of, “I’m in a foreign country. I don’t know what people are doing.” I think cultural capital is a real key.
Arts experiences increase PUPP participants' ability to critique art.	PUPP Faculty and Staff	I really see that development from the sophomores to the seniors. And I think they come to like it more, as the years go by, because they get more comfortable with it and they’re used to doing it.

Study Limitations

Our study is a descriptive and not experimental; thus, we cannot make any conclusions about causality (Schneider et al., 2007). Our samples are small due to the relatively small size of each PUPP cohort (23–24 students). Moreover, PUPP selects the highest achieving low-income students who appear to have the greatest potential to succeed in high school and college, making these scholars a unique segment of the high school student population.

We also acknowledge the limitations of interview and focus group data, which are necessarily collected from subsamples of a population. Participants’ views may not necessarily be representative of the full population and may not represent the complete range of viewpoints of the actual populations of these groups, given that those who volunteered to participate may be biased in favor of PUPP. A similar favorable bias towards PUPP may be found in the Alumni Survey. The 51% response rate is better than many online survey response rates, but still leaves many voices unheard. It is also possible that Active Scholars felt compelled to respond favorably to the survey questions due to social desirability bias (Grimm, 2010) or a sense of obligation to PUPP, which provides them with substantial resources and opportunities.

Finally, we would be remiss if we did not consider the limitations of the items in our surveys. Individuals responding to a Likert-type item may be predisposed to be high raters, low raters, consistent or inconsistent raters. Although our measures do not explicitly test cultural capital at the end of the program and several years later, the survey items used in the study provide a useful indication of the extent of variations in participants’ perceptions by length of time in the program or by the number of years since their completion of the program. Changes in the broader social context shaping PUPP alumni’s college experiences have likely shifted among cohorts, which could have led to differences in perceptions, such that younger cohorts could be more aware of the importance of cultural capital and/or the role of the cultural events in shaping their college experiences. We are unable to examine these cohort differences, given the small number of individuals in each cohort. Despite these limitations, our findings contribute to the literature on arts and cultural programming and its influence on the development of arts skills, art knowledge, and cultural capital.

Discussion

In addition to academic supports, PUPP provides its participants with consistent exposure to the arts through art-making courses and excursions to major art museums and theatrical performances (Millett & Kevelson, 2018a). These activities are accompanied by assignments

designed to draw out reflections and support skills and knowledge related to the arts and cultural capital. We set out to explore the extent to which PUPP's influence on participants' arts skills, art knowledge, and cultural capital varied by length of time in the program ("dosage") and persisted over time. To accomplish this, we first explored whether experiences and perceptions might differ among Active Scholar cohorts, given that more recent cohorts would have had less exposure to PUPP cultural events and thus fewer academic discussions of them. We then examined whether or not there was variation in the perception of PUPP's cultural activities among alumni who are in college and those who have completed their postsecondary education.

As we noted earlier, findings on active PUPP scholars' and alumni's views of the cultural events, and their influence on scholar and alumni development and alumni college experiences, were overwhelmingly positive in the PUPP evaluation (Millett & Kevelson, 2018a). The results of our secondary analysis of survey data indicate that there were no dosage effects of the PUPP arts and cultural activities during high school. Similarly, there do not appear to be fade-out effects of PUPP arts exposure and participation after college graduation. However, we should also note that the lack of dosage and fade out effects may be due to the limitations of the measures, which were self-report and Likert scale items, and the limitations of a non-experimental study (Schneider et al., 2007). Dosage differences may also be difficult to detect within a limited range of responses. Qualitative data shed some light on the extent of dosage effects, given that PUPP arts faculty noted in prior interviews that they saw changes over the three program years in PUPP participants' ability to critique art, as well as in their comfort and confidence in their artmaking abilities.

The qualitative analyses conducted for this study also provide insights into how PUPP arts and cultural activities may support college success, along with the development of cultural capital. Results revealed that stakeholders perceive PUPP arts participation and exposure as: a) preparing scholars to connect with college students from different cultural backgrounds; and b) providing experiences and knowledge that more affluent students are more likely to have, particularly in the selective universities PUPP scholars are encouraged to attend (Millett & Kevelson, 2018b). Several interviewees made an explicit connection between PUPP arts and cultural activities and cultural capital, while others spoke about how PUPP activities prepared scholars to contribute to college conversations about arts and culture. Thus, PUPP stakeholders join alumni in viewing PUPP arts and cultural experiences as supportive of cultural capital, as well as alumni success and engagement in college.

Indeed, the results of the PUPP evaluation indicated that: a) alumni felt that the arts and cultural events they attended as a PUPP Scholar enabled them to engage in discussions about theatrical performances or other arts or cultural works with their peers in college; and b) empowered them to succeed by helping them develop their cultural knowledge, which helped to ease their transition into college and made them more well-rounded individuals (Millett & Kevelson, 2018a). These findings suggest that arts and cultural events exposure may help alumni to feel that they belong in college, even in an elite environment, just as much as those raised in more affluent homes (Bourdieu, 1986; Coleman, 1988; Kisida et al., 2014; Millett, Saunders, & Kevelson, 2018). The implication is that the cultural experiences offered by PUPP enable an expansion of students' worldviews, an outcome that is supported by recent research (Kisida et al., 2014).

Moreover, students may have benefitted from the experience of being pushed outside of their comfort zones when asked to create or critique art. Such experiences could serve as

valuable practice for the experience of being pushed out of their comfort zone in college. It also serves as practice for the social and emotional skill of adaptability, which has been identified as an important career readiness skill (Casner-Lotto & Barrington, 2006). In this way, it seems that PUPP's support for cultural capital may be helping low-income and first-generation college students to be successful in selective colleges and universities, given the importance of cultural capital in these environments (DiMaggio & Mohr, 1985).

It is also possible that increased cultural capital may help alumni navigate the world they encounter after college. In addition to building arts knowledge, PUPP aims to support the development of creativity and flexibility in thinking, as well as the ability to connect with others from different cultures. PUPP alumni may be better prepared for the workforce as a result of their experiences. We do not know the extent to which the PUPP arts and cultural activities support students' creativity, although we have some evidence to indicate that students perceived that their art skills developed further during the course of the program (Millett & Kevelson, 2018a). Next steps may include assessments of creativity and cultural capital before and after PUPP to better track changes in these specific competencies over time.

Conclusion

Our results point to the benefits of university-led college access programs that provide arts and cultural exposure for students' social and cultural capital and college preparation (Hampden-Thompson et al., 2008; Musoba & Baez, 2009). It is important to note that the pairing of college access program activities and exposure to, and participation in, the arts is not commonplace. Ours is among a small number of recent studies that have examined this issue. As we noted above, our study is unique in its exploration of dosage and fade-out effects of college access programs arts and cultural activities on cultural capital and arts knowledge development. Although our analyses did not reveal either dosage or fade-out effects in terms of differences in perceptions of PUPP's influences on cultural capital and other factors, qualitative results indicate that program participants may have experienced changes in their arts skills and knowledge over time. Given the positive impact of arts participation and exposure for disadvantaged students in other contexts and studies, it is possible that the greater cumulative levels of participation and exposure of PUPP scholars to the arts over their three years in the program has tangible benefits for students. Furthermore, the fact that PUPP alumni outperform a comparison group of non-PUPP participants in high school and college outcomes (Millett & Kevelson, 2018b), and PUPP alumni may have had many more opportunities to develop cultural capital through arts exposure and participation, suggest that PUPP may have lasting effects on participants in part through its influence on cultural capital.

To provide a closer look at the dosage and fade-out effects of exposure to arts and cultural activities, along with the overall impact of such activities on participants' cultural capital, future research could utilize experimental methodologies and take a comprehensive approach through the collection of both quantitative and qualitative data. An experimental study involving random assignment to arts and cultural programming could track differences in key participant college and career outcomes, as well as accepted measures of cultural capital, such as arts knowledge and participation in arts events. Qualitative data on how and why participants were helped to develop cultural capital could help to shed further light on these mechanisms and complement the quantitative data on outcomes of treatment and control group members.

In addition to highlighting a need for further research, these findings highlight the great potential for college access programs to help ensure college success through exposure to and

participation in the arts, and the related development of cultural capital. This is especially crucial right now, as students make their way through a post-pandemic world. We believe that college access programs across the nation could incorporate such practices, and new college access programs should incorporate them into their design. In addition, these programs could add to our knowledge base on promising practices for building cultural capital among low-income students. We recognize that work will need to be done to orchestrate the development of such programs and that practical issues such as funding will need to be addressed. Yet, increased opportunities to benefit from college access programs, and in particular those that incorporate exposure to, and participation in, the arts, may help increase college graduation rates among first-generation students. This could, accordingly, benefit individuals and families for generations to come.

References

- Ackerman, S., & Harlow, T. (2021). The battle of COVID-19: Art teachers as indestructible force. *Art Education*, 74(6), 28-32. <https://doi.org/10.1080/00043125.2021.1954477>
- Bailey, D., Duncan, G. J., Odgers, C. L., & Yu, W. (2017). Persistence and fadeout in the impacts of child and adolescent interventions. *Journal of Research on Educational Effectiveness*, 10(1), 7-39. <https://doi.org/10.1080/19345747.2016.1232459>
- Berndt, T. J. (1982). The features and effects of friendship in early adolescence. *Child Development*, 53(6), 1447-1460. <https://doi.org/10.2307/1130071>
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241-258). Greenwood Press.
- Casner-Lotto, J., & Barrington, L. (2006). *Are they really ready to work? Employers' perspectives on the basic knowledge and applied skills of new entrants to the 21st century U.S. workforce* (ED519465). ERIC Database. <https://eric.ed.gov/?id=ED519465>
- Catterall, J., Chapleau, R., & Iwanga, J. (1999). Involvement in the arts and human development: General involvement and intensive involvement in music and theatre arts. In E. B. Fiske (Ed.), *Champions of change: The impact of the arts on learning* (pp. 1-18). Arts Education Partnership and President's Committee on the Arts and Humanities. <https://artsedge.kennedy-center.org/champions/pdfs/ChampsReport.pdf>
- Catterall, J. S., Dumais, S. A., & Hampden-Thompson, G. (2012). *The arts and achievement in at-risk youth: Findings from four longitudinal studies*. National Endowment for the Arts. <https://www.arts.gov/sites/default/files/Arts-At-Risk-Youth.pdf>
- Clifford, M. M. (1988). Failure tolerance and academic risk-taking in ten-to twelve-year-old students. *British Journal of Educational Psychology*, 58(1), 15-27. <https://doi.org/10.1111/j.2044-8279.1988.tb00875.x>
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94 Supplement, S95-S120. <https://www.jstor.org/stable/2780243>
- Creswell, J. W., & Plano Clark, V. L. (2010). *Designing and conducting mixed methods research*. Sage Publications.
- Cunnington, M., Kantowitz, A., Harnett, S., & Hill-Ries, A. (2014). Cultivating common ground: Integrating standards-based visual arts, math and literacy in high-poverty urban classrooms. *Journal for Learning through the Arts: A Research Journal on Arts Integration in Schools and Communities*, 10(1).
- Degé, F., Wehrum, S., Stark, R., & Schwarzer, G. (2014). Music lessons and academic self-concept in 12- to 14-year-old children. *Musicae Scientiae*, 18(2), 203-215. <https://doi.org/10.1177/1029864914523283>
- Deutschlander, D. (2016). Academic undermatch: How general and specific cultural capital structure inequality. *Sociological Forum*, 32(1), 162-185. <https://doi.org/10.1111/socf.12322>
- DiMaggio, P. (1982). Cultural capital and school success: The impact of status culture participation on the grades of U.S. high school students. *American Sociological Review*, 47(2), 189-201.
- DiMaggio, P., & Mohr, J. (1985). Cultural capital, educational attainment, and marital selection. *American Journal of Sociology*, 90(6), 1231-1261.

- Farrell, B., & Medvedeva, M. (2010). *Demographic transformation and the future of museums*. American Association of Museums. <http://www.aam-us.org/docs/center-for-the-future-of-museums/demotransasaam2010.pdf?version=meter+at+0&module=meter-Links&pgtype=article&contentId=&mediaId=&referrer=https%3A%2F%2Fwww.google.com%2F&priority=true&action=click&contentCollection=meter-links-click>
- Fitzpatrick, K. R. (2006). The effect of instrumental music participation and socioeconomic status on Ohio fourth-, sixth-, and ninth-grade proficiency test performance. *Journal of Research in Music Education*, 54(1), 73-84. <https://www.jstor.org/stable/3653456>
- Goldthorpe, J. H. (2007). "Cultural capital": Some critical observations. *Sociologica*, 1(2). <https://doi.org/10.2383/24755>
- Greene, J. P., Erickson, H. H., Watson, A. R., & Beck, M. I. (2018). The play's the thing: Experimentally examining the social and cognitive effects of school field trips to live theater performances. *Educational Researcher*, 47(4), 246-254. <https://doi.org/10.3102/0013189x18761034>
- Greene, J. P., Kisida, B., & Bowen, D. (2014). The educational value of field trips: Taking students to an art museum improves critical thinking skills and more. *Education Next*, 14(1), 78-86. <http://educationnext.org/the-educational-value-of-field-trips/>
- Greer, W. D. (1984). Discipline-based art education: Approaching Art as a subject of study. *Studies in Art Education*, 25(4), 212-218.
- Grimm, P. (2010). Social desirability bias. In J. Sheth & N. K. Malhotra (Eds.), *Wiley International Encyclopedia of Marketing* (Vol. 2: Marketing research). <https://doi.org/10.1002/9781444316568.wiem02057>
- Hampden-Thompson, G., Guzman, L., & Lippman, L. (2008). *Cultural capital: What does it offer students? A cross-national analysis*. Springer Netherlands. https://doi.org/10.1007/978-1-4020-6927-7_10
- Hernandez, A. D. (2018). *Arts access as an issue of social justice: The role of arts education and technology in closing the arts access gap* [Dissertation, Claremont Graduate University]. ProQuest One Academic Social Science Premium Collection. <http://libproxy.temple.edu/login?url=https://www.proquest.com/dissertations-theses/arts-access-as-issue-social-justice-role/docview/2164385474/se-2?accountid=14270>
- Hetland, L., Winner, E., Veenema, S., & Sheridan, K. M. (2015). *Studio thinking 2: The real benefits of visual arts education*. Teachers College Press.
- Hillman, N. (2012). *Economic diversity among selective colleges: Measuring the enrollment impact of "no-loan" programs*. Institute for Higher Education Policy. <https://www.ihep.org/publication/economic-diversity-among-selective-colleges-measuring-the-enrollment-impact-of-no-loan-programs/>
- Hurst, A. L. (2018). Classed outcomes: how class differentiates the careers of liberal arts college graduates in the US. *British Journal of Sociology of Education*, 39(8), 1075-1093. <https://doi.org/10.1080/01425692.2018.1455495>
- Jack, A. A. (2014). Culture shock revisited: The social and cultural contingencies to class marginality. *Sociological Forum*, 29(2), 453-475. <https://doi.org/10.1111/socf.12092>
- Jack, A. A. (2016). (No) harm in asking: Class, acquired cultural capital, and academic engagement at an elite university. *Sociology of Education*, 89(1), 1-19. <https://doi.org/10.1177/0038040715614913>

- Kisida, B., Greene, J. P., & Bowen, D. H. (2014). Creating cultural consumers: The dynamics of cultural capital acquisition. *Sociology of Education*, 87(4), 281-295. <https://doi.org/10.1177/0038040714549076>
- Kraehe, A. M., Acuff, J. B., & Travis, S. (2016). Equity, the arts, and urban education: A review. *Urban Review*, 48, 220-244. <https://doi.org/10.1007/s11256-016-0352-2>
- Lamont, M., & Lareau, A. (1988). Cultural capital: Allusions, gaps and glissandos in recent theoretical developments. *Sociological Theory*, 6(2), 153-168. <https://doi.org/10.2307/202113>
- Lantz, B. (2013). The impact of continuity violation on ANOVA and alternative methods. *Journal of Modern Applied Statistical Methods*, 12(2), 105-120. <https://doi.org/10.22237/jmasm/1383278700>
- Martin, A. J., Mansour, M., Anderson, M., Gibson, R., Liem, G. A., & Sudmalis, D. (2013). The role of arts participation in students' academic and nonacademic outcomes: A longitudinal study of school, home, and community factors. *Journal of Educational Psychology*, 105(3), 709-727. <https://doi.org/10.1037/a0032795>
- Millett, C. M., & Kevelson, M. J. C. (2018a). *Positioning for college success: The evaluation of the Princeton University Preparatory Program's work with high-achieving, low-income students* (Research Report No. RR-18-03). Princeton, NJ: Educational Testing Service.
- Millett, C. M., & Kevelson, M. J. C. (2018b). *The experts weigh in: High-achieving, low-income students reflect on their experience in and the impact of a college access program students* (Research Report No. RR-18-04). Princeton, NJ: Educational Testing Service.
- Millett, C. M., Saunders, S. R., & Kevelson, M. J. C. (2018). *College access program alumni reflect on their experiences in the program and its impact on their skills and college outcomes* (Research Report No. RR-18-06). Princeton, NJ: Educational Testing Service.
- Moore, C., & Linder, S. M. (2012). Using dance to deepen student understanding of geometry. *Journal of Dance Education*, 12(3), 104-108. <https://doi.org/10.1080/15290824.2012.701175>
- Musoba, G., & Baez, B. (2009). The cultural capital of cultural and social capital: An economy of translations. In J. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 24, pp. 151-182). Springer Netherlands. https://doi.org/10.1007/978-1-4020-9628-0_4
- National Endowment for the Arts. (2015). *When the going gets tough: Barriers and motivations affecting arts attendance* (NEA Research Report #59). <https://www.arts.gov/impact/research/publications/when-going-gets-tough-barriers-and-motivations-affecting-arts-attendance>
- NVivo Qualitative Software Analysis Version 10. (2012). QSR International.
- Parsad, B., & Spiegelman, M. (2012). *Arts education in public elementary and secondary schools: 1999-2000 and 2009-10* (NCES 2012-014). National Center for Education Statistics. <https://nces.ed.gov/pubs2012/2012014rev.pdf>
- Peppler, K. A., Powell, C. W., Thompson, N., & Catterall, J. (2014). Positive impact of arts integration on student academic achievement in English language arts. *The Educational Forum*, 78(4), 364-377. <https://doi.org/10.1080/00131725.2014.941124>
- PUPP. (2014). Princeton University Preparatory Program: PUPP scholar handbook 2014-15. www.princeton.edu/pupp/pdf/PUPP-Scholar-Handbook-planner-14-15.pdf

- Rinne, L., Gregory, E., Yarmolinskaya, J., & Hardiman, M. (2011). Why arts integration improves long-term retention of content. *Mind, Brain, and Education*, 5(2), 89-96. <https://doi.org/10.1111/j.1751-228X.2011.01114.x>
- Robinson, A. H. (2013). Arts integration and the success of disadvantaged students: A research evaluation. *Arts Education Policy Review*, 114(4), 191-204. <https://doi.org/10.1080/10632913.2013.826050>
- Ruppert, S. S. (2006). *Critical evidence: How the arts benefit student achievement*. The National Assembly of State Arts Agencies. <http://nasaa-arts.org/wp-content/uploads/2017/05/critical-evidence.pdf>
- Sabool, F. R. (2021). Art education during the COVID-19 pandemic: the journey across a changing landscape. *Arts Education Policy Review*. <https://doi.org/10.1080/10632913.2021.1931599>
- Salvador, K., & Allegood, K. (2014). Access to music education with regard to race in two urban areas. *Arts Education Policy Review*, 115(3). <https://doi.org/10.1080/10632913.2014.914389>
- Schellenberg, E. Glenn. (2006). Long-term positive associations between music lessons and IQ. *Journal of Educational Psychology*, 98(2), 457-468. <https://doi.org/10.1037/0022-0663.98.2.457>
- Schneider, B., Carnoy, M., Kilpatrick, J., Schmidt, W. H., & Shavelson, R. J. (2007). *Estimating causal effects: Using experimental and observational design*. American Educational & Research Association. <https://www.aera.net/Publications/Books/Estimating-Causal-Effects-Using-Experimental-and-Observational-Designs>
- Seidel, S., Tishman, S., Winner, E., Hetland, L., & Palmer, P. (2009). *The qualities of quality: Understanding excellence in arts education*. Project Zero at Harvard Graduate School of Education.
- Shaw, R. D., & Mayo, W. (2021). Music education and distance learning during COVID-19: a survey. *Arts Education Policy Review*. <https://doi.org/10.1080/10632913.2021.1931597>
- Steinberg, L. (2011). *Adolescence*. McGraw-Hill.
- Swarns, R. L. (2009, May 18). Mrs. Obama: 'The arts define who we are as a people'. *The Caucus*. <https://thecaucus.blogs.nytimes.com/2009/05/18/first-lady-promotes-the-arts/>
- The Obama White House. (2014, February 4). *First Lady Michelle Obama 'I'm First' video* [Video]. YouTube. https://www.youtube.com/watch?v=RYSQp_ocMvQ
- Todhunter-Reid, A. (2019). In-school arts education and academic achievement: A child fixed effects approach. *I20*, 2(112-119). <https://doi.org/10.1080/10632913.2018.1423595>
- Van Fleet, E. (2013). *Arts education navigator: Facts and figures*. Americans for the Arts. <http://www.miarted.org/pdf/AFTA-Arts-Education-Navigator-Facts-Figures.pdf>
- Walton, C. W. (2020). "It just made me want to do better for myself": Performing arts education and academic performance for African American male high school students. *International Journal of Education & the Arts*, 21(13). <https://doi.org/10.26209/ijea21n13>
- Wiggin, G., & Walton, C. W. (2014). Chapter 13: Readers theater and the "reception gap": The impact of theater-based instruction strategies on African American males's reading achievement. In *African American male students in PreK-12 schools: Informing research, policy, and practice* (pp. 283-302). Emerald Group Publishing Limited. <https://doi.org/10.1108/S2051-231720140000002031>

- Winner, E., Goldstein, T., & Vincent-Lancrin, S. (2013). *Art for art's sake? The impact of arts education*. OECD Publishing. <http://dx.doi.org/10.1787/9789264180789-en>
- Winner, E., & Hetland, L. (2000). The arts in education: Evaluating the evidence for a causal link. *The Journal of Aesthetic Education*, 34(3/4), 3-10.
<https://www.jstor.org/stable/3333636>
- Winner, E., & Hetland, L. (2008). Art for our sake school arts classes matter more than ever-but not for the reasons you think. *Arts Education Policy Review*, 109(5), 29-32.
<https://doi.org/10.3200/AEPR.109.5.29-32>

ⁱ The Survey of Public Participation in the Arts is a part of the US Census Bureau's Current Population Survey, which surveys people 18 years or older (Hernandez, 2018).

ⁱⁱ This difference was due to chance and not to any explicit decisions made by PUPP staff during Scholar selection.

ⁱⁱⁱ Although we initially opted to create dichotomous indicators of positive versus negative responses and used them in chi-square tests of independence, unequal cell sizes were problematic in these results. Thus, we opted to use one-way ANOVAs to compare the means of the survey item responses. ANOVAs have been shown to be the best approach when data are skewed and sample sizes are equal, as they are for the three dosage groups, and when scale points are perceived as equidistant (Lantz, 2013). A nonparametric Kruskal-Wallis test was also run as a robustness check and in case middle-of-scale effects were at play (Lantz, 2013); results were the same as for the one-way ANOVAs.

^{iv} Due to the challenges in obtaining responses from staff at a random sample of colleges attended by PUPP alumni, researchers opted to use a convenience sample to obtain sufficient interview data to complete the study.