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Cultivating interest in art: Causal effects of arts exposure during early childhood

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ABSTRACT

Despite a growing body of literature examining the effects of arts exposure and participation for youth, little is known about the development of attitudes toward art in early childhood. In this study, we used an experimental research design to investigate the effect of arts exposure on the development of children's attitudes toward art. Applicant groups ($n = 26$) with students in kindergarten through 2nd grade ($n = 2{,}253$) were randomly assigned to participate in an art museum's educational program, which included pre-curricular materials, a visit to an art museum with a guided tour and arts-based activities, and post-curricular classroom materials. We collected original data from students in their classrooms that measured their attitudes toward art museums and art generally, as well as art knowledge. We found that exposure to the arts at an early age produced significant positive effects on the development of students' attitudes toward the arts. Our findings demonstrate that arts-based exposure facilitated by schools can be an effective strategy for developing positive orientations toward art in young children.

1. Introduction

The study of arts exposure and participation in early childhood typically focuses on examining relationships between the arts and other positive outcomes, such as the relationship between arts participation and academic skills, neurocognitive outcomes, and social-emotional development. In other words, researchers tend to focus on the benefits of arts education, taking for granted the availability of the arts and students' interest in the arts. In some ways this approach makes sense, given the apparent pervasiveness of art in children's lives. Most children are encouraged to create art from the age they can grasp crayons, and many parents enrich their children's artistic experiences through more formal mechanisms, such as music lessons, dance lessons, children's theater, and other organized arts activities.

At the same time, however, only some parents choose or are able to provide enriching arts experiences for their children. Sociologists have referred to parental efforts to organize culturally enriching activities for their children as "concerted cultivation," and the amount that parents are able to engage in this form of cultivation is often differentiated along social class lines. Parents lacking in resources, including social and cultural capital, are less able to provide these experiences for their children (Lareau, 2002; Roksa & Potter, 2011). If parents are not able to provide access to the arts for their children, the next line of defense is the schooling system, which has long facilitated valuable arts experiences for students. Yet the amount that schools provide arts instruction in early grades has declined in recent years as accountability pressures have caused schools to increase focus on preparation for standardized assessments in early grades (Bassok, Latham, & Rorem, 2016; U.S. Government Accounting Office, 2009). This development is problematic for the future of arts participation in adulthood, as the National Endowment for the Art's (NEA) Survey of Public Participation in the Arts (SPPA) found that the most significant predictor of adult arts participation is exposure during childhood (Rabkin & Hedberg, 2011). It is also concerning that noted declines in arts education are concentrated among historically underserved groups. In 2008, African American children were 49% less likely to receive arts education than they were in 1982, whereas Hispanic children were 40% less likely to receive arts education. Moreover, children whose parents have less than a high school education were nearly 77% less likely to have received arts education in 2008 than they were in 1982 (Rabkin & Hedberg, 2011). If the many benefits of arts exposure are to be realized and experienced, especially by underserved

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students, then it is imperative that strategies are identified that inculcate children with positive attitudes toward arts experiences that will orient them to engage with the arts throughout their lives.

1.1. Arts participation and early childhood development

Early childhood arts participation includes a broad array of activities, including music, dance, theater, and the visual arts (National Endowment for the Arts, 2004; Menzer, 2015). Existing empirical research on the effects of these activities has largely focused on two broad areas: the relationship between arts participation and academic skills and neurocognitive outcomes, and the relationship between arts participation and social-emotional development (Menzer, 2015). A third pathway of research has examined relationships between the arts and physiological outcomes (National Endowment for the Arts, 2004).

In terms of academic skills, researchers have found positive relationships between musical skills and literacy (Anvari, Trainor, Woodside, & Levy, 2002). Related research has found that arts enrichment in preschool activities is related to school readiness skills, higher achievement, and improved vocabulary (Brown, Benedett, & Armistead, 2010). Younger children, however, are not often assessed using standardized testing methods and such tests are typically not developmentally appropriate. As a result, research on the arts and early childhood tends to focus on academic outcomes other than test-based student achievement.

In the area of the arts and social-emotional development, a systematic review of studies published between 2000 and 2015 found 18 studies that identified significant relationships (Menzer, 2015). Several studies identified relationships between social skills and participation in music-based activities. These include a study that found children whose parents sing to them have more developed social skills (Muñiz et al., 2014), and research showing that students participating in a music-based education program demonstrated improved social cooperation and interaction (Ritblatt, Longstreth, Hokoda, Cannon, & Weston, 2013). Related research has found that participation in dance activities generates stronger pro-social behaviors (Lobo & Winsler, 2006). Additionally, some research has found that drama-based activities are positively associated with the development of social skills (Nicolopoulou, Barbosa de Sa, Ilgaz, & Brockmeyer, 2009; Schellenberg, 2004). Notably, many of the arts-based activities examined in this area included a social component as a part of the arts activity (Menzer, 2015).

Other studies have examined relationships between the arts and emotional regulation. For example, toddlers in an arts integration program with multiple art forms were observed to have improvements in teacher-rated emotional regulation (Brown & Sax, 2013). Music participation studies have also found relationships between better emotional regulation (Gerry, Unrau, & Trainor, 2012) and improved expressive emotions (Mualem & Klein, 2013). Studies incorporating visual art therapy have found similar results (Drake & Winner, 2013). There is also some evidence that art therapy in early childhood may be particularly effective for students dealing with emotional stress (Drake & Winner, 2013) and for students with autism (Kim, Wigram, & Gold, 2008).

Empirical studies have also extensively documented the chronic gaps in childhood social and emotional outcomes by gender, race/ethnicity, and socioeconomic status. However, while researchers have consistently found that engagement in the arts is positively correlated with social and emotional development, these studies have not investigated the extent to which the arts can reduce these persistent gaps (Menzer, 2015). Prior studies have also noted significant arts participation gaps along gender lines that emerge as early as age three, with girls much more likely to participate in the arts (Smyth, 2016). While gender, race/ethnicity, and socioeconomic status have long been found to be have strong connections to childhood outcomes, most existing arts education studies do not examine these potential moderator effects and this is a major need for the field (Menzer, 2015).

Considering the research on early childhood arts activities as a whole, it is apparent that there is no single definition of what constitutes arts participation. Most existing studies involve interventions focused on producing or performing, such as singing, playing an instrument, dancing, or acting. Studies that examine exposure to visual art are uncommon, and the interventions associated with them often incorporate very specific techniques, such as art therapy interventions (Drake & Winner, 2013). Summarizing the effects of arts education in early childhood requires a nuanced consideration of interventions that vary in the types of art, program goals, duration of exposure, and the ways that students participate.

1.2. Arts participation and later outcomes

There is also a growing body of research that has found that arts participation has important benefits for older students, which is particularly relevant if early childhood exposure is a precursor to arts engagement in later years. Two studies that examine the relationship between arts education and traditional student outcomes are particularly worth highlighting. First, Catterall, Dumais, and Hampden-Thompson (2012) found a relationship between high levels of arts-rich school experiences and higher writing and science scores, higher grade point averages, and higher levels of college attendance and graduation. Similarly, Thomas, Singh, and Klopfenstein (2015) found that cumulative credits in the arts are associated with lower instances of dropout. Causal studies along these lines, however, have been nearly nonexistent.

One notable exception was an experimental study of a school-facilitated art museum partnership program, where researchers found that arts exposure increased students' tolerance levels, historical empathy (Greene, Kisida, & Bowen, 2014), and their ability to think critically about works of art (Bowen, Greene, & Kisida, 2014; Kisida, Bowen, & Greene, 2016). Additional studies involving museum programs are rare and tend to be correlational. For example, a quasi-experimental evaluation of the Solomon R. Guggenheim's *Literacy Through Art* program found correlations between fifth grade students' participation and literacy skills (Korn & Associates, Inc., 2007). A similar evaluation conducted at the Isabella Stewart Gardner Museum in Boston found that arts participation increased 8th grade students' critical thinking skills (Desantis, 2009). To our knowledge, however, no causal studies have examined the effects of an art museum's educational program on younger children.

1.3. Arts education and cultural capital

Finally, prior research has shown that exposure to an art museum's educational program has the effect of creating cultural consumers with an increased desire to engage with cultural institutions and the arts generally (Kisida, Greene, & Bowen, 2014). Importantly, this research found that disadvantaged students had the least amount of previous arts exposure, and they experienced the greatest benefits from the program. Related research has confirmed a strong relationship between socioeconomic status and children's museum attendance (Dumais, 2006). Under the sociological framework of cultural capital, arts exposure can be a valuable resource that acts as a gateway to children's future academic, social, and economic success (Bourdieu, 1977; Bourdieu & Passeron, 1990). A growing body of research has found a positive relationship between measures of cultural capital and academic achievement (Aschaffenburg & Maas, 1997; DiMaggio, 1982; Dumais, 2002; Yamamoto & Brinton, 2010). To date, however, interventions that lead to the development of positive attitudes toward the arts have

not been examined among younger students using experimental methods. If exposure to the arts in early childhood increases the likelihood of students seeking arts-rich experiences in later childhood, then early childhood exposure may lead to benefits that compound over subsequent years of schooling and adulthood.

2. Method

2.1. Setting

In November 2011, Crystal Bridges Museum of American Art opened in Bentonville, Arkansas. With a world class art collection and a permanent endowment of over $800 million, it is widely considered the first major American art museum to open in 50 years (Vogel, 2011). The opening of the museum was particularly novel for the community, as there were no other major art museums in the region. Bentonville had a population of just over 35,000 in 2010, with the larger metropolitan region approaching a half million residents.

2.2. Participants

In March of 2012, the museum launched their School Visit Program (SVP). A portion of the museum's endowment made it possible for local school groups to participate in the SVP at virtually no cost to schools or students. The endowment covered pre- and post-curricular materials, admission to the museum, transportation costs, students' lunches on the day of the visit, and substitute teachers.

Announcements were sent to area schools informing them of the opportunity to participate in the museum's educational offerings, and teachers were invited to apply through a website that collected their school information, grade level, size of the group, and any other special considerations (e.g., students with disabilities or students with limited English proficiency). The application portal was open for several weeks. Because the opening of a major art museum in an area with limited cultural resources was such a significant event, and because the cost of participation was covered, there was far more demand from local schools than the museum could accommodate.

In total, 525 school groups representing over 38,000 students in grades K-12 applied during the first year of the program. In order to fairly allocate the opportunity to participate, available slots were awarded through a lottery that we administered in partnership with the museum. Through this lottery, we were able to create treatment and control groups to facilitate a rigorous study of the causal effects of participation in the art museum's educational program.

To increase balance between the treatment and control groups, we used a stratified randomization procedure, which can strengthen statistical power while preserving the advantages of random assignment (Schneider, Carnoy, Kilpatrick, Schmidt, & Shavelson, 2007). To ensure that the treatment and control groups were similar on pretreatment characteristics, we paired applicants with similar demographics (e.g., grade, region, percent free or reduced-price lunch, and percent minority) and randomized school groups within these pairings. Applicant groups that won the lottery made up our treatment group, and matched applicants who did not win the lottery constituted the control group. As an incentive to participate in the research study, control group applicants that participated in data collection were guaranteed a spot for the subsequent semester. Through the random allocation of available slots, 92 groups were invited to participate, while their matched counterparts were awarded deferred tours. Applicant groups that were not selected to be in the treatment or control groups were encouraged to apply in future rounds.

2.3. Treatment

Before visiting the museum, teachers of treatment group students were sent a packet containing a video orientation for teachers and students to watch that covered museum etiquette and emphasized that the tour would lean heavily on student-driven discussions about works of art. Teachers also received a selection of three images the students would see on their tour of the museum, information about the themes of the tour, and guiding questions to familiarize students with the dialogue-driven nature of the tour and the types of themes they would discuss.

The museum offered a variety of tours, tailored for particular grade groups and encompassing various themes (Kraybill, 2014). Students in grades K-2 participated in *Me and My Museum*, an introductory tour that exposed students to a variety of paintings and sculptures and asked them to interact through conversation, movement, stories, and hands-on activities. Trained museum educators conducted these tours which followed a constructivist-based learning approach. In a typical tour, students were split into small groups of 10–15 that focused on four or five paintings or sculptures in the museum. Museum educators facilitated open-ended, student-centered discussions about the works of art that encouraged students to think together, engage with the works of art on a deep level, and seek out their own unique interpretations. When appropriate, museum educators supplied historical and sociological information to facilitate student understanding.

2.4. Data collection

Members of the research team visited students in their classrooms and administered surveys to the treatment and control groups roughly three weeks, on average, after the treatment group's visit to the museum ($M = 22.7$days, $SD = 13.4$). Researchers were not made aware as to whether surveyed groups were in the treatment or control group. Moreover, to guard against the possibility of social desirability bias, researchers identified themselves as representatives of the local university and were careful not to suggest they had any affiliation with the museum. Additionally, students were encouraged to be honest in their responses and assured that all of their answers would be confidential. In total, 160 matched applicant groups (80 treatment and 80 control) representing a total of 10,912 students at 123 schools completed surveys. Due to tour cancellations or erroneous application information, we excluded 12 of the matched pairs that were originally part of the lottery.

Because participation in data collection was a mandatory component of receiving an immediate or deferred school tour, all of the remaining treatment groups and control groups completed student surveys. Of the 160 groups we collected data from, 26 groups (13 treatment and 13 control) consisted of 2,253 students in grades K-2 and constitute the sample we focus on in this article. Because of their age, students in grades K-2 completed a different survey than students in older grades. The surveys were read aloud to students by members of the research team and students' response options were picture-based (thumbs-up and thumbs-down for yes/no responses; a range of happy and sad faces for Likert-based responses).

2.5. Measures

The survey contained questions regarding student grade, gender, attitudes toward cultural institutions, and attitudes toward art. For ease of interpretation, Likert-based items were coded so that strongly disagree/somewhat disagree responses were coded as zeroes, and somewhat agree/strongly agree were coded as ones.

Table 1
Treatment/Control Balance of the Grade K-2 Analytic Sample.

Characteristic	Treatment (n = 1150)	Control (n = 1103)	Difference
Percent female	47.74	48.23	−0.49
Average grade	1.27	1.43	−0.16
School Percent Hispanic	19.76	26.75	−6.98*
School Percent black	2.46	3.73	−0.83
School percent white	67.52	59.48	8.04
School percent FRL	43.41	53.77	−10.36*
Average school size	644.86	582.35	62.52
Town Population	42,692	40,687	2,006

Note: School percent FRL = percentage of students receiving free or reduced-price lunch measured at the school level. The reported p-value is from the coefficient on the treatment indicator when each covariate is regressed on the treatment indicator and the matched pair dummy variables (as in the base model for the impact estimates).

* $p < .05$, two-tailed.

Two additional questions assessed students' knowledge of art. First, students were asked to correctly identify a portrait when asked to choose between a portrait and a landscape. Students were also asked to identify George Washington from a selection of three presidential portraits, since their tour included a discussion of a portrait of Washington by artist Gilbert Stuart.

2.6. Analysis

Because mere chance determined treatment group status, the treatment and control groups were largely identical except for whether they participated in the museum's program. As a result, any outcomes that differ between the treatment and control groups can confidently be attributed to having participated in the art museum's school tour and related classroom activities.

2.6.1. Treatment-control baseline comparisons

Comparisons between the treatment and control groups on key variables show that the randomization procedure largely achieved comparable balance on observable characteristics. Table 1 provides key descriptive characteristics of the treatment and control groups and notes any differences. The groups were not significantly different on percent female, average grade, school-percent black, school-percent white, average school size, or the average population of the town where the students live. On two variables, however, school percent Hispanic and school percent free- or reduced-price lunch, there were significant differences. Control group schools enrolled slightly more Hispanic students and were more likely to enroll students eligible for free- or reduced-price lunch. It should be noted that even when implementing random assignment, some significant differences may emerge by chance. In our analytic models, we control for both of these school-level variables to improve the precision of our estimates and adjust for any potential bias.

2.6.2. Estimating treatment effects

With comparable treatment and control groups, the analytic techniques to estimate treatment effects are straightforward. In its most basic form, this technique could estimate simple regression models to compare mean differences between the treatment and control groups on our outcome measures. However, though randomization generated comparable experimental groups, these groups are not perfectly identical. We improve our basic regression model by adding controls for observable characteristics to adjust for any differences across the groups and to increase the precision of the treatment impact estimates. Moreover, by adding observable characteristics to the regression model, we were able to examine effects of these characteristics on outcomes. This analytical strategy yielded the following equation for *ArtOutcomes*, our binary measures of interest in art museums and art, as well as art knowledge outcomes, of student *i* in matched pair *m* and school *s*:

$$ArtOutcomes_{ims} = \alpha + \beta_1 Treat_i + \mathrm{Match}_{im}\beta_2 + X_i\beta_3 + Z_s\beta_4 + \varepsilon_{ims}$$

The indicator variable $Treat_i$ is equal to one if the student was in the treatment group randomly assigned to visit the museum for a school tour and is equal to zero otherwise. Because we used a stratified randomization procedure within matched applicant group pairs, $\boldsymbol{Match_{im}}$ is also included in the model as a vector of dummy variables that have the statistical effect of estimating within, as opposed to across, matched pairs. $\boldsymbol{X_i}$ is a vector of student characteristics including an indicator variable for gender and grade level dummy variables. $\boldsymbol{Z_s}$ is a vector of school characteristics including school-percent Black and school-percent Hispanic, and school-level percent free- or reduced-lunch eligibility. Finally, ε_{ims} is a stochastic error term clustered at the applicant group level to account for the spatial correlation of students nested within applicant groups. For ease of interpretation, all of our results were derived from linear probability models. However, due to the binary nature of our outcome variables, we validated our statistical significance levels using logistic regression models. Finally, in addition to overall impacts, we tested for the heterogeneous effects across male and female students. We tested for heterogeneous effects by modifying this equation to include interactions between the binary treatment variable and indicator variables for male and female students.

3. Results

Regression estimates for the full sample of grade K-2 students are provided in Table 2. Though not an outcome of primary interest, the first row compares treatment and control group students on treatment status to get a sense of how much exposure the control group previously received. Roughly eighteen percent of the control group reported that they have visited an art museum on a school field trip. This result could likely be explained by some fraction of the control group students actually having had such an experience, but also because young children who had never been to an art museum were not exactly sure what the question was asking. Additional data that we collected from older children, in which we asked them to list the names of art museums they had attended, demonstrated that roughly half of the children mistakenly thought that any museum was an art museum. As expected, nearly every student in the treatment group reported having visited an art museum on a school field trip since they had just visited one by design.

3.1. Impact analysis

In terms of our outcomes of interest, there were significant effects across five of the seven outcomes that measured attitudes toward art museums and art. Students in the treatment group were more likely to think trips to art museums were fun, felt happy about art museums, and indicated that they would like to visit art museums with their family. Students in the treatment group were also significantly less likely to say that looking at art is boring. It is also noteworthy that even though there were positive treatment effects, the control group percentages were very high. Even before participating in the art museum's educational program, young children had generally positive attitudes toward art. In some cases, ceiling effects may explain lack of significant effects on some items. Finally, the treatment group was more likely to answer knowledge questions correctly, both in terms of identifying a portrait (an art-related question) and identifying George Washington (a historical-content related question).

Table 2
Regression Estimates of Treatment Effects on Students' Interest in Arts Engagement.

Outcomes	Treatment	Control	Difference	Effect Size
Have you ever been to an art museum on a school field trip?[a]	98.90	17.89	81.01**	1.64**
Do you think trips to art museums are fun?[a]	94.34	88.58	5.76**	0.20**
If your family wanted to take you to an art museum, would you like to go?[a]	92.54	88.30	4.24**	0.14**
Do you think looking at art is boring?[a]	14.32	18.83	−4.51*	−0.11**
How do you feel about art museums?[b]	94.20	88.86	5.34**	0.18**
How do you feel about visiting art museums when you are a grown-up?[b]	88.61	86.77	1.84	0.06
How do you feel about art?[b]	94.83	93.12	1.71	0.06
Can correctly identify a portrait.[c]	63.79	57.92	5.86**	0.12**
Can correctly identify George Washington.[c]	95.30	91.02	4.28**	0.17**

Note: Estimates are obtained from ordinary least squares regression models with robust standard errors clustered by applicant group. All models control for gender, grade level, school percent FRL, school-percent Black, school-percent Hispanic, and lottery pair. Effect sizes are in terms of standard deviation units. For ease of interpretation, Likert-based items have been collapsed so that strongly disagree/somewhat disagree responses are coded zero, and somewhat agree/strongly agree are coded one. [a] Measured as thumbs up/thumbs down. [b] Collapsed from 4-category based Likert-scale. [c] Measured from multiple choice responses to questions: Which of these is an example of a portrait?; and Can you circle the picture of George Washington?

** $p < .01$.

* $p < .05$, two-tailed.

Table 3
Regression Estimates of Treatment Effects on Students' Interest in Arts Engagement, By Gender.

Outcomes	Male Students			Female Students		
	Treatment	Control	Difference	Treatment	Control	Difference
Do you think trips to art museums are fun?[a]	91.58	85.60	5.99*	96.15	90.64	5.51**
If your family wanted to take you to an art museum, would you like to go?[a]	90.96	85.74	5.22*	93.31	90.14	3.17*
Do you think looking at art is boring?[a]	19.62	21.19	−1.57^	9.78	17.53	−7.76**,^
How do you feel about art museums?[b]	90.47	85.41	5.06*	96.29	90.64	5.65**
How do you feel about visiting art museums when you are a grown-up?[b]	85.54	82.30	3.23	91.60	91.28	0.31
How do you feel about art?[b]	91.45	88.37	3.08*	96.73	96.53	0.20
Can correctly identify a portrait.[c]	63.13	56.15	6.98**	63.46	58.82	4.63
Can correctly identify George Washington.[c]	94.15	93.20	0.95^	94.66	86.70	7.95**,^

Note: Estimates are obtained from ordinary least squares regression models with robust standard errors clustered by applicant group. All models control for gender, grade level, school-percent FRL, school-percent Black, school-percent Hispanic, and lottery pair. For ease of interpretation, Likert-based items have been collapsed so that strongly disagree/somewhat disagree responses are coded zero, and somewhat agree/strongly agree are coded one.

[a] Measured as thumbs up/thumbs down.

[b] Collapsed from 4-category based Likert-scale.

[c] Measured from multiple choice responses.

^ The difference between male and female student outcomes is statistically significant.

** $p < .01$.

* $p < .05$.

3.2. Moderating effects

We have provided the effects for male and female students in Table 3. One noteworthy aspect of disaggregating outcomes by gender is that female students in the control group started with more positive attitudes toward art than male students. Across all six outcomes that measure arts attitudes, female control group students indicated more positive pre-treatment responses. In terms of the effects of the treatment, the most striking difference is whether students thought that looking at art is boring. The treatment effect on this outcome was driven entirely by female students. On the other hand, male control group students were more likely than female student to think that looking at art is boring, and they appear to have been unaffected as a result of the treatment. Similarly, the effects on identifying George Washington were also driven by female students, though this result is likely explained by the fact that most male students could already correctly identify Washington.

4. Discussion

Using an experimental research design, we examined if young children develop a taste for art when they are exposed to an art museum's educational program. Though the intervention was modest, this experience was the first time most of these students had visited an art museum. As a result, even a relatively limited amount of exposure produced significant differences between the treatment and control groups. Across multiple measures, we found that students in the treatment group developed more positive attitudes toward art museums and art. Because we employed an experimental methodology, we can be confident that the experience caused the impacts we observed. When disaggregating the results by gender, we found that both male and female students experienced gains in positive attitudes about art museums. The significant decrease in thinking that looking at art is boring, however, was driven by female students. The estimated effect for males was not significant on this outcome. Responses by the control group further demonstrated that on average, female students began with more positive attitudes toward the arts, which is consistent with prior research that shows that girls participate in the arts more than boys from an early age (Smyth, 2016). It is interesting that even for very young students, initial interest in the arts seems to have played a role in the differential response to the program. Related research suggests that males and females focus on different aspects of arts experiences, with males showing more of an interest in the "facts" behind works of art while females are more focused on the artwork itself (Moulard, Rice, Garrity, & Mangus, 2014). As a result, it could be that the nature of this particular program increased male students' interest in visiting an art museum without generating a corresponding interest in looking at art in the way it was structured by the museum.

This study provides a unique contribution to the research on early childhood arts participation. Most existing studies involving young children have focused on music and performance art and have typically involved more sustained arts participation. As such,

it is difficult to situate our analysis among existing studies of arts participation effects given the variation in the types, durations, and goals of different arts-based educational programs. Additionally, existing studies have primarily examined what have been referred to as the "instrumental benefits" of the arts—outcomes focused on the benefits of arts education in other domains, rather than intrinsic arts outcomes (McCarthy, Ondaatje, Zakaras, & Brooks, 2004). Our investigation of the attitudinal effects of a relatively brief arts-based experience, where students were encouraged to engage with works of visual art through a constructivist approach, focused on students' increased interest in engaging with visual art works and art museums. Future research is needed to determine if other forms of arts participation would generate similar attitudinal changes.

4.1. Implications

There are important implications from this research. A large body of evidence suggests that arts experiences generate positive benefits in early childhood, ranging from academic skills to social-emotional development. In later years, arts participation is related to better schooling outcomes (Catterall et al., 2012), higher graduation rates (Thomas et al., 2015), and better outcomes later in life (Aschaffenburg & Mass, 1997; DiMaggio, 1982). Finally, the most significant predictor of adult arts participation is exposure during childhood (Rabkin & Hedberg, 2011). Yet, childhood arts exposure has experienced declines, and much of this decline has been a result of less exposure through school-facilitated arts educational activities. This decline has been particularly true for historically underserved students, who are especially reliant on schools for arts exposure (Dumais, 2006). Our research has shown that exposure in early childhood is an important catalyst that sparks an interest in students to engage with the arts, which could lead to compounded downstream effects.

It is also worth noting that trained museum educators provided the bulk of this arts experience in a museum setting. The effects of such an intervention may hinge upon the expertise and novel experiences that come with museum visits. Around the United States, partnerships with cultural organizations are an increasingly popular strategy for supplementing in-school arts education (Bowen & Kisida, 2017). Given the ongoing challenges that K-12 schools face with providing arts learning opportunities, our results suggest these partnerships are valuable pursuits.

4.2. Limitations

Our study has important limitations. We do not know which aspects of the program caused the treatment group to have more favorable attitudes toward art museums and art. The effects could be driven by exposure to the art itself, the museum setting, the classroom curricular materials, or some combination of these activities. It is important to consider that the tour was a structured educational experience. The results also suggest that learning about art likely played a significant role, as students retained factual information about the art they encountered during their museum visit. This also suggests that viewing the art itself was a memorable and thought-provoking experience for the students.

Our study incorporated a passive control group–students who were not randomly selected to participate experienced "business as usual." Their teachers may have replaced the museum experience with some other enriching activity, but we have no data to confirm the nature of their activities. As a result, it could be the case that the treatment effects we observed are partially driven by the mere fact that any field trip experience is more fun than school. In an ideal situation, a second control group condition would have placed students in a related educational experience of a different type, such as visiting a history museum. With such a condition, we would be better equipped to make the claim that the art components of the program, rather than the experience as a whole, generated the effects we observed. Future research could explore the precise aspects of arts experiences that develop more positive attitudes among young children.

We also cannot confidently say that these short-term changes in attitudes will lead to increased arts exposure in later life and related instrumental benefits. Students were surveyed on average three weeks after they visited the museum, yet some were surveyed more than two months later. When we tested the relationship between our outcome variables and the time between the program and survey administration, we found no evidence to suggest the effects diminish over time. While this provides some support that the effects may endure, we cannot confidently rule out the possibility that the effects will fade over a longer period of time. Future research should examine the longer-term effects of arts experiences on the dispositions of students.

Finally, the typical tradeoff in experimental research between high internal validity and low external validity applies in our situation. The treatment and control groups both self-selected to participate in the intervention, which strengthens the comparability of our groups and improves internal validity. This aspect of the study, however, comes at the expense of external validity. We cannot make strong claims that these effects would hold for the general student population in the region, students in other regions, or students exposed to different types of arts experiences.

5. Conclusion

From a policy perspective, this research demonstrates that schools can play an important role in providing students with experiences that inculcate a taste for art. Exposure to the arts within schools, however, has been decreasing (Rabkin & Hedberg, 2011), and the amount that U.S. schools are facilitating visits to cultural institutions has also declined (Blair, 2008; Ellerson, 2010). Given the growing evidence that students exposed to the arts in early childhood and beyond see improved outcomes across a broad range of measures, arts advocates and policymakers should take steps to reverse these declines. Future work that rigorously examines the influence of the arts on children and the short-and long-term effects would be an especially valuable contribution to guide those efforts.

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