

The Educational



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Value of Field Trips

*Taking students to an
art museum
improves critical thinking skills,
and more*

The school field trip has a long history in American public education. For decades, students have piled into yellow buses to visit a variety of cultural institutions, including art, natural history, and science museums, as well as theaters, zoos, and historical sites. Schools gladly endured the expense and disruption of providing field trips because they saw these experiences as central to their educational mission: schools exist not only to provide economically useful skills in numeracy and literacy, but also to produce civilized young men and women who would appreciate the arts and culture. More-advantaged families may take their children to these cultural institutions outside of school hours, but less-advantaged students are less likely to have these experiences if schools do not provide them. With field trips, public schools viewed themselves as the great equalizer in terms of access to our cultural heritage.

Today, culturally enriching field trips are in decline. Museums across the country report a steep drop in school tours. For example, the Field Museum in Chicago at one time welcomed more than 300,000 students every year. Recently the number is below 200,000. Between 2002 and 2007, Cincinnati arts organizations saw a 30 percent decrease in student attendance. A survey by the American Association of School Administrators found that more than half of schools eliminated planned field trips in 2010–11.

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The decision to reduce culturally enriching field trips reflects a variety of factors. Financial pressures force schools to make difficult decisions about how to allocate scarce resources, and field trips are increasingly seen as an unnecessary frill. Greater focus on raising student performance on math and reading standardized tests may also lead schools to cut field trips. Some schools believe that student time would be better spent in the classroom preparing for the exams. When schools do organize field trips, they are increasingly choosing to take students on trips to reward them for working hard to improve their test scores rather than to provide cultural enrichment. Schools take students to amusement parks, sporting events, and movie theaters instead of to museums and historical sites. This shift from “enrichment” to “reward” field trips is reflected in a generational change among teachers about the purposes of these outings. In a 2012-13 survey we conducted of nearly 500 Arkansas teachers, those who had been teaching for at least 15 years were significantly more likely to believe that the primary purpose of a field trip is to provide a learning opportunity, while more junior teachers were more likely to see the primary purpose as “enjoyment.”

If schools are de-emphasizing culturally enriching field trips, has anything been lost as a result? Surprisingly, we have relatively little rigorous evidence about how field trips affect students. The research presented here is the first large-scale randomized-control trial designed to measure what students learn from school tours of an art museum.

We find that students learn quite a lot. In particular, enriching field trips contribute to the development of students into civilized young men and women who possess more knowledge about art, have stronger critical-thinking skills,

exhibit increased historical empathy, display higher levels of tolerance, and have a greater taste for consuming art and culture.

Design of the Study and School Tours

The 2011 opening of the Crystal Bridges Museum of American Art in Northwest Arkansas created the opportunity for this study. Crystal Bridges is the first major art museum to be built in the United States in the last four decades, with more than 50,000 square feet of gallery space and an endowment in excess of \$800 million. Portions of the museum’s endowment are devoted to covering all of the expenses associated with school tours. Crystal Bridges reimburses schools for the cost of buses, provides free admission and lunch, and even pays for the cost of substitute teachers to cover for teachers who accompany students on the tour.

Because the tour is completely free to schools, and because Crystal Bridges was built in an area that never previously had an art museum, there was high demand for school tours. Not all school groups could be accommodated right away. So our research team worked with the staff at Crystal Bridges to assign spots for school tours by lottery. During the first two semesters of the school tour program, the museum received 525 applications from school groups representing 38,347 students in kindergarten through grade 12. We created matched pairs among the applicant groups based on similarity in grade level and other demographic factors. An ideal and common matched pair would be adjacent grades in the same school. We then randomly ordered the matched pairs to determine scheduling prioritization. Within each pair, we randomly assigned which applicant would be in the treatment group and receive a tour that semester and which would be in the control group and have its tour deferred.

We administered surveys to 10,912 students and 489 teachers at 123 different schools three weeks, on average, after the treatment group received its tour. The student surveys included multiple items assessing knowledge about art as well as measures of critical thinking, historical empathy, tolerance, and sustained interest in visiting art museums. Some groups were surveyed as late as eight weeks after the tour, but it was not possible to collect data after longer periods because each control group was guaranteed a tour during the following semester as a reward for its cooperation. There is no indication that the results reported below faded for groups surveyed after longer periods.

PHOTO / COURTESY CRYSTAL BRIDGES MUSEUM OF AMERICAN ART BENTONVILLE, ARKANSAS





Eighth-grade students on tour enter the exhibit Focus: The Portrait, Picturing Women at the Turn of the Twentieth Century. Robert Henri's Jessica Penn in Black with White Plumes hangs on the far wall.

a brief description only when students requested it. This format is now the norm in school tours of art museums. The aversion to having museum educators provide information about works of art is motivated in part by progressive education theories and by a conviction among many in museum education that students retain very little factual information from their tours.

Results

Recalling Tour Details. Our research suggests that students actually retain a great deal of factual information from their tours. Students who received a

We also assessed students' critical-thinking skills by asking them to write a short essay in response to a painting that they had not previously seen. Finally, we collected a behavioral measure of interest in art consumption by providing all students with a coded coupon good for free family admission to a special exhibit at the museum to see whether the field trip increased the likelihood of students making future visits.

All results reported below are derived from regression models that control for student grade level and gender and make comparisons within each matched pair, while taking into account the fact that students in the matched pair of applicant groups are likely to be similar in ways that we are unable to observe. Standard validity tests confirmed that the survey items employed to generate the various scales used as outcomes measured the same underlying constructs.

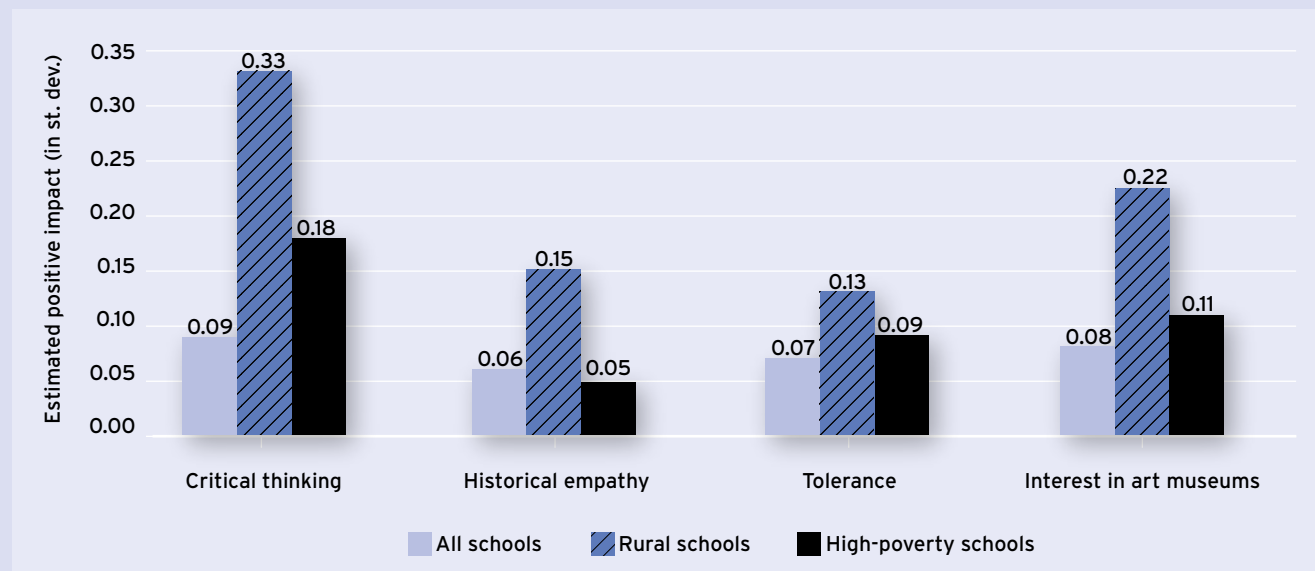
The intervention we studied is a modest one. Students received a one-hour tour of the museum in which they typically viewed and discussed five paintings. Some students were free to roam the museum following their formal tour, but the entire experience usually involved less than half a day. Instructional materials were sent to teachers who went on a tour, but our survey of teachers suggests that these materials received relatively little attention, on average no more than an hour of total class time. The discussion of each painting during the tour was largely student-directed, with the museum educators facilitating the discourse and providing commentary beyond the names of the work and the artist and

tour of the museum were able to recall details about the paintings they had seen at very high rates. For example, 88 percent of the students who saw the Eastman Johnson painting *At the Camp—Spinning Yarns and Whittling* knew when surveyed weeks later that the painting depicts abolitionists making maple syrup to undermine the sugar industry, which relied on slave labor. Similarly, 82 percent of those who saw Norman Rockwell's *Rosie the Riveter* could recall that the painting emphasizes the importance of women entering the workforce during World War II. Among students who saw Thomas Hart Benton's *Ploughing It Under*, 79 percent recollected that it is a depiction of a farmer destroying his crops as part of a Depression-era price support program. And 70 percent of the students who saw Romare Bearden's *Sacrifice* could remember that it is part of the Harlem Renaissance art movement. Since there was no guarantee that these facts would be raised in student-directed discussions, and because students had no particular reason for remembering these details (there was no test or grade associated with the tours), it is impressive that they could recall historical and sociological information at such high rates.

These results suggest that art could be an important tool for effectively conveying traditional academic content, but this analysis cannot prove it. The control-group performance was hardly better than chance in identifying factual information about these paintings, but they never had the opportunity to learn the material. The high rate of recall of

Day at the Museum (Figure 1)

Students from rural and high-poverty schools benefit even more than other students from visiting an art museum.



NOTES: All results are statistically significant at the 95 percent confidence level except the historical empathy result for high-poverty schools. The figure shows the impact of an art museum visit as estimated by regression models that control for student gender, grade, and matched pair. N = 3,798 for Critical thinking; N = 4,248 for Tolerance; N = 4,224 for Historical empathy; N = 8,257 for Interest in art museums. Rural schools are those in towns with populations of less than 10,000. High-poverty schools are those in which more than 50 percent of students are eligible for free or reduced-price lunch.

SOURCE: Authors' calculations

factual information by students who toured the museum demonstrates that the tours made an impression. The students could remember important details about what they saw and discussed.

Critical Thinking. Beyond recalling the details of their tour, did a visit to an art museum have a significant effect on students? Our study demonstrates that it did. For example, students randomly assigned to receive a school tour of Crystal Bridges later displayed demonstrably stronger ability to think critically about art than the control group.

During the first semester of the study, we showed all 3rd-through 12th-grade students a painting they had not previously seen, Bo Bartlett's *The Box*. We then asked students to write short essays in response to two questions: What do you think is going on in this painting? And, what do you see that makes you think that? These are standard prompts used by museum educators to spark discussion during school tours.

We stripped the essays of all identifying information and had two coders rate the compositions using a seven-item rubric for measuring critical thinking that was developed by researchers at the Isabella Stewart Gardner Museum in Boston. The measure is based on the number of instances that students engaged in the following in their essays: observing, interpreting, evaluating, associating, problem finding,

comparing, and flexible thinking. Our measure of critical thinking is the sum of the counts of these seven items. In total, our research team blindly scored 3,811 essays. For 750 of those essays, two researchers scored them independently. The scores they assigned to the same essay were very similar, demonstrating that we were able to measure critical thinking about art with a high degree of inter-coder reliability.

We express the impact of a school tour of Crystal Bridges on critical-thinking skills in terms of standard-deviation effect sizes. Overall, we find that students assigned by lottery to a tour of the museum improve their ability to think critically about art by 9 percent of a standard deviation relative to the control group. The benefit for disadvantaged groups is considerably larger (see Figure 1). Rural students, who live in towns with fewer than 10,000 people, experience an increase in critical-thinking skills of nearly one-third of a standard deviation. Students from high-poverty schools (those where more than 50 percent of students receive free or reduced-price lunches) experience an 18 percent effect-size improvement in critical thinking about art, as do minority students.

A large amount of the gain in critical-thinking skills stems from an increase in the number of observations that students made in their essays. Students who went on a tour became more observant, noticing and describing more details in an

Receiving a school tour of an art museum increases student tolerance. As with critical thinking, the benefits are much larger for students in disadvantaged groups.

image. Being observant and paying attention to detail is an important and highly useful skill that students learn when they study and discuss works of art. Additional research is required to determine if the gains in critical thinking when analyzing a work of art would transfer into improved critical thinking about other, non-art-related subjects.

Historical Empathy. Tours of art museums also affect students' values. Visiting an art museum exposes students to a diversity of ideas, peoples, places, and time periods. That broadening experience imparts greater appreciation and understanding. We see the effects in significantly higher historical empathy and tolerance measures among students randomly assigned to a school tour of Crystal Bridges.

Historical empathy is the ability to understand and appreciate what life was like for people who lived in a different time and place. This is a central purpose of teaching history, as it provides students with a clearer perspective about their own time and place. To measure historical empathy, we included three statements on the survey with which students could express their level of agreement or disagreement: 1) I have a good understanding of how early Americans thought and felt; 2) I can imagine what life was like for people 100 years ago; and 3) When looking at a painting that shows people, I try to imagine what those people are thinking. We combined these items into a scale measuring historical empathy.

Students who went on a tour of Crystal Bridges experience a 6 percent of a standard deviation increase in historical empathy. Among rural students, the benefit is much larger,

a 15 percent of a standard deviation gain. We can illustrate this benefit by focusing on one of the items in the historical empathy scale. When asked to agree or disagree with the statement, "I have a good understanding of how early Americans thought and felt," 70 percent of the treatment-group students express agreement compared to 66 percent of the control group. Among rural participants, 69 percent of the treatment-group students agree with this statement compared to 62 percent of the control group. The fact that Crystal Bridges features art from different periods in American history may have helped produce these gains in historical empathy.

Tolerance. To measure tolerance we included four statements on the survey to which students could express their level of agreement or disagreement: 1) People who disagree with my point of view bother me; 2) Artists whose work is critical of America should not be allowed to have their work shown in art museums; 3) I appreciate hearing views different from my own; and 4) I think people can have different opinions about the same thing. We combined these items into a scale measuring the general effect of the tour on tolerance.

Overall, receiving a school tour of an art museum increases student tolerance by 7 percent of a standard deviation. As with critical thinking, the benefits are much larger for students in disadvantaged groups. Rural students who visited Crystal Bridges experience a 13 percent of a standard deviation improvement in tolerance. For students at high-poverty schools, the benefit is 9 percent of a standard deviation.

The improvement in tolerance for students who went on a tour of Crystal Bridges can be illustrated by the responses to one of the items within the tolerance scale. When asked

about the statement, "Artists whose work is critical of America should not be allowed to have their work shown in art museums," 35 percent of the control-group students express agreement. But for students randomly assigned to receive a school tour of the art museum, only 32 percent agree with censoring art critical of America. Among rural students, 34 percent of the control group would censor art compared to 30 percent for the treatment group. In high-poverty schools, 37 percent of the control-group students would

censor compared to 32 percent of the treatment-group students. These differences are not huge, but neither is the intervention. These changes represent the realistic improvement in tolerance that results from a half-day experience at an art museum.



During the first two semesters of the school tour program at Crystal Bridges, the museum received 525 applications.

PHOTO / COURTESY CRYSTAL BRIDGES MUSEUM OF AMERICAN ART BENTONVILLE, ARKANSAS

Interest in Art Museums. Perhaps the most important outcome of a school tour is whether it cultivates an interest among students in returning to cultural institutions in the future. If visiting a museum helps improve critical thinking, historical empathy, tolerance, and other outcomes not measured in this study, then those benefits would compound for students if they were more likely to frequent similar cultural institutions throughout their life. The direct effects of a single visit are necessarily modest and may not persist, but if school tours help students become regular museum visitors, they may enjoy a lifetime of enhanced critical thinking, tolerance, and historical empathy.

We measured how school tours of Crystal Bridges develop in students an interest in visiting art museums in two ways: with survey items and a behavioral measure. We included a series of items in the survey designed to gauge student interest:

- I plan to visit art museums when I am an adult.
- I would tell my friends they should visit an art museum.
- Trips to art museums are interesting.
- Trips to art museums are fun.
- Would your friend like to go to an art museum on a field trip?
- Would you like more museums in your community?
- How interested are you in visiting art museums?
- If your friends or family wanted to go to an art museum, how interested would you be in going?

Interest in visiting art museums among students who toured the museum is 8 percent of a standard deviation higher than that in the randomized control group. Among rural students, the increase is much larger: 22 percent of a standard deviation. Students at high-poverty schools score 11 percent of a standard deviation higher on the cultural consumer scale if they were randomly assigned to tour the museum. And minority students gain 10 percent of a standard deviation in their desire to be art consumers.

One of the eight items in the art consumer scale asked students to express the extent to which they agreed or disagreed with the statement, “I would tell my friends they should visit an art museum.” For all students who received a tour, 70 percent agree with this statement, compared to 66 percent in the control group. Among rural participants, 73 percent of the



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treatment-group students agree versus 63 percent of the control group. In high-poverty schools, 74 percent would recommend art museums to their friends compared to 68 percent of the control group. And among minority students, 72 percent of those who received a tour would tell their friends to visit an art museum, relative to 67 percent of the control group.



PHOTO / COURTESY CRYSTAL BRIDGES MUSEUM OF AMERICAN ART, BENTONVILLE, ARKANSAS

*Eighth-grade students study the painting *Our Town* by Kerry James Marshall.*

Students, particularly those from disadvantaged backgrounds, are more likely to have positive feelings about visiting museums if they receive a school tour.

We also measured whether students are more likely to visit Crystal Bridges in the future if they received a school tour. All students who participated in the study during the first semester, including those who did not receive a tour, were provided with a coupon that gave them and their families free entry to a special exhibit at Crystal Bridges. The coupons were coded so that we could determine the applicant group to which students belonged. Students had as long as six months after receipt of the coupon to use it.

We collected all redeemed coupons and were able to calculate how many adults and youths were admitted. Though students in the treatment group received 49 percent of

all coupons that were distributed, 58 percent of the people admitted to the special exhibit with those coupons came from the treatment group. In other words, the families of students who received a tour were 18 percent more likely to return to the museum than we would expect if their rate of coupon use was the same as their share of distributed coupons.

This is particularly impressive given that the treatment-group students had recently visited the museum. Their desire to visit a museum might have been satiated, while the control group might have been curious to visit Crystal Bridges for the first time. Despite having recently been to the museum, students who received a school tour came back at higher rates. Receiving a school tour cultivates a taste for visiting art museums, and perhaps for sharing the experience with others.

Disadvantaged Students

One consistent pattern in our results is that the benefits of a school tour are generally much larger for students from less-advantaged backgrounds. Students from rural areas and high-poverty schools, as well as minority students, typically show gains that are two to three times larger than those of the total sample. Disadvantaged students assigned by lottery to receive a school tour of an art museum make exceptionally

large gains in critical thinking, historical empathy, tolerance, and becoming art consumers.

It appears that the less prior exposure to culturally enriching experiences students have, the larger the benefit of receiving a school tour of a museum. We have some direct measures to support this explanation. To isolate the effect of the first time visiting the museum, we truncated our sample to include only control-group students who had never visited Crystal Bridges and treatment-group students who had visited for the first time during their tour. The effect for this first visit is roughly twice as large as that for the overall sample, just as it is for disadvantaged students.

In addition, we administered a different version of our survey to students in kindergarten through 2nd grade. Very young students are less likely to have had previous exposure to culturally enriching experiences. Very young students make exceptionally large improvements in the observed



PHOTO / COURTESY CRYSTAL BRIDGES MUSEUM OF AMERICAN ART, BENTONVILLE, ARKANSAS

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outcomes, just like disadvantaged students and first-time visitors.

When we examine effects for subgroups of advantaged students, we typically find much smaller or null effects. Students from large towns and low-poverty schools experience few significant gains from their school tour of an art museum. If schools do not provide culturally enriching experiences for these students, their families are likely to have the inclination and ability to provide those experiences on their own. But the families of disadvantaged students are less likely to substitute their own efforts when schools do not offer culturally enriching experiences. Disadvantaged students need their schools to take them on enriching field trips if they are likely to have these experiences at all.

Policy Implications

School field trips to cultural institutions have notable benefits. Students randomly assigned to receive a school tour of an art museum experience improvements in their knowledge of and ability to think critically about art, display stronger historical empathy, develop higher tolerance, and are more likely to visit such cultural institutions as art museums in the future. If schools cut field trips or switch to “reward” trips that visit less-enriching destinations, then these important educational opportunities are lost. It is particularly important that schools serving disadvantaged students provide culturally enriching field trip experiences.

This first-ever, large-scale, random-assignment experiment of the effects of school tours of an art museum should help inform the thinking of school administrators, educators, policymakers, and philanthropists. Policymakers should consider these results when deciding whether schools have sufficient resources and appropriate policy guidance to take their students on tours of cultural institutions. School administrators should give thought to these results when deciding whether to use their resources and time for these tours. And philanthropists should weigh these results when deciding



A museum educator discusses the painting George Washington by Charles Willson Peale with kindergarten students.

PHOTO / COURTESY CRYSTAL BRIDGES MUSEUM OF AMERICAN ART BENTONVILLE, ARKANSAS

whether to build and maintain these cultural institutions with quality educational programs. We don't just want our children to acquire work skills from their education; we also want them to develop into civilized people who appreciate the breadth of human accomplishments. The school field trip is an important tool for meeting this goal.

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