

***Thinking Through Art* Isabella Stewart Gardner Museum School Partnership Program  
Summary Final Research Results, 2007  
Institute for Learning Innovation, Annapolis, MD**

Museums and schools have a long history of working together to facilitate students' learning in and through the arts. While art museums have traditionally served school audiences through a range of single-visit tours, increasingly they offer more extensive school programs in an effort to provide students with in-depth, comprehensive learning experiences. Studies suggest that as many as half of American museums offer some form of a multiple-visit school program in which students might visit the museum from two to ten times a year (Wetterlund & Sayre, 2003). Museums also offer extended experiences such as pre- and post-visit activities in the classroom (Adams, Luke & Manuel, 2003; IMLS, 2002)

Recent research suggests that many multiple-visit programs focus on creative and critical thinking skills, skills that are considered increasingly important in the general education of young people (Adams, Luke & Manuel, 2003). Yet, until now, the museum education field has neither articulated exactly what is meant by critical thinking skills,<sup>1</sup> nor how the museum provides a unique environment for learning such skills.

In 2003, the Isabella Stewart Gardner Museum (ISGM), in partnership with the Institute for Learning Innovation (ILI), received a 3-year grant from the Department of Education to research students' learning in and from an art museum multiple-visit program. The ISGM's *School Partnership Program (SPP)* provided the context for this study and focused on three overarching goals described below in more detail. Launched in 1996, the *SPP* is a multiple-visit program serving K-8 students from neighboring inner-city public schools. Over the three years of the study, the pedagogy for the *SPP* shifted from a Socratic-method to more open-ended questions, using the Visual Thinking Strategies (VTS) questioning model which focuses on learning to look at and make meaning from works of art, as well as gaining familiarity with the museum environment in order to feel comfortable using the Gardner as a community resource.

***Goal 1: Develop reliable and valid measures for assessing Critical Thinking Skills (CTS) in and from an art museum that are applicable to a wide range of school/museum educators across the country.***

The Year 3 study was designed as a one-year, quasi-experimental investigation, using a posttest-only control-group design to assess the effects of participation in an art museum multiple-visit program on elementary students' CTS. Multiple methods were used to assess critical thinking, including individual student interviews with a poster reproduction, group "untours" in the museum where children were allowed to view a gallery on their own, and performance on state-wide standardized tests. Students from grades 3, 4, and 5 in two schools participating in the *SPP*, Farragut and Tobin, comprised the treatment group. Students in grades 3, 4, and 5 from three non-participating schools, Hamilton, Kennedy, and Philbrick, comprised the control group. Control schools were matched to treatment schools based on test scores, race/ethnicity distribution, socio-economic status of the school population as measured by

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<sup>1</sup> It is important to note that comprehensive research has been conducted in critical thinking and school-based arts education. The work of Abigail Housen most notably influenced this study. See specific citations in Reference section.

percent of free and reduced lunch eligibility, and the absence of regular visual arts instruction by a certified art teacher.

A total of 135 students (64 treatment group; 71 control group) participated in individual poster interviews that assessed their ability to employ critical thinking skills while looking at a poster reproduction of a work of art. A total of 116 students (56 treatment group; 60 control group) participated in the “untours” that assessed students’ ability to apply their knowledge and skills not just to one individual work of art, but to the larger museum context and the multiple objects within this context. Finally, standardized test scores were collected from 410 students (199 treatment group; 211 control group) and analyzed to determine the degree to which *SPP* participation influenced students’ critical thinking abilities in the broader context of general reading and comprehension on the Massachusetts Comprehensive Assessment System (MCAS) test and the Stanford-9 (SAT-9).

Years 1 and 2 of the study focused on the development of a CTS rubric based on exploratory data from students and teachers in the *SPP*, as well as critical thinking frameworks from Costa and Kallick (2000) and Housen (1983). Seven individual critical thinking skills comprised the final Year 3 version of the CTS rubric, Observation, Interpretation, Evaluation, Association, Problem-Finding, Comparison, and Flexible Thinking. Further, three of the CTS categories, Observation, Interpretation, and Evaluation, were divided into sub-categories, in an effort to breakdown the larger CTS category into more discrete and nuanced parts. A separate, over-arching critical thinking skill, Evidence, was applied to any of the seven individual critical thinking skills when used to support an assertion or opinion.

This rubric proved itself to be a robust, valid, and reliable assessment tool for critical thinking. However, it is quite cumbersome and requires substantial training to administer properly. To make the instrument more user-friendly for museum practitioners, we developed a short-form without the sub-categories and pilot-tested it with thirteen museum practitioners in six museums across the country. The results of this pilot test were encouraging and provide insight into the applicability of the condensed rubric. Practitioners saw a need to measure critical thinking within their programs, and perceived the short-form rubric as a relevant and useful way to do that despite some areas that need revision to be more relevant and easier to use. Given the limited context provided to these practitioners, and the fact that they were not familiar with this data collection method, it is impressive that they could make sense of the rubric and offer such valuable insights. It was exciting to see that the exercise successfully stimulated practitioners to think differently about their practice. Clearly the rubric can be a valuable diagnostic and training tool for practitioners as they strengthen the ways that their programs can enhance young people’s critical thinking skills.

***Goal 2: Better understand how an art museum multiple-visit program can facilitate critical thinking amongst a generalizable sample of inner-city elementary students.***

The study design described above sought to address the following three research questions:

Research Question 1: How does participation in the *SPP* influence students’ individual critical thinking skills?

When asked to “think out loud” about the poster reproduction, treatment students were consistently able to say more than control students about the artwork, demonstrating higher frequencies of critical thinking skills and evidence for their assertions.

Data showed that treatment students talked significantly longer about the art work, averaging 28

lines per interview compared to 14 lines for control students.<sup>2</sup> More importantly, treatment students generated significantly more instances of the critical thinking skills of Observation, Interpretation, Association, Comparison, Flexible Thinking, and Evidence.

Research Question 2: How does participation influence students' critical thinking skills within a social context in the museum? When given time to explore and discuss works of art in the ISGM, treatment students again had more to say than did control students. Treatment school students averaged 45 lines per small group “untour,” while control students averaged 27 lines. Similar to the findings in the individual poster interviews, treatment students in the “untour” surpassed control students on the CTS categories of Observation, Interpretation, Association, Comparison, Flexible Thinking, and Evidence.

Research Question 3: How does participation influence students' performance on standardized tests? When standardized test scores from the 2004-2005 MCAS and the 2005-2006 SAT 9 were analyzed, there were no differences between treatment and control students. This finding is not particularly surprising as the richness and complexity of responses to art and art museums is quite different than the type of multiple choice or short answer responses required on standardized tests.

***Goal 3: Broadly disseminate study results to the museum education profession, and the formal education sector, through channels such as lectures and symposia, publications, website features, and a documentary video.***

Over the years of the study, the ISGM and ILI have consistently shared the methodology, process of rubric development, and results of each year's study with the larger museum field. The final report will serve as a springboard for continued dissemination to inform the field's understanding of critical thinking in a museum multiple visit program. It is encouraging to have powerful data to support the assertion that such programs can positively influence the quality and quantity of children's critical thinking skills. Further, the most gratifying implication is that museum multiple-visit programs can be extremely effective in working with populations of urban at-risk children, many of whom have few opportunities to enrich their critical thinking through the visual arts or learn how to learn through art and art museums.

## References

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- Wetterlund, K., & Sayre, S. (2003). *2003 Art Museum Education Programs Survey*. Retrieved from <http://www.museum-ed.org>.

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<sup>2</sup> Student interviews and “untour” conversations were digitally recorded and transcribed for analysis.