

# ISABELLA STEWART GARDNER MUSEUM

**EMBARGOED RELEASE: March 8, 2007**

## New Research Reveals that Children Learn to Think Critically by Learning to Look at Art

*Research study at Boston's Isabella Stewart Gardner Museum reveals a strong correlation between the museum's "School Partnership Program" and improved critical thinking skills in children*

**Results released at a public event and press conference, "Thinking Through Art": Thursday, March 8, 4-6 PM**

**MARCH 8, 2007, BOSTON** • Can learning to look at art stimulate learning and critical thinking skills in children? Can museum educators and arts education programs serve as a resource for the K-12 school community to enhance classroom learning? Can programs focusing on learning to look at art build transferable skills and enrich a lifetime of learning in children? *Absolutely!* according to a recent "Thinking Through Art" research study conducted by the Isabella Stewart Gardner Museum, Boston.

The study is part of a larger nationwide initiative funded by the U.S. Department of Education (DOE)'s *Arts in Education Model Development and Dissemination* grant program to examine the value of arts education in strengthening academic achievement and learning in elementary and middle school students, and to identify and assess best practices. The Gardner Museum was awarded a grant of \$750,000 in 2003 to fund a three-year study on the impact of its multi-visit museum arts education program on the development and use of critical thinking skills in urban elementary students in grades 3-5. Building on the strengths of the *School Partnerships Program*, "Thinking Through Art" studied how learning to look at art helped participating students master basic thinking skills important for success across the curriculum. The Gardner was one of 34 organizations – including just four museums – selected to participate in the DOE's first nationwide arts education and research initiative.

Results of the study will be formally released at a **"Thinking Through Art" public event and press conference** at the Gardner Museum on **Thursday, March 8<sup>th</sup>, 4:00-6:00 PM**. Museum educators and research collaborators will present findings from the ground-breaking research alongside participating teachers and administrators. The event will also premiere a 20-minute documentary film capturing *School Partnerships Program* students' thought processes as they work together to understand and interpret works of art.

### **KIDS + ART = CRITICAL THINKING SKILLS**

"Thinking Through Art" reveals a significant positive impact of museum arts education on critical thinking in elementary students. As part of the study, researchers created a formal definition for understanding and assessing what critical thinking skills look like in a museum environment, by identifying the primary skills that students use in their discussions of artworks. When looking at and talking about works of art, students who participated in the Gardner Museum's multi-visit *School Partnerships Program* used five of the seven identified critical thinking skills (observing, interpreting, associating, problem-solving, and flexible thinking) more often than Boston students who were not in the program, in both in-classroom and in-museum contexts. Participating students also spent twice as long as other students did in talking about each artwork, and were significantly more likely to offer evidence for their ideas.

"There is a lot of talk in education about preparing young people for the 21st century workplace," says Burchenal, the National Art Education Association's "Museum Art Educator of the Year" in 2002. "I can't think of a better way to do that than 'thinking through art.' In talking about art with their peers, students learn to think creatively and independently and to respect others' ideas, to provide evidence for their ideas, to remain open to multiple possibilities, and to trust their abilities to find meaning in the unfamiliar. The *School Partnerships Program* provides students with an approach for grappling with new problems – because every work of art presents a new 'problem' to be solved."

"As a museum educator, I marvel at the amazing ideas students generate as they discuss works of art," adds Burchenal. "While some people still think of a museum visit as just a day away from school, this research demonstrates that art museums may be one of the *best* places for students to learn important thinking skills."

"Art has an amazing capacity to advance learning by 'learning to look', and our study proves it" says Anne Hawley, *Norma Jean Calderwood Director* of the Gardner Museum, who shares Isabella Stewart Gardner's vision of the museum as a place of ongoing enrichment and learning, and who brought in-depth, object-based learning to students through the

creation of the *School Partnership Program* in 1996. “Watching these young students engaged in intense discussions and great conversations involving narratives and meanings about some of the world’s great works of art is a magical thing. This important research shows just how vital arts education is in arming kids with the skills they will need for a lifetime of learning. We also hope it will empower other museums and educators to think more seriously about arts education.”

The *School Partnership Program* at the Isabella Stewart Gardner Museum is a multi-visit arts education program that pairs Gardner Museum educators with teachers and students in grades 3-5 at five neighboring Boston and Brookline public schools to enrich classroom learning through the arts. *School Partnership Program* schools who participated in the “Thinking Through Art” study were the Farragut School and Tobin Elementary and Middle School. Three other Boston public schools served as control schools for the study. “Relationships for inner-city children with museums – places that stimulate their minds – are invaluable,” says Farragut School Principal Rosemary Harmon, on the impact of the *School Partnership Program* on her students. “It’s part of teaching the whole child; it’s part of their learning. The partnership with the Gardner teaches children how to look carefully, how to notice details, and that makes them sharper observers and helps with their language by trying to put into words what their eyes see.”

“Thinking Through Art” was conducted using a quasi-experimental design, focusing on student interviews and analyses of student conversations captured while looking at reproductions and actual works of art in both in-classroom and in-museum contexts. Gardner educators collaborated on the study with researchers from the Institute for Learning Innovation (ILI) and consultants from Visual Understanding in Education (VUE), which has pioneered research on how thinking skills developed through art transfer to other situations and whose VTS (Visual Thinking Strategies) art discussion curriculum is a basis for the museum’s program.

Researchers also analyzed test scores from the Massachusetts Comprehensive Assessment System (MCAS) and Stanford-9 tests; the study found no statistically significant differences between performance levels of program and non-program students on these tests. “There are important indicators of learning that are not captured by standardized tests, but are essential to building the foundation kids need for a lifetime of learning,” says Burchenal. “Standardized test scores capture students’ abilities to decode information presented to them, but do not indicate students’ use of critical thinking skills – including observation, problem solving, and flexible thinking – in the same way this study does, so we are not surprised by this lack of correlation. There is also a possibility of a delayed ‘gestation period’; studies show that it is possible for this kind of learning to take some time to show up in standardized test scores.”

Visual arts research typically traces the impact of art-making activities on student development; “Thinking Through Art” instead focuses on the value of *looking at* and *talking about* works of art. At a time when educators are concerned about the narrowing of the curriculum under the pressure of high-stakes testing, the study shows the value of art museums as a resource for the K-12 community. Dissemination of the “Thinking Through Art” findings via the web ([www.gardnermuseum.org/education/tta/tta.html](http://www.gardnermuseum.org/education/tta/tta.html)), publications and professional conferences will contribute to a growing body of evidence on the value of visual literacy in developing skills that form the building blocks for learning.

**ISABELLA STEWART GARDNER MUSEUM** • Modeled after a 15th-century Venetian palazzo surrounding an ever-changing interior courtyard garden, the Isabella Stewart Gardner Museum houses one of the most remarkable art collections in the world, featuring masterworks by Rembrandt, Titian, Raphael, Botticelli, Degas, Sargent, and others, personally arranged by Isabella Stewart Gardner to fire the imagination of all who visit. Contemporary and historic exhibitions, America’s oldest museum music program, lectures, special performances, an Artist-in-Residence program, and innovative school and community partnerships continue to enrich the permanent collection and provide ongoing inspiration for visitors.

#####

**MEDIA CONTACT:** Katherine Armstrong, Public Relations Manager, w.617/278-5107 c.617/956-2565 [karmstrong@isgm.org](mailto:karmstrong@isgm.org)

**EDITORS’ NOTE:** The results of this study will be released on March 8<sup>th</sup> at a public event and press conference at the Gardner Museum, from 4-6PM. Advance interviews and access are available by request. Free parking available with advance RSVP to 617/278-5107.

**SUPPLEMENTAL INFORMATION AVAILABLE:**

- “Thinking Through Art” complete research report;
- Executive summaries of study details and key findings;
- Formal “critical thinking skills” rubric;
- “Thinking Through Art” documentary film showcasing kids’ critical thinking skills at work;
- Bios and access to the research team, participating teachers and students, and additional experts and resources on the topic; and
- “Thinking Through Art” dedicated website at [www.gardnermuseum.org/education/tta/tta.html](http://www.gardnermuseum.org/education/tta/tta.html) – featuring additional details about the study; key findings by year; “Thinking Through Art” documentary clips; an online tool kit including sample lesson plans; and the complete “Thinking Through Art” research report (as of March 8<sup>th</sup>).

ISABELLA  
STEWART GARDNER  
MUSEUM

“Thinking Through Art”

*Research Team & Collaborator Bios*

**ISABELLA STEWART GARDNER MUSEUM**

**Margaret Burchenal, Curator of Education & Public Programs**

A nationally recognized museum educator, Margaret (“Peggy”) Burchenal came to the Isabella Stewart Gardner Museum in Boston in 2000. Her 25 years of experience include developing and implementing education programs at the Museum of Fine Arts in Boston, the Portland Museum of Art, and the Philadelphia Museum of Art. She has served on the boards of the Massachusetts Art Education Association and the National Art Education Association (NAEA), and was named NAEA’s National Museum Educator for the year 2002. She was invited to pursue an independent research project as a guest scholar at the Getty Research Institute in 2001, and developed the idea for the “Thinking Through Art” project during that time. Burchenal has a bachelors degree in art history from Princeton University and a masters degree in art history from Harvard University.

**Michelle Grohe, Director of School and Teacher Programs**

Michelle oversees the School Partnership Program, in which she fosters close working relationships with local students and teachers, and manages the *Thinking Through Art* research grant. She has worked at the Montclair Art Museum in New Jersey, redesigning docent, school, and teacher programs; and the Addison Gallery of American Art in Andover, Massachusetts, designing and implementing artist-in-residence programs and curriculum materials with local schools. She received her Bachelors degree in Studio Art from Millikin University and Masters in Art Education from the Rhode Island School of Design.

**INSTITUTE FOR LEARNING INNOVATION ([www.ilinet.org](http://www.ilinet.org))**

The Institute for Learning Innovation (ILI) is a non-profit educational research and development organization based in Annapolis, MD, dedicated to changing the world of education and learning by understanding, facilitating, advocating, and communicating about free-choice learning across the life span. *Senior Researchers* at the Institute for Learning Innovation (ILI), **Dr. Marianna Adams** and **Jessica J. Luke** conduct evaluation studies in cultural organizations across the country. Their research priorities include evaluation as an agent of organizational change, professional development and participatory evaluation, family learning in museums, and the impact of multi-visit museum programs on student learning. Jessica J. Luke focuses on youth development, family learning, and community engagement in and from museums. Dr. Marianna Adams specializes in assessing the effectiveness of community partnerships, museum/school collaborations, and learning in interactive/participatory experiences.

**VISUAL UNDERSTANDING IN EDUCATION ([www.vue.org](http://www.vue.org))**

Visual Understanding in Education (VUE) is a non-profit developmentally-based educational research organization that has developed an innovative series of curriculum materials for elementary schools called *Visual Thinking Strategies: Learning to Think and Communicate through Art* (distributed by Crystal Productions). VUE’s co-founding directors, developmental psychologist **Abigail Housen** and museum educator **Philip Yenawine**, serve as advisors to the *Thinking Through Art* project. Housen has a long history as a researcher in aesthetics, and created a ground-breaking method to understand and measure viewer responses to visual art. Yenawine has developed innovative programming at a variety of museums, including the Metropolitan Museum in New York and the Institute of Contemporary Art in Chicago, and served as director of the education department at the Museum of Modern Art from 1983-93.

**PARTICIPATING SCHOOLS: TOBIN AND FARRAGUT SCHOOLS**

The Tobin and Farragut Schools have each participated in the Gardner Museum’s *School Partnership Program* for more than ten years. The hard work and dedication to collaboration that teachers and administrators from these schools have exhibited since the inception of the program have been key to the evolution of the partnership. Teachers and students from both schools are an integral part of the program and “Thinking Through Art” research study.

Three other Boston public schools served as control schools for the study: the John F. Kennedy, the Alexander Hamilton, and the John D. Philbrick elementary schools.

*Contact information and/or access to these and additional experts and resources on the topic, including teacher, principal and student participants in the School Partnership Program and the “Thinking Through Art” study, is available by request.*

#####

## “Thinking Through Art”

### *Research Study Details*

“Thinking Through Art” was conducted at the Gardner Museum over the course of three years, beginning in 2003, using a quasi-experimental design to assess the effectiveness of the museum’s *School Partnership Program* in developing critical thinking skills. The study’s hypothesis was that there is a strong positive relationship between participation in art museum multiple-visit programs and student development of critical thinking skills. To test this, researchers compared the ways in which program students and non-program students talked about art.

Student data was collected in both the school and museum context. In the school context, students in grades 3-5 were recorded as they talked about an art poster. To capture student conversation in the museum setting a technique developed by Institute for Learning Innovation researchers called the “untour” was used. Unlike traditional museum tours led either by museum or school staff, the “untour” allows students to follow their own interests and to choose what works of art they want to discuss without adult intervention. At the Gardner, groups of 6 students at a time were taken to a gallery and each outfitted with a clip-on microphone leading to a small digital recorder in a fanny pack. Students were asked to simply talk out loud as they explored the gallery, either individually or in conversation with other students. Both the poster interviews and the “untours” were then transcribed and studied by the research team using a critical thinking skills rubric that was developed specifically for this project. Researchers also analyzed test scores from both the Massachusetts Comprehensive Assessment System (MCAS) and Stanford-9 tests.

A major challenge posed in the “Thinking Through Art” project was how to articulate and measure critical thinking skills. What exactly does thinking look like in the context of an art museum? To answer this question, Gardner Museum education staff worked with project researchers to develop a rubric for critical thinking skills relevant to works of art. Drawing on current thinking in the education world, Housen’s work, and data from the teachers and students in the *School Partnership Program*, the project team created a rubric that identifies seven primary skills that students use in their discussions of artworks:

- **Observing:** Noticing specific features of a work of art – *i.e.*, “*It looks kind of dark. The clouds are red so it looks like sunset is coming.*”
- **Interpreting:** Developing a narrative about who the people in a work of art are, what kinds of emotions they show, and what activities they are engaged in – *i.e.*, “*A woman has been killed and she’s getting buried. And all the people, they’re all sad because one of them is crying.*”
- **Evaluating:** Expressing personal opinions about a work of art – *i.e.*, “*If I painted it, I’d probably be amazed with myself – like whoa, I have this much art inside of me!*”
- **Associating:** Using personal experience or prior knowledge as a basis for understanding a work of art – *i.e.*, “*I can tell that there’s a servant because he has a thing on his hair like lunch ladies wear, the hair net.*”
- **Problem-Finding:** Looking for information, or generating questions based on puzzling or interesting aspects of art objects – *i.e.*, “*I’m wondering why the guy on the right has a shell on his coat because we don’t wear shells on our coats.*”
- **Comparing:** Noticing similarities and differences between works of art – *i.e.*, “*They kind of look alike, but you can tell that they’re different because one has long hair and the one has short hair. And the other one has different armor and the other one has another sort of armor, so maybe they’re different kinds of people or like a tribe or something like that.*”
- **Flexible Thinking:** Remaining open to multiple possibilities – *i.e.*, “*She might be a maid because of the way her hair’s tied up, but she might also not be a maid because of the way she dresses.*”

In addition to identifying these seven critical thinking skills, the rubric includes an evidence scale. Most educators agree that providing clear and compelling evidence for ideas is an essential part of critical thinking. Rather than making it a separate category, Gardner Museum educators found that it made more sense to show it as an overarching habit of mind, since it can be exercised in any of the categories – *i.e.*: “*The people that live there in that palace are probably very wealthy because there’re a lot of gold things around.*”

*Additional details and statistics available by request and in the full “Thinking Through Art” research report..*

ISABELLA  
SEWART GARDNER  
MUSEUM

“Thinking Through Art”

*Critical Thinking Skills Rubric*

<b>1. Observing</b>	<p><b><u>Observing</u></b>            1.1 what something is or is not; naming or identifying something            1.2 action, what someone is doing; concrete and explicit actions            1.3 how it looks; sensory &amp; physical aspects            1.4 features; what it’s made of &amp; how it’s made            1.5 gallery or object label; reading didactic information that is posted</p>
<b>2. Interpreting</b>	<p><b><u>Interpreting</u></b>            2.1 the use or function of objects            2.2 implicit conditions, features, characteristics, feelings and emotions, mental states, status            2.3 identity (who people are, their relationships and identity)            2.4 actions or intentions (intentions of people, artists, or animals, or narrating what’s going on, what people/animals are doing or did, what is about to happen, where people might be, “setting the scene”)</p>
<b>3. Evaluating</b>	<p><b><u>Evaluating</u></b>            3.1 based on personal opinion or preference            3.2 based on perceived merits of the work or artist’s ability</p>
<b>4. Associating</b>	<p><b><u>Associating</u></b> the object/situation directly with personal experience; making connections to prior knowledge or experience</p>
<b>5. Problem-Finding</b>	<p><b><u>Requests information</u></b> or identification; notes missing <u>information needed</u> to form a conclusion/opinion; may propose a <u>hypothesis</u></p>
<b>6. Comparing</b>	<p><b><u>Comparing</u></b> what is similar or different; noticing relationships between situations/objects; noticing patterns</p>
<b>7. Flexible Thinking</b>	<p><b><u>Remaining open</u></b> to multiple possibilities; seeing things from different perspectives, revising thinking</p>

**Depth Scale for Evidence**

1 (“weak”)	2 (“strong”)
<ul style="list-style-type: none"> <li>✓ Attempts to support assertions, observations, or opinions; BUT evidence is based in personal opinion or speculation rather than in the object, idea, or situation; OR evidence is based in the object, idea, or situation, but only provides vague, unclear, or unreasonable support for assertions</li> <li>✓ Evidence is based on circular logic. There is no attempt to express how student arrived at a conclusion or is unclear about how arrived at a conclusion.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Supports assertions, observations, or opinions with specific information and/or cues from the object, idea or situation; AND provides clear, specific, and reasonable support for assertions. Evidence may be based in personal speculation but must use specific cues from the object, idea, or situation. There <u>may</u> be an attempt to express how student arrived at a conclusion.</li> </ul>

## “Thinking Through Art”

### *Key Findings Overview*

The “Thinking Through Art” research study at the Gardner Museum reveal significant, positive impacts of multi-visit arts education programs on critical thinking skills in elementary children in grades 3-5, and provides a common language for describing and identifying the kind of learning that can take place in a museum setting, and demonstrates that learning to look at art is a particularly effective way to help elementary students develop critical thinking skills.

Results of the three-year study found statistically significant differences in the use of five of seven critical thinking skills used by students when looking at and talking about art. By comparing data from students who participated in the Gardner Museum’s *School Partnership Program* over three years to that of Boston students who did not participate in the program, participation in the program itself can be identified as a factor that impacts the use of critical thinking skills.

The study makes two major contributions to our understanding of art education: First, the identification of a Critical Thinking Skills rubric offers a formal definition of seven key components, and an evidence scale, that museum and school educators can use to assess use of critical thinking skills students in grades 3-5 employ when looking at works of art; Second, the study reinforces the value of a multiple visit program that offers students regular practice in looking at and thinking about works of art over time.

Specific findings include:

- **Students in the SPP generated significantly more instances of critical thinking skills both in individual poster interviews and group “untours.”** When the treatment and control group interviews were analyzed for differences in the amount of CTS used, statistically significant differences emerged. Of the seven broad CTS, there were significant differences between the treatment and control groups for five skills (Observing, Interpreting, Associating, Comparing, and Flexible Thinking). For all of these CTS, treatment students the skills more often than did control students.
- **Students in the SPP had more to say, and were more likely to provide evidence for their thinking.** Treatment students had more to say about works of art than did control students, making more observations and noticing more details about art objects. On average, treatment students talked about twice as much as control group students, a significant difference. Students’ use of evidence to support their statements about artworks also differed significantly between treatment and control groups, with treatment students significantly more likely to offer justification for their ideas.

The study also guided Gardner Museum educators on ways to improve the *School Partnership Program*, including a shift to a teaching approach called VTS (Visual Thinking Strategies). Co-authored by cognitive psychologist Abigail Housen and museum educator Philip Yenawine, the VTS is based on Housen’s theory of aesthetic development and is designed specifically for novice viewers. VTS starts with asking three questions to prompt students to make observations and provide evidence for their ideas: (1) What’s going on in this picture?; (2) What do you see that makes you say that?; and (3) What more can we find?

By slowing down and carefully looking at and discussing works of art at the Gardner Museum, students have unique opportunities to apply previous experiences and knowledge to puzzle over meaning in the artworks—in other words, the students make meaning on their own terms. Throughout the group discussions, museum educators respond neutrally to each comment, accepting all ideas equally by paraphrasing the students’ comments and link similar ideas so that the students learn to listen, respect, and share ideas with their peers. (For more information on VTS, go to [www.VUE.org](http://www.VUE.org).)

*Additional findings and statistics are available in the full “Thinking Through Art” research report, available through the Gardner Museum.*

#####



## ***Thinking Through Art* Isabella Stewart Gardner Museum School Partnership Program Executive 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 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,

---

<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.*

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

- Adams, M., Luke, J. & Manuel, D. (2003). *Multiple-Visit Museum/School Programs in the Arts: What do students learn?* Technical research report. Annapolis, MD: Institute for Learning Innovation.
- Costa, A. & Kallick, B., Eds. (2000). *Assessing and reporting on habits of mind*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Housen, A. (1983) *The Eye of the Beholder: Measuring Aesthetic Development*. Unpublished Ed.D. Dissertation. Harvard University.
- Wetterlund, K., & Sayre, S. (2003). *2003 Art Museum Education Programs Survey*. Retrieved from <http://www.museum-ed.org>.

---

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

# ISABELLA STEWART GARDNER MUSEUM

## Isabella Stewart Gardner Museum Information

280 The Fenway • Boston MA 02115 • (617) 566-1401

**Hours:** Tuesday – Sunday, 11:00 a.m.-5:00 p.m. Closed most Mondays and on Thanksgiving and Christmas Days. Open New Years' Day (for free as part of the annual *Frank Hatch First Day Free*), Martin Luther King, Jr. Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day and Veterans' Day.

**Admission:** \$12 adults, \$10 seniors, \$5 college students with current I.D., free for Museum Members, children under 18 years of age, and all named Isabella.

**The Gardner Café:** Indulge in the “culinary arts” at the Gardner Café. Located in a stunning indoor and outdoor garden setting, the Gardner Cafe offers a full bistro-style lunch and brunch menu featuring award-winning desserts (*the Café's seasonal bread pudding was named “Boston's Best Indulgence” by the Improper Bostonian in 2003*). The Café is open Tuesdays through Fridays, 11:30 a.m.-4:00 p.m., and Saturdays and Sundays, 11:00 a.m.-4:00 p.m. Reservations are available at the 11:30 seating for members only. For more information and/or reservations, call (617) 566-1088.

**Museum Gift Shop:** The Gardner Museum gift shop offers creative gifts and items for the home and office – for arts and non-arts enthusiasts alike. Gifts include books, jewelry, stationary, tea sets and children's items. Many of the items directly reflect Mrs. Gardner's unique museum, eccentric and glamorous style, and her intense love of Italy – and in particular, Venice. The Gardner Museum Gift Shop is open Tuesdays through Sundays, 11:00 a.m.-5:00 p.m.

**Audio Guides:** A 90 minute audio guide (\$4.00) and/or a Museum catalogue (\$16.90 soft cover; \$25 hard cover) are available to help visitors get the most of the Museum's history, collection and installations.

**Museum Membership:** Museum membership starts at just \$55 a year and includes unlimited free Museum admission, invitations to previews and special events, reduced admission to concerts, lectures and special programs, a subscription to the Museum's seasonal newsletter and a 10% discount at the Museum Gift Shop. Information can be requested through the Membership Office at (617) 566-5643 or [membership@isgm.org](mailto:membership@isgm.org).

**Public Transportation:** Green Line “E” train or the Huntington Avenue no. 39 bus to the Museum stop. Cross Huntington Avenue. Turn right onto Louis Prang Street. Follow Louis Prang Street one block to The Fenway. Continue past Evans Way Park. The Gardner Museum is on the left, at 280 The Fenway

**Parking:** Public parking is available at the Museum of Fine Arts garage, one block from the Gardner Museum, along Museum Way. Take Huntington Avenue to the Museum of Fine Arts. Museum Way is located between the MFA's East entrance and the School of the Museum of Fine Arts (SMFA).

**Access:** Most galleries, the gift shop, café and restrooms are wheelchair accessible. Wheelchairs are available to borrow for visitors, on a first-come, first-served basis. Information (visitors guides and maps) are available in Braille and large print at the Information Desk. For information, call (617) 278-5166.

## TICKETS

**Lecture and Concert Tickets:** Tickets to all concerts and lectures include Museum admission. Unless otherwise indicated, tickets may be purchased through the Gardner Museum Box Office at (617) 278-5156 or TicketWeb online via [www.gardnermuseum.org](http://www.gardnermuseum.org). Concert and lecture tickets may also be purchased at the Gardner Museum (280 The Fenway) from 11:00 a.m.– 4:00 p.m. during the week prior to each event.

- **Lecture Tickets** (*unless otherwise indicated*): \$7 public; \$5 seniors and members; free for students. Information and schedules: (617) 278-5102.
- **Concert Tickets** (*unless otherwise indicated*): \$23 adults; \$18 seniors; \$15 members; \$10 college students; \$5 children ages 5-17 (children under five years not admitted); free for *Friends of Fenway Court*.