# Thinking Through Art
# Isabella Stewart Gardner Museum
# School Partnership Program
# Year 3 Preliminary Research Results

## September 2006

**Prepared by:**

**Marianna Adams***
**Susan Foutz**
**Jessica Luke**
**Jill Stein**

***Authors are listed alphabetically**

**Isabella Stewart Gardner Museum**
**School Partnership Program**
**Year 3 Preliminary Research Results**

**September 2006**

**INTRODUCTION**

**Background**

<u>Research Rationale</u>

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 are offering 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 where students might visit the museum from two to ten times a year (Wetterlund & Sayre, 2003). Many other museums 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 increasingly important in the general education of young people (Adams, Luke & Manuel, 2003). Yet the museum education field has not articulated exactly what is meant by creative and critical thinking skills, nor how the museum provides a unique environment for learning such skills. As more museums offer multiple-visit programs, the need to develop deeper understandings of effective teaching and assessment models only intensifies. To date, few museums have had the resources to conduct systematic studies of how and what students learn in multiple-visit programs. Fewer still of these studies are published in peer-reviewed professional journals.

<u>Goals of the Overall *Thinking Through Art* Research Study</u>

In 2003, the Isabella Stewart Gardner Museum (ISGM) and Institute for Learning Innovation (Institute) received a 3-year grant from the Department of Education to research students' learning in and from art museum multiple-visit programs. Research efforts within this grant are focused on assessing the effects of participation in an art museum multiple-visit program on the development of elementary students' critical thinking skills. The ISGM's *School Partnership Program*, a multiple-visit program serving K-8, at-risk students from neighboring inner-city public schools, provides the context for this study.

The study has three overarching goals:
- <u>develop reliable and valid measures</u> for critical thinking in and from an art museum that will be applicable to a wide range of school/museum educators across the country;

- better understand how an art museum multiple-visit program can facilitate critical thinking amongst a generalizable sample of inner-city elementary students;
- 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 an instructional video.

Research Results from Years 1 & 2 of the Study

In Year 1 (2003-2004), exploratory research was conducted with teachers and students in ISGM's *School Partnership Program (SPP)*. Findings from this study were used by ISGM staff to strengthen program learning goals and objectives, and to more closely align program activities with these goals and objectives. Findings were also used by researchers to clearly define the range of critical thinking skills that emerged from the program (outcomes), and to develop and test valid and reliable methodologies for assessing these skills.

In Year 2 (2004-2005), the first phase of a quasi-experimental study was conducted, using a posttest-only control-group design. The goals of this first study were two-fold. At a broad level, it was intended as an initial effort to assess the effects of participation in *SPP* on students' critical thinking skills. Preliminary findings were encouraging, suggesting that students who had participated in *SPP* demonstrated a greater breadth and depth of critical thinking skills in the museum than did control students. However, in some cases the results were unclear, leading researchers to examine and ultimately refine in more detail the measurement tool used to categorize Critical Thinking Skills (CTS). This refined tool was then used in the Year 3 study.

Focus of the Year 3 Research Study

In Year 3, research efforts were focused on better understanding how an art museum multiple-visit program can facilitate critical thinking amongst participating 3rd, 4th, and 5th graders. Specifically, the study was designed to answer 3 specific research questions:

1) How does participation in *SPP* influence students' individual critical thinking skills?
2) How does it influence students' critical thinking skills within a social context in the museum?
3) How does it influence students' critical thinking skills on standardized tests?

This report describes preliminary results related to each of these questions; conclusions will be written following the final analyses.

**METHODS**

The Year 3 study was designed as a one-year investigation, using a posttest-only control-group design to assess the effects of participation in an art museum multiple-visit program on the

development of elementary students' CTS.[1] Multiple methods were used to assess critical thinking, including individual student interviews, group "untours" in the museum.

Participating Schools

Students in 3rd, 4th, and 5th grades from 5 elementary schools participated in the study, including 2 treatment schools (Farragut Elementary and Tobin Elementary) and 3 control schools (Hamilton Elementary and Kennedy Elementary initially; Philbrick Elementary was added later). Treatment schools were selected in Year 1 of the study, based on their longevity within the *SPP* program; control schools were matched in Year 2 of the study, based on comparability of test scores, race/ethnicity and socio-economic status of the school population.[2] Importantly, control schools were also matched based on similarity of instruction. Specifically, neither the treatment nor control schools had any form of regular visual arts instruction by a certified art specialist.

Table 1: Description of the Participating Schools[3]

| Comparison Factors | Treatment Schools | | Control Schools | |
|---|---|---|---|---|
| | Farragut | Tobin | Hamilton | Kennedy |
| Percent of Students eligible for Free- or Reduced-Lunch | 81% | 93% | 77% | 90% |
| Percent Hispanic Students | 31% | 65% | 18% | 74% |
| Percent African-American Students | 47% | 33% | 42% | 24% |

Source: www.greatschools.net; Retrieved 1/27/06

Data Collection Procedures and Participating Students

*Individual Student Interviews*

Interviews with individual students paralleled the *SPP* experience, assessing students' ability to employ critical thinking skills while looking at a reproduction of a work of art. This "think aloud" technique was piloted in January 2006 to ensure students were able to successfully engage in this task. Interviews were conducted from March through June 2006. Students were shown the same work of art in both the pilot interviews and the study interviews. The work was Caravaggio's *Supper at Emmaus*; this reproduction was one of the three used in the Year 2 study; it was selected because the style of the work (a photo-realistic painting), and the subject (a group of people seated around a table but with the nature of their interactions open to interpretation). Students were taken out of class one at a time by a researcher and brought to a quiet space in the school where they will be shown a reproduction of a work of art they have never seen. Students were asked to talk on their own into a digital audio recorder about the work of art, with the researcher providing minimal prompts, such as "anything else" or "tell me more" (See Appendix

---

[1] Given that the program is situated within the social setting of the classroom, a true experimental study is not possible since subjects cannot be assigned to groups randomly. The use of a posttest-only control-group design permits researchers to make causal inferences about the effect of the program on students' learning, and rules out the potential test bias created through the use of a pretest.

[2] Socio-economic status was assessed using percent of students who qualified for free- or reduced-lunch programs.

[3] In Year 3, an additional control school, Philbrick Elementary, was added to the research study. Philbrick students are not included in this report as the school was selected mid-way through Year 3 after the request for test scores was submitted.

A for individual interview protocol).[4] Student comments and the researcher's prompts were later transcribed in full.

At the outset of the Year 3 study, parents from all five schools were mailed consent letters which explained the nature of the research study and requested the participation of their child. Students were then randomly sampled for participation in individual interviews. The sample was restricted to students who did not participate in the Year 2 study in order to reduce the possibility of confounded results based on previous study experiences. The treatment sample consisted of students who had previously participated in *SPP* to varying degrees.

A total of 135 students participated in individual poster interviews. Of these, 47% (n=64) were treatment students and 53% (n=71) were control students. The distribution of interviews by grade at treatment and control schools was comparable; 34% of the students interviewed were in third grade, 36% in fourth grade, and 30% in fifth grade.

Table 2: Description of students who participated in individual interviews by school

| School | Percent of interviews (n=135) |
| --- | --- |
| *Treatment* | |
|     Farragut | 30% |
|     Tobin | 18% |
| *Control* | |
|     Hamilton | 9% |
|     Kennedy | 39% |
|     Philbrick | 4% |

"Untours" in the Museum

Small group "untours" served as a complement to individual interview data, going beyond the *SPP* experience in order to assess 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. These "untours" were completed during March through June 2006 with students who had previously completed an individual interview. Students were brought to the ISGM in class-based groups of five to six students, anywhere from one day to 20 days after their individual interview. Each student was outfitted with wireless microphone and recording device, and taken to the Raphael gallery, where they will be free to go wherever they want and look at and talk

---

[4] The interview protocol is an adaptation of Abigail Housen's Aesthetic Development Interview (ADI) in that it provides an open environment for students to talk about the work of art in any way they wish. There are two important differences between the interview protocol for the ISGM study and the ADI. First, researchers administering the ADI can say "Where does your eye go next?" when students stop talking or say they have nothing else to talk about. The ISGM protocol does not permit researchers to prompt the students to look in this way. Secondly, the ADI is administered with the intention to determine a subject's aesthetic development. This study does not seek to assess people as to their position on Housen's developmental scale. Rather, the ISGM interview protocol seeks data on how students employ critical thinking skills when looking at art.

about whatever they want (see Appendix B for "untour" protocol).[5] Although multiple students could be heard on any one recording, transcribers focused on the voice of the child wearing the microphone. The comments of that student and any adult voices on the recording were transcribed.

A total of 116 students participated in the "untours." Of these, 48% (n=56) were treatment students and 52% (n=60) were control students. The distribution of interviews by grade was comparable; 35% of the students interviewed were in third grade, 36% in fourth grade, and 29% in fifth grade. Students were instructed to speak English during the interviews; however, 5 students spoke some Spanish during the course of the "untour." In these cases, the Spanish was not translated or coded; but all statements the child made in English were coded. This decision was made in light of the Year 2 study in which all Spanish was translated, but the majority of comments made in Spanish were unrelated to the art work and, therefore, not coded.

Table 3: Description of students who participated in "untours" by school

| School | Percent of "untour" (n=116) |
|---|---|
| *Treatment* | |
| Farragut | 28% |
| Tobin | 21% |
| *Control* | |
| Hamilton | 9% |
| Kennedy | 39% |
| Philbrick | 4% |

Standardized Test Scores

Finally, standardized test scores were collected and analyzed to determine the degree to which *SPP* participation influenced students' critical thinking abilities in the broader context of general reading and comprehension. Researchers worked with Boston Public School staff to secure class-based test scores for all relevant students in the study, including both MCAS reading scores as well as SAT-9 reading scores.

Student test score data collected for the purpose of this study included the Massachusetts Comprehensive Assessment System (MCAS) test and the Stanford-9 (SAT-9). This report focuses on the data for the SAT-9 that was administered during Year 3 (2005-2006). SAT-9 tests are administered in the fall; therefore this data set is from Fall 2005.

---

[5] The protocol for the "untour" is highly influenced by Housen's ADI in that it seeks to provide a very open-ended environment to allow students to respond to the museum and collection in as natural a way as possible. The untour protocol deviates from the ADI in that there is no intervention by the researcher beyond the first introduction and setting of boundaries.

A total number of 199 treatment and 211 control students within participated the SAT-9 testing[6].
See Table 4 for an overview of the data sample by school.

Table 4: Number of students from each school who participated in the SAT-9 (Fall 2006).

| SAT9 Tests | Treatment Schools | | Control Schools | |
|---|---|---|---|---|
| | Farragut | Tobin | Hamilton | Kennedy |
| 3rd grade | 34 | 47 | 19 | 64 |
| 4th grade | 42 | 18 | 14 | 65 |
| 5th grade | 40 | 18 | 0 | 49 |

Source: SAT-9 data provided by the Boston Public School System.

Measures

There are two main independent variables in this study, including program condition and frequency of *SPP* participation. Program condition consists of two levels: a) participation in *SPP* (treatment); b) no participation in *SPP* (control). Frequency of participation was measured at the end of the academic year, and focused on the extent to which the treatment group students had been involved in the program.

The major dependent variable in this study is critical thinking, measured using an empirically-grounded rubric informed by the work of Abigail Housen (2002 & 1983) and Costa & Kallick (2000), and tested in Years 1 and 2 of the study. Student data from Year 2 in particular suggested a range of seven valid critical thinking skills that were evident amongst elementary students, including specific skills such as observation, interpretation, and evaluation, as well as more holistic skills such as comparing, thinking flexibly, and problem-finding (see Appendix C for the Critical Thinking Skills rubric).

Data Analysis

Interview data and small group "untour" recordings were subjected to discourse analysis, using the Critical Thinking Skills rubric described above. Transcripts were coded by three trained coders in the Spring/Summer of 2006. At the time of writing this preliminary report, inter-rater reliability was being calculated using Cohen's Kappa coefficient.

SAT-9 results were obtained through the Boston Public School (BPS) system. SAT-9 tests students on the academic areas of reading, math, and language. Our analysis focuses on the reading comprehension section of the test, which is comprised of five sub-scales: specific detail, action/reason/sequence, inference, extended meaning, and critical analysis. Aggregate scores were used in the analyses. In previous analyses of standardized test scores for this study, individual students and test questions were identified and selected for analysis. However, test questions change every year, making a comparison between two years' test questions impossible. It therefore was decided not to identify individual students or test questions for the 2006 analysis.

---

[6] These numbers are similar to the number of students reportedly enrolled in the program (n=204) and the number of control students (n=212) for Year 3 (2005-2006).

Instead, this year's analysis compared aggregate classroom, grade, and school data for each of the two treatment schools and two control schools.


## RESULTS AND DISCUSSION

**To what extent did participation in *SPP* influence students' individual critical thinking skills?**

When asked to "think out loud" about the Caravaggio reproduction, treatment students were consistently able to say more than control students about the artwork, demonstrating higher frequencies of critical thinking skills and support for assertions. After researchers factored out extraneous, repetitious, and unrelated language, data showed that treatment students talked significantly longer about the art work, averaging 28 lines per interview compared to 14 lines for control students ($p=.000$). More importantly, treatment students generated significantly more instances of critical thinking skills and evidence. What follows is a detail summary of students' individual performance in interviews, in terms of 1) use of overall Critical Thinking Skills; 2) use of specific Critical Thinking Skills; and 3) provision of evidence in support of students' assertions.

Students' Use of Overall Critical Thinking Skills

Regardless of whether they were in the treatment or control group, students were more likely to use observation and interpretation skills when talking about the poster (see Table 5). Overall, the mean number of times a student used observational skills during the poster interview was 18.98; the mean number of interpretational skills used was 15.89. The means for the other CTS ranged between 0.56 and 1.24 uses per interview. This trend towards greater usage of observation and interpretation was also observed during the pilot phase of the project (Year 2). Most likely this trend is related to the nature of observing and interpreting, which tend to be acquired at an earlier developmental stage; in addition, both observation and interpretation may often serve as building blocks for other skills, such as comparison or flexible thinking.

Overall, students were least likely to use Comparison and Evaluation in the poster setting. This may be due to the fact that they were focused on a single artwork, and thus were less apt to draw comparisons or state multiple preferences/opinions than if they were looking at several objects. Also, students may have been less interested in expressing likes or dislikes when talking out loud on their own than they might in a social context with their peers.

Table 5: Students' usage of overall critical thinking skills during their interview

| Critical Thinking Skills | Mean (n=135) |
|---|---|
| Observation | 18.98 |
| Interpretation | 15.89 |
| Evaluation | .74 |
| Association | 1.13 |
| Problem-finding | .97 |
| Comparison | .56 |
| Flexible Thinking | 1.24 |

When the treatment and control group interviews were analyzed for differences in the amount of CTS used, significant differences emerged. Of the seven broad CTS, there were significant differences between the treatment and control groups for five skills: observation, interpretation, association, comparison, and flexible thinking (see Table 6 for this comparison). For all of these CTS, treatment students used significantly higher amounts of the skill than did control students.

Table 6: Treatment and control students' usage of overall critical thinking skills during their interview

| Critical Thinking Skills | Treatment Group Mean (n=64) | Control Group Mean (n=71) | Significance |
|---|---|---|---|
| Observation | 28.05 | 10.82 | * (p=.000) |
| Interpretation | 24.66 | 8.00 | * (p=.000) |
| Evaluation | .61 | .86 | Not significant |
| Association | 1.33 | .94 | * (p=.028) |
| Problem-finding | .91 | 1.03 | Not significant |
| Comparison | .97 | .20 | * (p=.002) |
| Flexible Thinking | 2.11 | .45 | * (p=.000) |

<u>Students Use of Specific Critical Thinking Skills</u>

Within the broad groups of CTS, specific sub-skills were identified to more explicitly define how students thought about the works of art. As shown in Table 7, some sub-skills were used by students more often as they looked at the work of art (regardless of whether they were treatment or control students). For example, within observation, giving specific details, features or the location of an object in the work (skill 1.3) was used an average of 12 times per student. This is the most any sub-skill was used during the interview. On the other end of the spectrum, students seldom talked about how the work was made (1.4), a sub-skill of observation, and within the broad skill of evaluation, students seldom expressed their own opinions about the work (3.1) or evaluated the artist's techniques or the artistry of the work as a whole (3.2).

Some of the variation in the use of sub-skills may correspond to what skills children naturally utilize when talking about a work of art, but some of the differences may be dependent on interview context itself. For example, the individual interview context asked students to look at one work of art, Caravaggio's *Supper at Emmaus*. This is an emotionally charged piece showing

the surprise of Christ's disciples at the moment the resurrected Jesus reveals himself to them. Students would often use observational and interpretational skills related to the dramatic actions and intense emotions evident in the work. A less intense work might have elicited fewer usages of these sub-skills, and more uses of another sub-skill. Other variations in the use of certain sub-skills may be inherent limitations of asking children to focus on a work in a controlled setting. For example, in the gallery, students were more likely to say what something was or was not than they were in the individual interview. This type of comment is natural in a rich setting where there are lots of objects and works. Students would often identify an object and then go on to the next object, or alternatively identify the object and then apply further CTS to the object. When faced with only one work, students do not identify the work (i.e. "I see a painting."); instead, they seem to jump right into using CTS to delve into the content of the work.

Table 7: Students' usage of specific critical thinking skills during their interview

| Critical Thinking Skills | Mean (n=135) |
|---|---|
| Observation (1) | |
| *What something is or is not (1.1)* | 3.46 |
| *Actions (1.2)* | 3.21 |
| *Details, features, locations (1.3)* | 12.12 |
| *What or how something is made (1.4)* | .15 |
| *Reading labels (1.5)* | .04 |
| Interpretation (2) | |
| *Use of objects (2.1)* | .16 |
| *Implicit Conditions (2.2)* | 2.29 |
| *Identity (2.3)* | 2.70 |
| *Intentions or narrating (2.4)* | 10.75 |
| Evaluation (3) | |
| *Personal opinion (3.1)* | .62 |
| *Merits of the work (3.2)* | .12 |
| Association* (4) | 1.13 |
| Problem-finding (5) | |
| *Isolated* | .39 |
| *Synergistic* | .59 |
| Comparison (6) | |
| *Isolated* | .34 |
| *Synergistic* | .22 |
| Flexible Thinking* (7) | 1.24 |

* CTS has no sub-skills.

Data showed that treatment students utilized five Critical Thinking Skills significantly more frequently than control students: observation, interpretation, association, comparison, and flexible thinking (see Table 8).

Within the CTS observation, three of the five sub-skills were used significantly more often by treatment students. The two skills that did not show significant differences (e.g. how a work was made, 1.4, and reading labels, 1.5) were not used very often by either group. With in the CTS interpretation, three of the four sub-skills were used significantly more often by the treatment group. With in the CTS of evaluation, giving a personal opinion about the work (3.1) was not significantly different between the two groups. However, commenting on the merit of the work or the artistry (3.2) was significantly different, with the control students more likely to use this CTS. The differences within the sub-skills of problem-finding were too small to be significant. For the CTS of comparison, both isolated uses of comparison and synergistic uses were used significantly more often by the treatment group.

Table 8: Treatment and control students' usage of specific critical thinking skills during their interview

| Critical Thinking Skills | Treatment Group Mean (n=64) | Control Group Mean (n=71) | Significance |
|---|---|---|---|
| Observation (1) | | | |
| *What something is or is not (1.1)* | 4.66 | 2.38 | * *(p=.000)* |
| *Actions (1.2)* | 4.42 | 2.13 | * *(p=.003)* |
| *Details, features, locations (1.3)* | 18.75 | 6.14 | * *(p=.000)* |
| *What or how something is made (1.4)* | .14 | .15 | Not significant |
| *Reading labels (1.5)* | .08 | .01 | Not significant |
| Interpretation (2) | | | |
| *Use of objects (2.1)* | .17 | .14 | Not significant |
| *Implicit Conditions (2.2)* | 3.52 | 1.18 | * *(p=.000)* |
| *Identity (2.3)* | 4.27 | 1.30 | * *(p=.000)* |
| *Intentions or narrating (2.4)* | 16.70 | 5.38 | * *(p=.000)* |
| Evaluation (3) | | | |
| *Personal opinion (3.1)* | .56 | .68 | Not significant |
| *Merits of the work (3.2)* | .05 | .18 | * *(p=.046)* |
| Association* (4) | - | - | - |
| Problem-finding (5) | | | |
| *Isolated* | .45 | .32 | Not significant |
| *Synergistic* | .45 | .70 | Not significant |
| Comparison (6) | | | |
| *Isolated* | .58 | .13 | * *(p=.001)* |
| *Synergistic* | .39 | .07 | * *(p=.032)* |
| Flexible Thinking* (7) | - | - | - |

* CTS has no sub-skills.

<u>Students' Use of Evidence to Support their Assertions</u>

Students were also asked to provide evidence for their statements as they spoke about the work of art in their individual interview. In general, most students used both weak and strong statements of evidence as support. Both treatment and control students were, however, more likely to use weak evidence than strong evidence. The mean usage of weak evidence in interviews was 1.44 uses per interview and the mean for strong evidence was 1.11 uses per interview.

The use of evidence to support statements about the work was significantly different for treatment and control groups. Treatment students were significantly more likely than control students to provide both weak and strong evidence (Table 9). Both groups were more likely to use weak evidence as support rather than strong evidence.

Table 9: Treatment and control students' usage of evidence during their interview

| Evidence Type | Treatment Group Mean (n=64) | Control Group Mean (n=71) | Significance |
|---|---|---|---|
| Weak Evidence | 2.45 | .52 | * (p=.000) |
| Strong Evidence | 1.98 | .32 | * (p=.000) |

**To what extent did participation in *SPP* influence students' critical thinking skills within a social context in the museum?**

When given time to explore and converse about works of art in a particular gallery in the museum, 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 (p=.000). The following section of the report describes students' individual performance within a social group in the museum, in terms of 1) use of overall Critical Thinking Skills; 2) use of specific Critical Thinking Skills; and 3) provision of evidence in support of students' assertions.

<u>Students' Use of Overall Critical Thinking Skills</u>

As can be seen in Table 10, students were much more likely in their social groups to use observation and interpretation skills than the other CTS, as was the case for individual poster interviews. The median number of times a student used observational skills during their interview was 28.5 and the median number of interpretational skills was 19.0. The medians for the other CTS ranged between 2 and 1 uses per interview.

Table 10: Students' usage of overall critical thinking skills during their "untour"

| Critical Thinking Skills | Median (n=116)* |
|---|---|
| Observation | 28.5 |
| Interpretation | 19.0 |
| Evaluation | 2.0 |
| Association | 1.0 |
| Problem-finding | 1.0 |
| Comparison | 1.0 |
| Flexible Thinking | 1.0 |

*The median is used instead of the mean because the distribution is skewed towards low use.

When the treatment and control group interviews were analyzed for differences in the amount of CTS used, significant differences emerged. Of the seven broad CTS, there were significant differences between the treatment and control groups for five skills: observation, interpretation, association, comparison, and flexible thinking. See Table 11 below for this comparison. For all of these CTS, treatment students used significantly higher amounts of the skill than did control students. This finding parallels that of the individual interview finding; the same broad CTS categories are significant regardless of the setting of the interview.

Table 11: Treatment and control students' usage of overall critical thinking skills during their "untour"

| Critical Thinking Skills | Treatment Group Mean (n=56) | Control Group Mean (n=60) | Significance |
|---|---|---|---|
| Observation | 48.05 | 23.27 | * (p=.000) |
| Interpretation | 31.19 | 15.60 | * (p=.000) |
| Evaluation | 3.70 | 3.70 | Not significant |
| Association | 2.20 | 1.22 | * (p=.009) |
| Problem-finding | 2.21 | 1.82 | Not significant |
| Comparison | 1.63 | .88 | * (p=.006) |
| Flexible Thinking | 1.93 | .70 | * (p=.001) |

Students' Use of Specific Critical Thinking Skills

Within the broad groups of CTS, specific sub-skills were identified to more explicitly define how students thought about the works of art in the museum. As shown in Table 12, some sub-skills were used by students more often as they looked at the work of art. For example, with in observation, giving specific details, features or the location of an object in the work was used an average of 12 times per student. This is the most any sub-skill was used during the interview. On the other end of the spectrum, students seldom talked about how the work was made (sub-skill 1.4), a sub-skill of observation, and within the broad skill of evaluation, students seldom expressed their own opinions about the work (3.1) or evaluated the artist's techniques or the artistry of the work as a whole (3.2).

Some of the variation in the use of sub-skills may correspond to what skills children naturally utilize when talking about a works of art, but some of the differences are dependent on the

interview context. For example, in the museum gallery, students have may different objects to examine, may of which are new to them or their fellow students. Although it is a seldom used CTS, students are more likely to comment on how an object may have been used (sub-skill 2.1) in the gallery setting than in the individual interview setting.  This supports the idea that the two settings are complementary, working hand-in-hand to give students the opportunity to practice different combinations of CTS.

Table 12: Students' usage of specific critical thinking skills during their "untour"

| Critical Thinking Skills | Median (n=116) |
|---|---|
| Observation (1) | |
| *What something is or is not (1.1)* | 10.0 |
| *Actions (1.2)* | 3.0 |
| *Details, features, locations (1.3)* | 10.5 |
| *What or how something is made (1.4)* | .0 |
| *Reading labels (1.5)* | 2.0 |
| Interpretation (2) | |
| *Use of objects (2.1)* | 1.0 |
| *Implicit Conditions (2.2)* | 3.0 |
| *Identity (2.3)* | 3.0 |
| *Intentions or narrating (2.4)* | 10.0 |
| Evaluation (3) | |
| *Personal opinion (3.1)* | 2.0 |
| *Merits of the work (3.2)* | .0 |
| Association* (4) | 1.0 |
| Problem-finding (5) | |
| *Isolated* | 1.0 |
| *Synergistic* | .0 |
| Comparison (6) | |
| *Isolated* | .0 |
| *Synergistic* | .0 |
| Flexible Thinking* (7) | 1.0 |

* CTS has no sub-skills.

Five of the broad CTS have sub-skills that comprise the broad level CTS: observation, interpretation, evaluation, problem-finding, and comparison. Both association and flexible thinking have no sub-skills. The analysis went a step further, therefore, and compared the control school students and treatment school students on these sub component skills. See Table 13 for this comparison. Within the CTS observation, three of the five sub-skills were used significantly more often by treatment students. The two skills that did not show significant differences (e.g. how a work was made, 1.4, and reading labels, 1.5) were not used very often by either group. Within the CTS interpretation, three of the four sub-skills were used significantly more often by the treatment group. Within the CTS of evaluation, neither sub-skill was significantly different,

as was the case with the sub-skills of problem-finding. For the CTS of comparison, the isolated use of comparisons was used significantly more often by the treatment group, but the synergistic uses showed no statistical significance.

Table 13: Treatment and control students' usage of specific critical thinking skills during their "untour"

| Critical Thinking Skills | Treatment Group Mean (n=56) | Control Group Mean (n=60) | Significance |
|---|---|---|---|
| Observation (1) | | | |
| *What something is or is not (1.1)* | 15.46 | 8.48 | * (p=.000) |
| *Actions (1.2)* | 5.20 | 2.68 | * (p=.000) |
| *Details, features, locations (1.3)* | 24.29 | 8.52 | * (p=.000) |
| *What or how something is made (1.4)* | 1.04 | .62 | Not significant |
| *Reading labels (1.5)* | 2.07 | 2.97 | Not significant |
| Interpretation (2) | | | |
| *Use of objects (2.1)* | 2.50 | 1.33 | * (p=.044) |
| *Implicit Conditions (2.2)* | 4.95 | 3.42 | Not significant |
| *Identity (2.3)* | 7.21 | 3.60 | * (p=.000) |
| *Intentions or narrating (2.4)* | 16.54 | 7.25 | * (p=.000) |
| Evaluation (3) | | | |
| *Personal opinion (3.1)* | 3.52 | 3.55 | Not significant |
| *Merits of the work (3.2)* | .18 | .15 | Not significant |
| Association* (4) | - | - | - |
| Problem-finding (5) | | | |
| *Isolated* | 1.46 | 1.18 | Not significant |
| *Synergistic* | .75 | .63 | Not significant |
| Comparison (6) | | | |
| *Isolated* | 1.29 | .65 | Not significant |
| *Synergistic* | .34 | .23 | * (p=.004) |
| Flexible Thinking* (7) | - | - | - |

* CTS has no sub-skills.

Students' Use of Evidence to Support their Assertions

In the gallery, students were also asked to provide evidence for their statements. In general, most students used both weak and strong statements of evidence as support. Students were, however, more likely to use weak evidence than strong evidence. The mean usage of weak evidence in interviews was .72 uses per interview and the mean for strong evidence was .66 uses per interview.

The use of evidence to support statements about the work was significantly different between treatment and control groups. Treatment students were significantly more likely than control students to provide both weak and strong evidence (Table 14). Both groups were more likely to use weak evidence as support rather than strong evidence.

Table 14: Treatment and control students' usage of evidence during their "untour"

| Evidence Type | Treatment Group Mean (n=56) | Control Group Mean (n=60) | Significance |
|---|---|---|---|
| Weak Evidence | 1.13 | .35 | * (p=.000) |
| Strong Evidence | 1.11 | .25 | * (p=.001) |

**To what extent did participation in *SPP* influence students' critical thinking on standardized tests?**

This section of the report presents findings from the 2005-2006 SAT-9 data collected from students; 2005-2006 MCAS data have not yet been analyzed, but will be added to this report in the form of an addendum later this year.

3rd Grade Reading Comprehension

When the control and treatment samples for the 3rd grade students were compared, there were no significant differences between the control and treatment samples on any of the sub-scales. As Table 15 illustrates, there is very little difference between the weighted means for the control and treatment populations. These differences are too small to be statistically significant.

Table 15: Comparison of 3rd grade treatment and control students on the SAT-9 reading comprehension sub-scales

| SAT-9 Sub-scale | Weighted Means | | Percent Difference |
|---|---|---|---|
| | Treatment Students | Control Students | |
| Specific Detail | 6.4 | 6.2 | 3.2% |
| Action/Reason/Sequence | 4.6 | 4.0 | 2.7% |
| Inference | 5.5 | 5.7 | -3.5% |
| Extended Meaning | 6.7 | 6.5 | 3.0% |
| Critical Analysis | 2.4 | 2.2 | 8.0% |

Source: SAT-9 data provided by the Boston Public School System.

4th Grade Reading Comprehension

A comparison of the control and treatment samples for the 4th grade students revealed no significant differences between the control and treatment samples on any of the sub-scales. As Table 16 illustrates, there is very little difference between the weighted means for the control and treatment populations. These differences are too small to be statistically significant.

Table 16: Comparison of 4<sup>th</sup> grade treatment and control students on the SAT-9 reading comprehension sub-scales

| SAT-9 Sub-scale | Weighted Means | | Percent Difference |
| --- | --- | --- | --- |
| | Treatment Students | Control Students | |
| Specific Detail | 6.8 | 6.2 | 8.7% |
| Action/Reason/Sequence | 3.7 | 2.7 | 27.1% |
| Inference | 9.1 | 7.9 | 13.8% |
| Extended Meaning | 8.7 | 8.0 | 8.0% |
| Critical Analysis | 5.3 | 4.9 | 8.3% |

Source: SAT-9 data provided by the Boston Public School System.

## 5<sup>th</sup> Grade Reading Comprehension

When the control and treatment samples for the 5<sup>th</sup> grade students were compared, there were no significant differences between the control and treatment samples on any of the sub-scales. As Table 17 illustrates, there is very little difference between the weighted means for the control and treatment populations. These differences are too small to be statistically significant.

Table 17: Comparison of 5<sup>th</sup> grade treatment and control students on the SAT-9 reading comprehension sub-scales

| SAT-9 Sub-scale | Weighted Means | | Percent Difference |
| --- | --- | --- | --- |
| | Treatment Students | Control Students | |
| Specific Detail | 5.7 | 5.2 | 8.3% |
| Action/Reason/Sequence | 4.1 | 3.4 | 16.4% |
| Inference | 10.5 | 9.2 | 11.9% |
| Extended Meaning | 7.1 | 6.5 | 8.5% |
| Critical Analysis | 5.4 | 5.0 | 8.6% |

Source: SAT-9 data provided by the Boston Public School System.

## CONCLUSIONS

[To be written following the completion of all data analysis]

**Appendix A**

**Individual Student Interview Protocol**

**Isabella Stewart Gardner Museum**
*Thinking through Art*
**Year 3 Research Study**

**Individual Student Think-Aloud Interview Protocol**

Context

Individual, think-aloud interviews with students are intended to provide students with the opportunity to employ the critical thinking skills that are encouraged during *SPP* visits, (without instructional assistance or scaffolding) while looking at a reproduction of a work of art. Interviews are conducted with individual students, randomly selected from 3rd, 4th and 5th grade classrooms across the four study schools. Individual students are taken out of class, and brought to a quiet location for the interview. In this location, students will sit on a chair placed directly in front of a poster-sized image of Caravaggio's *Supper at Emmaus*. The researcher will sit on a chair beside them, also oriented towards the image. Student comments are recorded, and later transcribed for analysis.

Procedure

Once the student is settled in the chair in front of the image, the researcher will use the following script to introduce students to the think-aloud task:

*My name is _____. I'm a researcher, and I'm interested in what children think about when they look at works of art. Are you willing to help me?* [Wait for and acknowledge response.] *Great! I'm going to put this little microphone on you, so that I can tape record what you say. That way, I don't have to write down everything. Is that okay with you?* [Wait for and acknowledge response; clip mic to student, and turn on tape recorder.]

*I've put this work of art up here for you to look at and talk about. When we get started, I want you to say out loud all the things that you're thinking about as you look at it. I know this might seem a little different at first but I know you will adjust. I need you to talk out loud as you're looking so that I know what you're thinking as you look at the art. Does that make sense?* [Wait for and acknowledge response.]

*I want you to know that there are no right or wrong things to say. No one else will hear this tape except for me and 1-2 other researchers. Your teacher won't hear it, and no other students will hear it. So feel free to say whatever you're thinking, no matter what it is. Try to say all of your thoughts as they come to you and try to say not just <u>what</u> you think, but also <u>why</u> you think that.*

*What I <u>don't want you to do</u> is to be silent because I can't tell what you are thinking. I also don't want you to talk with me about the work of art. We're not going to have a conversation; you're going to talk to yourself out loud. I'm just here to make sure the tape recorder works, so I'm going to sit beside you quietly while you talk.*

*You can take as long as you want to talk about the work of art. When you feel like you have absolutely nothing left to say, just tell me. Do you have any questions?* [Wait for and answer any questions.] *Are you ready to start?* [Wait for and acknowledge response.] *Okay, you can start talking whenever you're comfortable.*

As the student proceeds with the think-aloud, the researcher will sit quietly beside him/her, looking straight ahead at the image. If the student pauses for longer than 20 seconds with no indication that they are finished, the researcher will prompt him/her by saying "Keep talking" or "What are you thinking now?" If the student asks the researcher a question about the work of art, or directs their comments to the researcher, the researcher will just smile, remain silent, and continue to look straight ahead at the image.

When the student indicates for the first time that he/she is finished, the researcher will respond by saying, "I'm going to give you more time to look at the work of art, and if you think of anything else while you're looking, I want you to say it out loud." If the student does not talk about the art after a period of 30 seconds, or indicates they are done/have nothing else to say, the researcher will end the interview. If after the prompt, the student begins the think-aloud again, the researcher will wait for the student to indicate for a second time that he/she is finished. At that point, the researcher will say, "Take just a little more time and make sure you've said all the things that come to mind when you look at this work." Again, if the student does not talk about the art after a period of 30 seconds, or indicates they are done/have nothing else to say, the researcher will end the interview. If the student begins the think aloud again, the researcher will wait for the student to indicate for a third time that he/she is finished. At that point, the researcher will say, "Are you sure there's nothing more you want to say?" After the third prompt, when the student indicates he/she is finished, the researcher will end the interview, thank the student, turn off the recorder, and accompany the student back to class.

**Appendix B**

**Small Group (“Untour”) Protocol**

**Isabella Stewart Gardner Museum**
*Thinking through Art*
**Year 3 Research Study**

**Individual Student UNTOUR Protocol**

Context

Data collected from the group UNTOUR method seeks evidence of student critical thinking that is contextually dependent on being in the museum with peers. UNTOURS are conducted with groups of six (6) grade-alike students, randomly selected from 3rd, 4th and 5th grade classrooms across the four study schools. Groups of 6 are taken out of class and brought to the ISGM to look at the works in one gallery (Raphael gallery) for as long as they like. Digital recorders are attached to each child upon entering them museum as indicated in the following script. Researchers will test the recorders to be sure they are working. Be sure to turn on the microphone switch. Try to make sure students have taken care of any personal /bathroom needs before beginning the UNTOUR.

Procedure

A) Before the group is taken upstairs to the Raphael gallery, the researcher will have them sit in a quiet place and use the following script to introduce students to the UNTOUR task:

*My name is _____. Remember that I'm a researcher and I'm interested in what children think about when they look at works of art in the museum. Are you willing to help me again? [Wait for and acknowledge response.] Great! I'm going to put a little microphone on each of you, and then attach this fanny pack with a recorder in it, so that I can record what you say. That way, I don't have to write down everything. Is that okay with everyone? [Wait for and acknowledge response; clip mic to student, attach fanny pack, and turn on tape recorder.]*

*We will visit one Museum gallery today, and while we're there, you can look at anything you want for as long as you want. While you are in the gallery, you can do two things:*
*You can talk to each other about what you are thinking as you look at the art in the gallery; and*
*You can also think out loud by yourself as you look at the art in the gallery. Remember when I came to your school and asked you to think out loud while you were looking at the poster? You all did that very well. So if you're not talking with someone else about the art, you need to say out loud the things that you're thinking in your head, like we did when I came to your school.*

*Also, I want to ask that, even if you can speak another language, please only speak English while you're in the gallery.*

*Just like when I saw you before, there are no right or wrong things to say. No one else will hear this tape except for me and 1-2 other researchers. Your teacher won't hear it, and no other students will hear it. So feel free to say whatever you're thinking, no matter what it is. Try to say*

*all of your thoughts as they come to you and try to say not just <u>what</u> you think, but also <u>why</u> you think that.*

*What I <u>don't want you to do</u> is to be silent because I can't tell what you are thinking. And I also don't want you to talk with me* [and include any other adults with the group] *about the work of art. We're not going to have a conversation with you; you're going to talk to yourself out loud or with others. We will not talk to you, ask you questions, or answer any questions. If you have questions, still ask them and try to help each other answer them.*

*Are there any questions before we start?* [Address questions then walk to the Raphael gallery.]

B) The researcher will then lead the group to the Raphael gallery, pausing at the entrance to deliver these final instructions:

*You can take as long as you want to look around this gallery, but you need to stay in this space. Don't go past that point* [indicate far boundary] *or this point* [indicate near boundary]. *You can stand at the doorway and look out but do not step into the other galleries. When you feel like you have absolutely nothing left to see or say in this gallery, then you can go sit* [indicate where you want children to sit when they are finished]. *If you sit down, and then decide you want to look and think aloud some more, you can get back up again. We will wait until most of you are finished and seated before leaving. Do you have any questions*? [Wait for and answer any questions.] *Are you ready to start?* [Wait for and acknowledge response.] *Okay, you can start looking around and talking whenever you're comfortable.*

C) As the students proceed around the gallery, the researcher will stand or sit quietly in the gallery. If a student asks the researcher a question about the works of art or museum, or directs their comments to the researcher, the researcher will just smile, remain silent. If a teacher or parent accompanies the group, the researcher will be sure to explain that they should not talk with the students while in the gallery. The researcher will watch carefully to be sure the teacher or parent abides by this request. If a student asks a logistical or procedural question such as, *Can I go to the bathroom?* or *How long do we have to stay here?,* these questions will be addressed quickly and as minimally as possible. For example, if a student asks to go to the bathroom, the researcher will ascertain if it is an urgent need or if he/she can wait until all are finished in the gallery. If it is urgent, someone will escort the student to the bathroom and back. If a student asks how long they have to stay in the gallery, the researcher will reply *"Until most of you sit down."*

D) When at least four students sit in the appointed place for one full minute without getting up again, the UNTOUR if over. If one or two students are still looking around the gallery, the researcher will call them over and explain that the UNTOUR is finished. Students may sit down and get up again throughout the visit. The key indication that the UNTOUR is finished is that most (4) of the students sit together for 60 seconds without anyone getting up and moving off. At that time, the researcher will turn off the recorders and microphone switch, and place them in the fanny packs.

NOTE: If 4 or more students do not sit down after 15 minutes, the researcher will call a 1 minute time limit and end the UNTOUR.

**Appendix C**

**Critical Thinking Skills Scoring Manual**

**Isabella Stewart Gardner Museum**
***Thinking Through Art***
**Year 3 Research Study**

**CRITICAL THINKING SKILLS Scoring Manual**

*Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.*

A statement by Michael Scriven & Richard Paul for the National Council for Excellence in Critical Thinking Instruction

## Assumptions

This study seeks to identify and analyze the critical thinking skills that students use while looking at an art reproduction and while visiting the Isabella Stewart Gardner Museum. Critical thinking is a complex process, and unraveling the bits and pieces of the process is labyrinthine. As is the case with all types of art, there is always the danger that the process of dissecting and analyzing the parts diminishes the whole.

We acknowledge that no rubric can capture every nuance or dimension of the critical thinking process. The purpose of this rubric is to capture most of what museum educators at the ISGM consider relevant to the teaching and learning that occur in their multiple visit program.

We also understand that the terminology that we use here to name and describe the critical thinking skills in this study are used by different people and different disciplines in related but slightly different ways. We do not have a problem with alternative ways that the terms are used and understood. Rather, this is an effort to be as clear as possible in how we use and understand these terms for the purposes of this study.

The following manual outlines the necessary steps for coding student discourse, drawing on the work of Abigail Housen (2002 & 1983) and Costa & Kallick (2000).

## Description of the Data

Data for the Critical Thinking Skills study comes in two spoken forms:
1) Individual student interviews (focused on 1 poster reproduction of art);
2) Group conversations in the museum (focused on 1 ISGM gallery - Raphael).

Data will be coded from typed transcriptions of digital voice recordings of each individual student. Each student will have two audio files/transcriptions: 1) the individual student interview, and 2) the museum conversation.

## Structure of the Coding Rubric

The structure of this year 3 coding rubric is based on the empirical data collected both in the year 1 planning/exploratory study and the results from the year 2 preliminary analysis of data using the critical thinking rubric. Because critical thinking is a rich and complex process the rubric needs to reflect the multi-dimensional aspect of that process, while at the same time, making it possible to train coders in a reasonably brief period of time.

To that end, the rubric has a three dimensional or nested quality: Isolated thinking skills, Synergistic thinking skills, and Depth of evidence in thinking.

1. **Isolated Critical Thinking Skills**: Results from the two prior years of data analysis showed that many of the responses from children were fairly straightforward, simple, and easily isolated phrases or sentences. In these cases, the **codable unit is a single critical thinking skill**, and can consist of one or two words, a phrase, or a simple sentence.

   Note that Observation, Interpretation, Association, and Evaluation will always be Isolated; Problem-Finding, and Comparing will in some cases be Isolated; and Flexible Thinking will never be Isolated, as it requires a combination of skills to occur.

2. **Synergistic Critical Thinking Skills**: Some students employ two or more isolated thinking skills to create a different kind of thinking skill. In these cases, **the codable unit is a combination of two or more critical thinking skills**, and usually consists of several phrases or a compound sentence. Only three of the critical thinking skills can be synergistic: Problem-Finding, Comparing, and Flexible Thinking. (Note that only in the case of Problem-Finding, the synergistic unit may be a single phrase that includes only one isolated skill, such as Observation.)

3. **Depth of Evidence in Critical Thinking**: An important aspect of critical thinking is providing support and evidence for one's opinions and assertions. The **codable unit** for this skill is two or more phrases, a complex sentence, or several sentences in succession.

| | |
|---|---|
| **1. Observing** | ✓     **1.1 – <u>Observing</u> what something is or is not (object, person, animal); naming or identifying something. (Does <u>not</u> include statements with descriptive qualifiers. Does <u>not</u> include basic orienting statements: Hey, lookit, Look at that/this/it/him/her, over here/there, which are not coded.)**<br>*That looks like a goose*<br>*It doesn't really look like a cabin*<br>*See those angels right there?*<br>*Look at this statue*<br>*Look at all these chairs*<br><br>✓     **1.2 – <u>Observing</u> what people/animals are doing; concrete and explicit actions (present and past, but <u>not</u> future tense).**<br>*That man is clapping his hands*<br>*The dog is sleeping*<br>*They're sitting down in the house*<br>*She's breastfeeding the baby*<br>*She's leaning on her*<br>*They're eating*<br>*It looks like this lady's dancing*<br>*They stabbed the sword right through her chest*<br>*She's combing her hair*<br><br>✓     **1.3 – <u>Observing</u> concretely and explicitly how something looks, where it is located, how many there are; pointing out a feature or physical characteristic of an object, person, or animal**<br><br>**(objects)**<br>*Those are pearls on her bracelet*<br>*Wow, that painting is big!*<br>*This painting, it's very bright*<br>*The light is reflecting on it [the glass]*<br>*That statue has no eyes*<br>*It looks like the chair the man is sitting on doesn't have a back*<br>*There's a coat hanging on the wall*<br>*[The picture] has a pot on top of the stove*<br><br>**(people)**<br>*I think that's four men*<br>*The baby looks deformed*<br>*His mouth is open*<br>*The baby's smiling at her*<br>*Her eyes, they sparkle when you move*<br>*The man opening up his eyes real big*<br>*This lady has long finger nails*<br>*Her elbows are near her stomach*<br>*One of them is holding a knife*<br>*It looks like she has a note in her hand*<br>*She's wearing a gown*<br>*The girl in yellow*<br><br>✓     **1.4 – <u>Observing</u> what it's made of & how it's made**<br>*That's stone, I think it's made out of stone*<br>*I think someone carved that chair*<br>*Those tiles look like they were painted*<br>*It looks like the painting is  greased*<br>*I think someone sketched it*<br><br>✓     **1.5 – Reading labels**<br>When students read labels, or artist's signatures. |

| 2. Interpreting | ✓ **2.1 – Interpreting the use of objects; what something does/did; how people use/used an object**<br>*Maybe you put water in it*<br>*This is to protect us so that we don't get burned*<br>*That's just to honor someone, one person that died*<br>*I think that is where they put the food*<br>*Horses drink out of this*<br>*They drink water in it  long ago*<br><br>✓ **2.2 – Interpreting implicit conditions or features of objects, animals, or people; characteristics, feelings and emotions, mental states, status, age**<br><br>**(implicit features or characteristics)**<br>*It's  fake (or real)*<br>*The chair looks comfy*<br>*The people are lucky*<br>*That man looks drunk*<br><br>**(implicit conditions or status – e.g., wealth, age)**<br>*This looks old*<br>*That's a new one*<br>*She's probably 50 in that picture*<br>*She looks really young*<br>*She looks greedy*<br>*That man is rich*<br>*This woman is dead*<br><br>**(feelings, emotions)**<br>*They are angry with each other*<br>*She loved statues!*<br>*The lady seems really happy*<br>*I think she's a girl that likes the color blue*<br>*She looks like the most calm one in there*<br>*The family doesn't want her to go*<br><br>✓ **2.3 – Interpreting identity (who people are, relationships, and identity; where objects come from, such as from a particular culture or religion.)**<br><br>**(specific people, proper nouns)**<br>*That must be Isabella; that can't be Isabella*<br>*The man in the middle is Jesus.*<br>*That's Queen Isabella*<br><br>**(relationships – e.g., family, friends)**<br>*Maybe they're husband and wife*<br>*That looks like a mother*<br>*That looks like a Chinese prince, a queen, and two kids*<br>*I think that's his wife*<br>*Maybe they're really good friends*<br><br>**(what someone does, occupation)**<br>*That guy's a warrior over there.*<br>*Look, there's a knight right there!*<br>*Look at the soldiers.*<br><br>**(ethnic, national, religious identity of people or objects)**<br>*Ooh, a Spanish guy*<br>*The man there…looks Jewish*<br>*The black family, the white family*<br>*They are Dutch, They are from Poland*<br>*That guy is wearing a Jewish hat*<br>*There's Chinese writing there* |
|---|---|

| | |
|---|---|
| | ✓ **2.4** – <u>Interpreting</u> 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"<br>*One [person] is saying to get out*<br>*Maybe she's gonna have a party*<br>*[He] is asking him for money*<br>*Maybe this is where she had dinner*<br>*They're eating Thanksgiving dinner*<br>*They're sharing their food*<br>*Looks like a lady dressing her daughter for the first day of school*<br>*[He] is killing the dragon*<br>*They're fighting with each other*<br>*That man is about to get up*<br>*It looks like a place for Romeo & Juliet* |
| **3. Evaluating** | ✓ **3.1** – <u>Evaluating</u> based on personal opinion or preference (includes terms such as like/dislike, good/bad, pretty/ugly, weird, scary)<br>*That's ugly*<br>*This is amazing, incredible paintings and furniture.*<br>*That picture freaks me out!*<br>*It's so beautiful here!*<br>*This guy has a weird mustache and a weird hairdo*<br>*I really like the cloth on top of the table*<br>*I really admire the third one*<br><br>✓ **3.2** – <u>Evaluating</u> the perceived merits of the work or artist's ability<br>*The artist didn't do it very well*<br>*That's hard to do*<br>*They put a nice color there*<br>*So the best [painting] we're trying to find is a picture you can explain a lot about* |
| **4. Associating** | ✓ **4** – <u>Associating</u> the object/situation directly with prior experience or knowledge; making <u>clear</u> connections to personal experience<br><br>**(previously known or assumed knowledge)**<br>*They didn't have scissors back then*<br>*Before the slaves became free*<br>*The Jewish used to wear hats*<br><br>**(generalizations based on experience or observational knowledge)**<br>*When its purple [outside] that means its night*<br>*Usually nightgowns are light colors*<br>*Most paintings look like that [one].*<br><br>**(direct personal reference)**<br>*That's my birthstone, the pearl*<br>*My grandma has a vase like that at home*<br>*That person in the middle looks like Chris*<br>*There are people from my country that have stoves like that still*<br><br>**(comparison to other media or pop culture)**<br>*I saw it in a cartoon*<br>*[The painting looks] like when you take it with a camera*<br>*This reminds me of Passion of the Christ*<br>*That guy looks like Fat Albert*<br><br>**(reference to previous ISGM visit or previously seen object/painting)**<br>*We saw that picture in class*<br>*That's the guitar…remember the one we saw in the painting?* |

| 5. Problem-Finding | ✓ **5 – Notes or requests information or identification; identifies information needed to form a conclusion/opinion; may propose a hypothesis in conjunction with stating the problem (Does <u>not</u> include hypotheses alone; Does <u>not</u> include simple queries without an unidentified subject or further elaboration, e.g. "What's this?", "Who?")**<br><br>**(missing data- Isolated)**<br>*I'd like to ask that author some questions*<br>*No one knows if that's a rat or not*<br><br>**(simple queries- Isolated)**<br>*Is this a girl?*<br>*What were these women doing?*<br>*How can butter look like that?*<br><br>**(extended missing data – Synergistic)**<br>*The only reason we can't see that is because the painter scribble-scrabbled*<br>*I can't see it because there is kind of this black stuff here*<br>*I wonder what is under that table*<br><br>**(extended queries- Synergistic)**<br>*What are those gold things?*<br>*Why do you think there's a point on top of that?*<br>*Do you think she lived here alone?*<br><br>**(query with two possible options-Synergistic)**<br>*I don't know if it's a boy //or a girl*<br>*I don't know if it belongs to the father // or the mother*<br>*And why is her hair yellow //and the other one['s] hair brown?*<br>*I wonder if this is a basket //or lots of plates put together?*<br><br>**(problem with a hypothesis or multiple hypotheses-Synergistic)**<br>*I wonder what's that? Kind of looks like a piece of bread.*<br>*How many years is this old? Sixteen? Twenty-five million? Maybe that was back when the dinosaurs were around.* |
|---|---|
| 6. Comparing | ✓ **6 – <u>Comparing</u> what is similar or different; noticing relationships between situations/objects; noticing patterns**<br><br>**(simple comparisons-Isolated)**<br>*That pot matches with the wall*<br>*All of the statues have something broken on them*<br>*That guy looks younger than that guy*<br>*I can see more things close up*<br><br>**(extended comparisons-Synergistic)**<br>*It looks like they have each twins, but it's through the mirror*<br>*It looks better here, and worse on the [projector]…cause you couldn't see those paths in the back very well, or you couldn't see that tree*<br>*I think those two girls are the same, because if you look at them back and forth, she looks like her and she looks like her. They just have on different outfits. And she has a sword. And they are doing different poses.* |
| 7. Flexible Thinking | ✓ **7 – <u>Flexible thinking</u> about multiple possibilities; seeing things from different perspectives, revising thinking. (Does <u>not</u> include the use of "or something/whoever/whatever" – "That must have been a pig – buried or something", "He has a Band-Aid or something like a Band-Aid", "That looks like these kids, or whoever they are.")** |

| | |
|---|---|
| | **(multiple options- Synergistic)**<br>*I think that they're from England or London or Paris*<br>*The mother on the front is taking care of the baby, feeding him or making him go to sleep*<br>*I think that's the mother or the grandmother*<br>*That's a guitar with no strings, or that's a banjo*<br><br>*(***revising a statement/ changing one's mind- Synergistic)**<br>*Like they are outside a store, nah, I think it's a train.*<br>*On top of it is like a handle. But not really…it doesn't have a handle.* |

## Coding the Data

The primary function of coding is to identify the specific critical thinking skills (CTS) as defined in the Coding Rubric above. Language that does not reflect any of the CTS will be crossed out and not scored. Language that <u>does</u> reflect one of the CTS skills is considered a "codable unit" (either isolated or synergistic) and will be scored using the Coding Rubric. In addition, language that represents EVIDENCE will also be scored.

Before starting to code, read through the entire transcript in order to familiarize yourself with its content, language, and flow. On the second reading begin to code using the **General Principles in Coding** and steps 1-3 outlined in **Coding Steps** below, by marking the codable units in pencil on the transcript as described and assigning the proper codes directly on the transcript. Also, remember to read through the Critical Thinking Skill (CTS) rubric frequently while coding. As you become more familiar with the coding rubric it is easy to rely on memory as you code, but resist that tendency as it makes scoring less reliable. <u>Consult the rubric at all times</u>.

**General Principles in Coding**
There are five (5) general principles of coding that apply to <u>all</u> CTS categories as follows:

1. <u>Related and Unrelated statements</u>

We will differentiate between responses that are <u>related</u> to the experience/objects in the museum or to the reproductions, and those statements that are <u>unrelated</u>, such as "What time is it?" "Where is the bathroom?" "Are you going to the game this weekend?" When you identify an unrelated statement strike through it on the transcript in this manner: ~~Where is the bathroom?~~

Navigational comments and simple, vague comments are treated in the same way, such as "Where do you want to go next?", "Let's go look at that painting", "What's that over there?" These are not coded as critical thinking skills and are crossed out on the transcript: ~~Let's look over there.~~

2. Orientation Statements

General, non-specific statements that focus attention on something are not coded. These include remarks such as "Hey, lookit"; "Look over here/there"; "In the third painting…" and comments that only reference a pronoun and provide no further response, such as "Look at him/her/it/that/this/these/those" or "You see him/her/it/that/this/these/those over there?" Draw a line through instances of general orientation language in the transcript: ~~Look at these!~~

NOTE: When Orientation statements specifically name or identify what they see (such as "*Look at that man*" or "*See that big painting over there?*") or after orienting to an object or person they go on to describe some quality (such as "*The picture with the girl in the reflection of the mirror*" or "*The one that is big and is wearing blue*"), the statement is coded for the critical thinking skill it uses.

3. Repeat Phrases

When a child repeats exact or very similar wording of a phrase one or more times in consecutive order, only the first utterance is coded. The subsequent instances are not coded at all. This includes instances when a student repeats the wording of what he/she or another student reads from a label, or what he/she or another student has said. This also includes instances when a child attempts to provide evidence for an assertion, but merely repeats the assertion. In the examples below, only the first part of the text is coded. On the transcript, draw a line through instances of repeat usage, as seen in the examples below. (Note that "repeat phrases" refers only to words or phrases that are in direct consecutive order. If, later in the transcript, a student says the same words as in an earlier instance, we cannot assume that he/she is looking at the same thing. Therefore, it is coded as a new instance of critical thinking.) For example:

*I see a soldier. ~~Look like he is… I see a soldier.~~*

*Isabella's got a baby. ~~That's the baby of Isabella.~~*

*That looks like a guitar. ~~I think it's a guitar…Yeah, it's a guitar.~~*

*[Reading] Bread cage. ~~That's a bread cage!~~*

*The picture is ugly ~~because it's ugly~~.*

Phrases repeated from another student should also be crossed out and not coded. For example:

*~~I think that what Hatim said about the outside being purple~~ maybe it's another building, or maybe it's a church.*

When a student is simply agreeing or disagreeing with what another student has just said, this should be crossed out and not coded. If the child continues after the agreement/disagreement with a new idea, then we will code if it reflects a CTS skill. See the examples below:

*Yeah, grapes.*

*No, that's not a comb.*

*No, that's not a dog.* I think it's a horse.

If lack of context makes it difficult to identify whether or not the child is repeating language from another student or label, assume that the child generated the language and code accordingly.

4. Dealing with extraneous language

Conversational language is, of course, different from written language. In conversation we start sentences or thoughts, back up, restate, or drop the thought completely and move to another. When we code from a written transcript it is important to remember that this is spoken language. In addition, the grammatical syntax of these children is sometimes awkward. Frequently children will use a grammatical structure like the following: "Look at him, he's a soldier"; "The mirror, it shows kind of like these two girls"; "That lady, she looks greedy"; "This painting, its very bright" or "This is the wood that he was cutting." You would keep and code each of those phrases as one codable unit; you do not split that into two units. Remember that the transcriber, not the student, included the commas as an indication that the child was backing up to state his/her thought better.

Extraneous language also includes unsubstantiated uses of "or something." Students often use this as a filler statement. These should be crossed out. However, more complete uses such as "or it could be something else" or "maybe its something like a comb" are codable units. If a child does not complete a thought enough to make sense out of it, do not code (e.g., "Look at that little…")

5. Accuracy of Knowledge

We are not evaluating the accuracy of the students' knowledge when coding for CTS. Rather, we are trying to understand what critical thinking skills students use when talking about art. Therefore, accuracy of a student's statement does not impact the coding of the statement. For example, if a student says, "This one is sitting on a treasure chest," this is coded as Observation (1.1) rather than Interpretation, even if the coder knows that what the child is looking at is a chair.

**Coding Steps**

The three steps for coding are:
1. Code transcript for ISOLATED Critical Thinking Skills
2. Code transcript for SYNERGISTIC Critical Thinking Skills
3. Code for DEPTH of Evidence or Support

Each step is explained in detail below. See the end of the coding manual for a fully coded transcript.

**Step 1: Code transcript for ISOLATED Critical Thinking Skills**

Using the CTS Coding Rubric, break the transcript data into ISOLATED critical thinking skills by using a double slash (//) between phrases. Use the principles for coding outlined in the section above, crossing out phrases on the transcript that are repetitive or unrelated. An isolated critical thinking skill consists of a single thought, idea, or observation, and can take several forms: 1) A phrase or sentence that can stand on its own: "They're trying to protect her from being killed"; "Maybe they're sharing the food"; "He looks like a grandfather"; 2) A single word, such as when a child identifies an object or person (1.1) and does not elaborate: "Guitar," "mirror," "ladies." (only code for CTS 1.1 if it is not embedded in another skill); or 3) A word or words within a sentence, when a child uses two or more CTS skills together, or two or more instances of a single CTS: "The mother // is brushing the girl's hair"; "She's wearing a dress // that's pink // and blue // and green." In the first instance, the child interprets identity (2.3) and observes an action (1.2); in the second instance, the child observes three different colors on the dress and each is scored 1.3. (Note that this is different from SYNERGISTIC critical thinking skills, which use isolated CTS as building blocks to form a <u>different</u> critical thinking skill.)

See the examples below:

(1.1)

*Look at this statue.* **//**


(2.3)　　　(1.3)　　　(3.1)

*The son* **//** *is bald* **//** *and ugly* **//**


(2.2)　　　　　　(2.4)

*The poor man* **//** *is asking him for money* **//**


　　　　　　(2.4)　　　　　　　(2.3)

*The picture looks like he's gonna kiss* **//** *Isabelle* **//**


　　　(3.1)　　　　　　　　　(1.4)

*I really admire the third one* **//** *because it has colors mixed up* **//**


　　(2.2)

*that make it seem real* **//**


　　(2.4)　　　　(2.4)　　　　　(2.4)

*They had to cook* **//** *and clean* **//** *and take care of the baby.*

In cases where there is a list of objects, people or actions, as in the example above, each item in the list is a codable unit and is coded, even if the same code applies to all items in the list. Note that lists don't have to include the use of "and" or commas. In the example below, the list consists of multiple forms of identity that are used to describe the subjects of the painting:

(2.3)    (2.3)            (1.3)                    (2.4)

*The white //family //at the other table //I think they are talking about stuff that*

*is important. //*

In cases where one code "interrupts" another, you will only code the interrupted code once. Do link both parts of the interrupted code with a bowed line and circle the last segment (or "caboose") of the codable unit. See the example below:

(1.2)                    (2.3)

*The woman is brushing //her daughter's //hair.*

**Step 2: Code Synergistic Critical Thinking Skills**

Students may employ two or more isolated critical thinking skills to create another, different, critical thinking skill. We describe these situations as "synergistic" – the interaction of discrete parts where the total effect is greater than the sum of the individual parts. A synergistic code consists of two or more isolated skills used as "building blocks" to create a different CTS (Note: one exception is Problem-Finding, in which a single isolated skill may be used to form a synergistic statement, as explained below). The purpose of the synergistic code is to capture CTS that are **not** otherwise reflected if you identify the isolated CTS alone.

Note that the terms "isolated" and "synergistic" are not linked to specific CTS. However, some CTS codes will never be synergistic, e.g. Observation, Interpretation, Evaluation, and Association; and others tend to be synergistic, e.g. Comparing. The one CTS that is always synergistic is Flexible Thinking, as this skill inherently requires at least two building blocks.

Go back through the transcript a second time to identify synergistic skills. Using brackets [ ] (shown in blue below) to mark the beginning and end of the synergy, mark all synergistic skills that have not already been captured. Mark the synergistic code in the right margin and put a box around it. Use pencil so you can make changes easily. Note: the colors used here are to help you differentiate between isolated and synergistic skills. You do not have to use different color ink when coding transcripts.

(2.3)  (1.3)  (2.4)

[*Maybe the daughter, // the little girl // is probably getting ready to go to*

(2.4)

*school. // I also think that maybe she's like going to sleep.*]  [ 7 ]

This student above has interpreted a relationship (daughter) [Interpreting 2.3] and interpreted what might happen (getting ready to go to school; going to sleep) [two instances of Interpreting 2.4]. All three of these CTS are considered isolated CTS. Because she has speculated on two possible things that might be happening in the painting, the entirety of her comment is then coded as 7 - Flexible Thinking.

(3.1)  (3.1)

[*It looks better here, // and worse on the [projector] // 'cause you couldn't*

(1.3)  (1.3)

*see those paths in the back very well, // or you couldn't see that tree*]  [ 6 ]

In this example, the student first evaluates the way something looks (CTS 3.1-better, worse) and identifies the differences (1.3 - details in the painting). When looking at the whole statement we see the child making an initial comparison between the actual painting and a slide that they saw in the classroom, therefore the entire sentence is bracketed [  ] and the synergy of the combined statements is coded as "6-Comparing". Notice that this statement is not coded as Associating. Although it is probably safe to surmise that the child is referring to an image projected by an ISGM teacher in the classroom, we do not make that assumption or put words into the mouth of students.

A synergistic code should <u>not</u> include an isolated code of the same type (e.g., do not code a building block unit of 6 within a synergistic code of 6). For example, if you find multiple, related comparisons, code them each as separate instances of comparison. For example:

(2.4)  (1.3)  (1.3)

[*The mirror it shows// two girls// at a different time of year,//*][*like the color*  [ 6 ]

(1.3)  (1.3)

*because it's yellow // and then it turns to be reddish//*] [*and this one is yellow//*  [ 6 ]

(1.3)

*and it turns it to brown.*]  [ 6 ]

The student first makes a general comparison that the mirror in the painting shows two girls at different times of year, and then goes on to make two specific comparisons about how the color changes through the mirror reflection. While these are all related comments, the child is actually making three comparative statements and each one should be viewed as an instance of comparison.

It is also possible that a synergistic code contains only one isolated code as a building block. This most often happens in Problem Finding because the "problem" is stated in terms of another critical thinking skill. For example, a student might use an Observation skill to present a problem (Problem Finding); but the problem cannot stand on its own without the isolated unit, as in the example below:

(1.3)

[*Why do you think // there's a point on top of there?*]  (5)

Because "why do you think" does not demonstrate a critical thinking skill on its own, the isolated skill (Observation 1.3, because the student notices the feature of the point on top) must be included in the Synergistic 5. Together, these two phrases form an instance of problem finding, so they are bracketed as a synergistic code. In some cases, students will offer one or more hypotheses about the problem, which will also be included in the bracketed Synergistic code. For example:

(2.2)          (2.2)

[*How many years is this old?//Sixteen? //Twenty-five million? //Maybe, that was*

(2.4)

(5)

*back when the dinosaurs were around.*]

## Step 3: Code for Quality/Depth of Evidence or Support

On the fourth time through the transcript, code for the degree to which the student provides reasonable evidence to support their assertions. The codable unit is a whole argument or thought that hangs together. To be considered for the depth scale, the statement will include two or more CTS (e.g., an assertion and at least one instance of support). A response that includes either strong or weak evidence can include two or more isolated CTS and it can include a synergistic CTS. Typically this involves a two-part statement of an assertion, "That lady looks greedy" followed by the support (or evidence) for that assertion, "because she has a lot of jewelry on." Sometimes students reverse this order, placing the assertion last in the sentence such as, "The picture looks like the baby only has the one leg (evidence) so he looks deformed (assertion)." When students use multiple pieces of evidence to support the same assertion, this should be coded as a single case of evidence. For example, if the statement includes all "weak" evidence, then it is given one "weak" score; but if the statement includes one or more instances of "strong" evidence, then it is given one "strong" score.

Once you have identified the assertion and the evidence and have determined the quality of the evidence, <u>underline</u> the entire argument (evidence and assertion) and mark the score in the right margin of the transcript as WEAK or STRONG. Instances of Evidence are categorized according to the quality of the evidence or support using the following rubric:

## Depth Scale for Evidence

| 1 ("weak") | 2 ("strong") |
|---|---|
| ✓ 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; OR 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. | ✓ 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. |
| *This picture is from a long time ago because the stove is old-fashioned.* | *I think he's dead because there's a cross above him and that's what they used to do in the old days* |
| *The people that don't seem old is the man that's standing, and that's because he looks young.* | *She's pregnant or something, her stomach looks big.* |
| *It looks like they like eating fruits because they have a whole basket filled with fruit.* | *Those statues must be really old because all their heads are broken* |
| *That looks creepy because of the eyes* | *That lady looks greedy because she has a lot of jewelry on* |
| *I think the baby is crying because the mother is looking at it* | *I think that guy is Jewish because he has that white hat on, and Jewish people wear those* |
| *I don't think that's Isabella because she's too young* | *I like this one because I like how they draw the faces and the big woman combing the little girl's hair.* |
| *That's like a goose, and maybe it's a design for Christmas, because you know that the goose goes with Christmas.* | *I think she is alive because her eyes are open and she is smiling.* |
| *I like this picture better because it has a lot of colors.* | *It looks like a breakfast going on since the window in the picture is showing morning sky.* |
| *I think that man is kind of angry because nobody's paying attention to him.* | *It looks like it's an argument going on [because] some of the faces are like mad.* |
| *I really think this is an old man because of right there and this right here.* | *I think it was Kwanza because they look like Africa people, and they celebrate Kwanza eating and sharing their foods.* |
| *That lady kind of looks like my aunt [because] my aunt likes to sit down on her green chair and she likes to sew.* | |

When determining the quality of support, you should rate the evidence statement and not the assertion. For example, if the *evidence* is based on personal opinion or speculation, the statement will be coded as WEAK, even if the *assertion* refers to the object. In the following example, the assertion is based in the object ("I see

three kids and they're helping their mother"), but the evidence is based on a personal interpretation of why the children are helping her:

*I see three kids and they're helping their mother, and because she doesn't have time to cook, so she told them to help them, to help her cook.*          **WEAK**

Similarly, if the *evidence* is based on specific cues or information from the object, the statement will be coded as STRONG, even if the *assertion* is based on personal opinion or speculation. In the following two examples, the student supports his/her preference or interpretation with a specific example from the object:

*I really admire the third one because it has colors mixed up that make it seem real.*          **STRONG**

*It looks better here, and worse on the [projector] because you couldn't see those paths in the back very well, or you couldn't see that tree.*     **STRONG**

Note that evidence that supports assertions within a narrative should still be coded as evidence and scored as "weak" or "strong" using the depth scale. For example:

*These people are intelligent because they know how to draw.*     **WEAK**

*They are fighting because they don't know what food they should eat first.*     **WEAK**

*I think they are rich because they have lots of things and they look well-dressed.* **STRONG**

**References**
Costa, A. & Kallick, B., Eds. (2000). *Assessing and reporting on habits of mind*. Alexandria, VA: Association for Supervision and Curriculum Development.
Housen, A. (2002) Aesthetic thought, critical thinking, and transfer. *Arts and Learning Research Journal*, 18, No. 1.
Housen, A. (1983) *The Eye of the Beholder: Measuring Aesthetic Development*. Unpublished Ed.D. Dissertation. Harvard University.

## Sample coded Transcript

(1.1) (1.1) (1.3)

I see on **(unintelligible)** that some fruits // and chicken // and one of those bun,// and there's this

(1.3) (2.4)

lady that I think she's got her eyes closed. // And this man, he's just like he's gonna fly up. //

(1.3) (1.1) (1.1) (2.4)

And I see some drinks right there – water. // I see a bowl,// a leaf. // So I now I think that they're

(2.3) (2.3) (2.3)

having dinner //[ and that they're good friends,// I mean friends or family… // or cousins. ]// Or I    [7]

(2.4) (2.4)

just think that before they ate, that they have to close their eyes // and they have to say what they

(1.3) (1.3)

have to say before they eat. // And I see that that man is wearing a shell // on his shirt. //  So now

(2.2) (1.3)

I know that all those people there are old, // because I could tell of the beard and all that,// and    **STRONG**

(1.3)

of the faces. // Done. **RESEARCHER: Done? Okay, we're going to take one more minute to**

**have you look, and if anything else comes to mind I want you to say it out loud, okay? What**

**are you thinking about now?** That, I don't know what that's called right there, but [I think that's

(2.4) (1.2) (2.4)

really a treasure,//  but they're really sitting on it // and they don't know that that's a treasure…//    [6]

(2.2) (2.3) (2.3)

and the other guy, he's got a real chair. ]// And I think that's a wife // and that's a husband // –the

(1.2) (2.3) (2.2) (2.3)

one that's standing. // Maybe the wife // don't feel good // and that's the grampa  // and that's

(2.3)

brother. // And that's what I think. **RESEARCHER: Okay, let's take one more second just to**

40

~~make sure you've said everything you have to say. Is there anything else you want to add?~~

(1.3)    (1.3)    (1.2)

~~Let me finish thinking.~~ [I think that's a shirt that ripped, // or that's a pair of things // if your knee    [7]

(1.3)    (2.4)    (2.1)

is hurting // and it ripped //] and that's why he's not wearing it. // Or maybe that's something to    [5]

(1.1)    (1.2)    (2.3)

put on the head,// like a headband.//[And I wonder why //they're not eating.//] I think the wife's//

(1.2)    (2.4)    (2.4)

not eating // because she's trying to get the sandwich…// and then after that, then all of them    **WEAK**

(2.4)

going to have a good dinner and… // Oh and I think that why she's going like this for, // because

(2.2)    (1.3)

I think she wants the guy // with the green shirt // to pass her a drink // ~~or one of those drinks~~    **WEAK**

(2.4)

~~right there~~ because maybe she can't reach.