Investigating the Educational Impact and Potential of The Museum of Modern Art's Visual Thinking Curriculum

FINAL REPORT

Harvard Project Zero
November, 1999

Submitted By
Shari Tishman, Principal Investigator
Dorothy MacGillivray
Patricia Palmer

We gratefully acknowledge the Leon Lowenstein Foundation for its ongoing support of The Museum of Modern Art's efforts to evaluate the VTC, which in turn has made this project possible. We would also like to thank Ron Ritchhart of Harvard Project Zero for his assistance with the methodological and statistical aspects of this study, and Nathan Finch of Harvard Project Zero for his insightful comments on an earlier draft of this report.

TABLE OF CONTENTS

INTRODUCTION

The Visual Thinking Curriculum (VTC) [1] is an inquiry-based method of exploring art that aims to develop students' thinking skills by looking at and discussing art. The year-long curriculum currently consists of 10 lessons and uses slides of 73 images from The Museum of Modern Art' collection. It is written for use in the 4th and 5th grades, although it has been used widely in many grades, from kindergarten through high school and beyond for novice viewers.

First initiated 12 years ago under the direction of Philip Yenawine, then Director of Education at The Museum of Modern Art, and in collaboration with educational researcher Abigail Housen and members of MoMA's Education Department, the VTC does not take a didactic, information-based approach to teaching students about modern art. Rather, it engages students in group discussions that emphasize the asking of questions, the sharing of opinions and observations, and the development of thoughtful interpretations based on what students actually see in works of art.

The VTC is centered around a methodology that has remained more or less consistent for a decade. However, years of school-based experience on the part of MoMA staff, new ways of thinking about teaching and learning, and new personnel in the School Programs department at MoMA, have caused the actual VTC practices to evolve and change considerably. Some of these changes have formally found their way into the methodology and the curriculum; most have not.

In the Winter of 1998, the Director of School Programs at MoMA contacted Harvard Project Zero at the Harvard Graduate School of Education to inquire whether Project Zero was interested in conducting research to investigate the educational impact of the VTC program in New York City Public Schools. Specifically, MoMA felt that the VTC cultivated students' critical thinking skills, and invited Project Zero to conduct an evaluation to explore whether this was so. About the same time that MoMA began thinking about an evaluation, the School Programs staff also began internal discussions about revising the VTC.

To explore the advisability of conducting an evaluation, in the Spring and Summer of 1998, Project Zero researchers observed some VTC classes, reviewed the written curriculum, and spoke extensively with MoMA-VTC staff. Although these activities suggested that the VTC had the potential to have a significant positive influence on student thinking and learning, Project Zero advised that a full-scale evaluation would be premature at this time. Rather, what was recommended was a close and systematic look at the VTC in all its dimensions (e.g., written materials, classroom practices, and teacher

[1] The copyright to the Visual Thinking Curriculum and the name "VTC" is held exclusively by the Museum of Modern Art.

training), in order to better understand the kinds of cognitive and social benefits the VTC does, or potentially can, provide students. It remains Project Zero's view that such an understanding is a necessary foundation for revising the VTC so that it can effectively target the specific skills it seeks to develop. It is also a necessary foundation for conducting a full-scale formal evaluation.

In October of 1998 researchers at Project Zero began a year-long investigation of the VTC designed to provide this foundation. The goal of the work was to create a comprehensive picture of the VTC's present and potential strengths, as well as its weaknesses. Over the course of the year, both qualitative and quantitative research methods were used. The qualitative research included individual teacher and staff interviews, classroom observations, student and teacher questionnaires, and student interviews. The quantitative research consisted of a Student Performance Assessment based on a standard control group/treatment group experimental design. The results of the research is reported in this document [Appendix A].

CHAPTER 1

OVERVIEW AND BACKGROUND

How This Report is Organized

This present chapter provides a broad overview of the research, and, in the following section, discusses revisions to the VTC that are currently under way, partially as a result of an Interim Report submitted to MoMA by Project Zero in February of 1999. The following six Chapters focus primarily on describing specific research procedures, reporting specific findings, and giving examples of data when relevant.

Chapter 2 reports the findings from the Student Performance Assessment. This was a written activity administered to 162 students in the VTC program, and then again in May/June. The same test was also administered in May/June to a commensurate control group of students.

Chapters 3 and 4 discuss the results of the classroom observations and student interviews conducted throughout the year. The emphasis of these two chapters are qualitative, and they try to deepen and give a human face to many of the statistical findings reported in Chapter 2.

Chapter 5 takes up the issue of the transferability of the VTC methodology. What does the research tell us about how the VTC can, or does, connect to other contexts of learning in students' lives? Although it was beyond the intent or scope of this research to address the issue of transfer in full, there are some relevant and interesting findings to report here.

Finally, Chapter 6 weaves together the several strands of research reported in the individual chapters and discusses broad conclusions and recommendations.

Changes in Direction Since the Interim Report

In February of 1999, Project Zero submitted an Interim Report to MoMA. Although our findings at that date were incomplete, some broad trends were suggested. For example, our classroom observations suggested that the VTC did engage students in critical thinking, especially evidential reasoning. They also suggested that students felt encouraged by the VTC to express and explore multiple points of view. (Whether these observed tendencies would translate into measurable gains was yet unknown.) Early interviews with teachers indicated that they were positively impressed with how their students engaged in VTC classroom discussions. Classroom observations made it clear that, by and large, students very much enjoyed the program. However, as the year

progressed, many teachers expressed a growing frustration with the written curriculum. They seemed unsure of what their students were supposed to be learning, and were disappointed not to be able to make more connections between the VTC and the rest of the curriculum. The classroom discussions were often rich, but also sometimes somewhat cursory and misdirected.

Although the research was not complete in February when the Interim Report was written, it seemed important to report some of our observations. It was apparent to us that the VTC has the potential to become a program that could have significant positive effects on the development of student cognition and attitudes. However, we noted in the Interim Report that there are several factors concerning the current design and implementation of the VTC that suggested to us not to expect it to have robust or long term effects on student learning in its current form, despite its potential. These factors included:

- The design and layout of the VTC text
- Teachers' uncertainty regarding the goals and methods of the VTC combined with their preconceptions about what students "should" or "could" learn about modern art
- The number of VTC lessons teachers taught
- The sparse amount of supportive instructional materials for teachers to help them deepen students' understanding of the VTC methodology and for transferring the methodology to other areas of the curriculum

In the Interim Report, we suggested that a revision of the VTC written materials, particularly the lesson formats and support materials, could significantly increase the VTC's impact. While the core VTC methodology seemed to us sound and beneficial, much could be done to make the program more accessible to teachers and the instructional methods more transferable across the curriculum. We by no means recommended a total overhaul of the program. On the contrary, from discussions with MoMA staff and a review of the Education Department's related materials and practices, (e.g., slide sets and materials from School Programs, mentor practices, and accumulated VTC "lore"), we noted that many appropriate additional lesson materials and ideas already existed. We were, and continue to be, struck by how much more MoMA staff know about how to effectively teach the VTC than is actually included in the curriculum. Our main recommendation in the Interim Report was to capitalize on this collective wisdom and revise the VTC accordingly.

As mentioned earlier, MoMA plans to publish a version of the VTC that is appropriate for dissemination to museums and schools more widely. Thus, the timing is right for a revision, and the School Programs Staff has eagerly and enthusiastically embraced the project. Since February, Project Zero has been working closely with the School Programs Department to assist their efforts. Our role is to provide support in areas concerning

learning theory and instructional design. Project Zero is also helping MoMA on the revision of the new VTC

Commencing a revision of the VTC in February was no reason to stop the research: there was still much to be learned. As it turns out, the findings reported here by and large support the general direction of the revisions that were begun last winter. Some of what is reported here could perhaps have been predicted in February. But there are also some interesting surprises. Most importantly, the findings provide a level of specific detail about the strengths and shortcomings of the VTC that we hope will be of great practical use to the current revision efforts.

CHAPTER 2

STUDENT PERFORMANCE ASSESSMENT

I. INTRODUCTION

Overview

The Student Performance Assessment [Appendix B] is a written activity that asks students to look at an art image and respond in writing to the fundamental VTC questions, *What's going on in this picture?* and *What do you see that makes you say that?* It consists of two parts: an "Art Activity," and another activity called "Footprints Activity." The Art Activity asks students to use the VTC questions to respond to an art image from MoMA's collection. The Footprints Activity asks students to use the VTC questions with a non-art image from the domain of science.

Purpose

The purpose of the Performance Assessment was to collect empirical data from a large group so that statistical methods could be used to explore broad trends and gains in students' thinking as a result of the VTC. The Performance Assessment comprises the quantitative piece of the preevaluation as a whole. It contributes to a larger picture of the VTC which blends qualitative and quantitative research.

Instrument and Procedure

The Performance Assessment is a pencil and paper activity done by each student individually. (It is called a "performance assessment" because it engages students in a performance that utilizes the VTC methodology.) The first administration of the Performance Assessment is considered the "pretest." The pretest was administered in October of 1998 to 162 4th and 5th graders in 10 classrooms. Students were given approximately a half an hour to complete the assessment. Each student received a color xerox of a painting from MoMA's collection, and an "Art Activity" worksheet. Two images were used: *Wall with Inscriptions* by Jean Dubuffet, and *Liberation* by Ben Shahn. Some students received the Shahn, others received the Dubuffet.

Over the course of the year, these students participated in the VTC program. Their teachers conducted an average of between 7-8 lessons between October and June, lasting an average of 42 minutes. All of the classes visited MoMA at least twice. One class visited MoMA three times.

The same Art Activity was administered to the students again in May/June of 1999, after they had completed one year of the VTC. This time, students received the image they did not receive in the first round of testing. This second administration of the Performance Assessment also included the Footprints Activity, that asked students the VTC questions about a non-art image in the domain of science.

The procedure was as follows. After they had completed the Art Activity, students were given a copy of the Footprints Activity which included a picture of a fossil record of two sets of animal footprints. The picture was labeled, "Footprints from the Past." Students were asked the exact same questions that they were asked about the art image: *What's going on in this picture?* and *What do you see that makes you say that?* The purpose of this activity was to compare students' performance using the VTC methodology on an art image with their performance using the methodology on a non-art image from the discipline of science.

Also in May/June of 1999, the same Art Activity and Footprints Activity were administered to a control group of 204 students of comparable ages, grades, and socioeconomic circumstances as the experimental group.[2] The instrument and procedures were the same for both groups: Some the control group received the Shahn image, some received the Dubuffet image. The entire control group received the Footprints Activity after they did the Art Activity.

The purpose of using a control group was to be able to "control" for variables such as maturation and teacher effect when measuring changes in students' performance. Although comparisons between the pretest and posttest scores of the experimental group are occasionally of interest, most of the findings reported in this section compare the control group's scores to the experimental group's posttest scores.

Participants

366 students participated in this study; 197 4th graders and 169 5th. graders. These students were in 19 classrooms in 5 schools in New York City [Appendix C]. There were four 4th grade classes and four 5th grade classes in the control group. The two groups were well-matched in terms of grades, geographic and socioeconomic status. When possible, control classrooms were used from the same schools in which there were experimental classrooms. When this wasn't possible, control group classrooms were found in New York City schools with similar socioeconomic profiles (measured by the percentage of students in a school that are eligible for free or reduced lunch.).

[2] The performance assessment was administered to a larger control group than experimental group to insure that, in the event that some of the control tests were unusable or unscorable, the numbers in the control group would still be sufficient to balance the number of pretests in the experimental group. The larger size of the control group does not affect the findings reported.

Commensurability of Experimental and Control Group

In order to investigate whether there are measurable changes in students' thinking as a result of the VTC, it is necessary to compare the VTC students' performance with the performance of a commensurate group of students who haven't received the program. Commensurability was obtained as follows. As described above, the control group was comprised of students that closely matched the educational, geographic and socioeconomic status of VTC classes. Additionally, student questionnaires and teacher questionnaires were examined, to see whether teachers' experience regarding the arts was similar for the two groups, and whether students' experiences regarding the arts and museums was similar. As the previous chapter indicated, there was similarity on both counts. The Interim Report provided a profile of the teachers and students who used the VTC in this study. The Student and Teacher Questionnaires administered in May/June to the control groups show that their profiles were similar in almost all respects [Appendix D].

The real test of commensurability, however, is whether the control group's scores on the Art Activity part of Performance Assessment show a similar pattern to the experimental group's pretest scores. In other words, does the control group seem to bring the same set of skills and propensities to the Art Activity as the experimental group did in the pretest? The answer is yes. There are some small differences, but recall that the pretest was administered in October of 1998, while the control group was tested in May/June of 1999, at the same time as the experimental posttests were administered. (The large sample size of the study made it unnecessary to administer a test to the control group in October). The control group students are on average 8 months older than the experimental students were when they took the pretest. Small gains may be expected as a result of maturation. And indeed, the control group scores in certain categories are slightly higher than the corresponding experimental pretest scores. At the same time, there is a slight drop in other categories. Statistical analyses reveals that none of the differences between the groups are statistically significant. That is, from a statistical standpoint, we cannot reliably say that there is any difference between the two groups prior to exposure to the VTC.

II. AREAS OF ANALYSIS AND RESEARCH FINDINGS

Overview

This section reports the broad findings in several areas of analysis for the two activities in the Performance Assessment: A) The Art Activity; and B) The Footprints Activity. These areas of analysis are:

- Evidential reasoning
- Circular reasoning
- Awareness of subjectivity
- Quality of descriptive detail
- Quantity of descriptive detail

First, the findings in these areas for the Art Activity are discussed. Then, findings in a subset of relevant areas are discussed for the Footprints Activity. The discussion in each of these areas is divided into four parts: 1) conceptual background, 2) research question(s) addressed, 3) examples of responses and scoring, and 4) findings.

A. ART ACTIVITY

AREA OF ANALYSIS: EVIDENTIAL REASONING

Conceptual Background

At the core of the VTC methodology are the questions, *What's going on in this picture?* and *What do you see that makes you say that?* From an epistemological standpoint, these questions reflect the fundamental structure of evidential reasoning. Evidential reasoning occurs when an interpretation or explanation of meaning is accompanied by relevant evidence offered in support of it. The VTC methodology reflects the structure of evidential reasoning in the following way. The question, *What's going on in this picture?* asks for an interpretation of the meaning of an image. The question, *What do you see that makes you say that?* asks for perceptual evidence in support of the interpretation.

This structure — proposing an interpretation and supporting it with evidence — is the essence of evidential reasoning, in art as well as other disciplines, although what counts as evidence can vary across disciplines. For example, in art it is often appropriate to cite one's feelings about an image as evidence in support of a particular interpretation, whereas in science it generally is not. But the fundamental structure of reasoning remains the same. Further, the criteria for the structural soundness of evidential reasoning is similar across disciplines. The criteria are roughly as follows: Good evidential reasoning

involves an appropriate balance between interpretation and evidence, and a relationship of relevance between interpretation and evidence. Put more plainly, a good explanation is well-supported by relevant evidence.

Research Questions Addressed

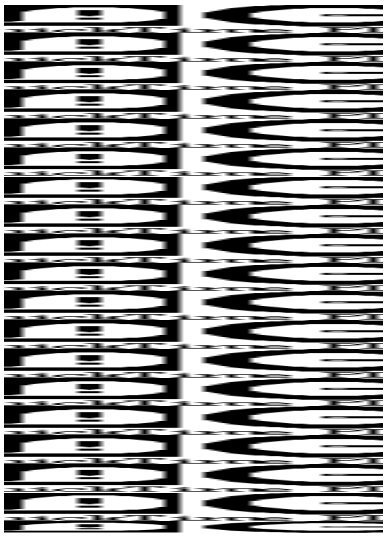
- Are students developmentally capable of engaging in the kind of evidential reasoning the VTC asks for?
- Does participation in the VTC help increase students' evidential reasoning skills?

The foregoing discussion has argued that, first and foremost, the core VTC methodology consists of a set of questions that asks for evidential reasoning. But just because a question asks for something doesn't mean a respondent has the skills to answer appropriately (ask a third grader a question about calculus). So one important baseline question to keep in mind is: Are students developmentally capable of engaging in the kind of evidential reasoning the VTC asks for? Another question is: Does participation in the VTC help increase students' evidential reasoning skills?

Examples of Responses and Scoring

What does evidential reasoning about an art image look like in 4th and 5th grades? Recall the criteria for structurally sound evidential reasoning: 1) An appropriate balance between evidence and interpretation, and 2) relevant evidence. Please note that "correctness of interpretation" is not a criterion we are using.

Below are three examples of responses, all drawn from the data. Students were scored on a scale of 1-3 for evidential reasoning, with 1 representing the lowest score and 3 the highest. This is a rough scale that doesn't pick up nuanced differences in ability or style. What it rates is the quality of the structure of reasoning in the response, not the eloquence or creativity of the ideas expressed, nor the correctness of the particular interpretation. The first quote is an example of weak evidential reasoning. The second is an example of mediocre evidential reasoning. The third is an example of relatively strong evidential reasoning.



"1" score, weak evidential reasoning:

<u>What's going on in this picture?</u>
There is a man and some writing. I don't like it.

<u>What do you see that makes you say that?</u>
It is a boring picture.

"2" score, mediocre evidential reasoning:

<u>What's going on in this picture?</u>
A man is looking at his graffiti he did when he was younger. It looks like he is proud of what he did because he has a smile on his face. I saw in the mans background, animals like an elephant, rabbit, bear and the name Vanine.

<u>What do you see that makes you say that?</u>
He is smiling and he is looking at it with feeling.

Note that the interpretation is relatively elaborate, but it is only cursorily supported with perceptual evidence.

"3" score, relatively strong evidential reasoning:

<u>What's going on in this picture?</u>
In this picture it looks like a postman walking through a dark and mudy forest going over to deliver mail to a little boy who is learning how to write and also learning his ABC's.

<u>What do you see that makes you say that?</u>
Because I see a man with an X which looks like the handles of a bag of a post mans bag. Also because of the hat. I also think he is walking through a dark and mudy forest because it looks like a lot of trees in the picture and in forests there are a lot of trees and it looks dark and very mudy. And I also think he is delivering mail to a little boy because I see a little boy in the picture writing words and ABC's.

Note the balance between interpretation and evidence, and the relevance of the evidence.

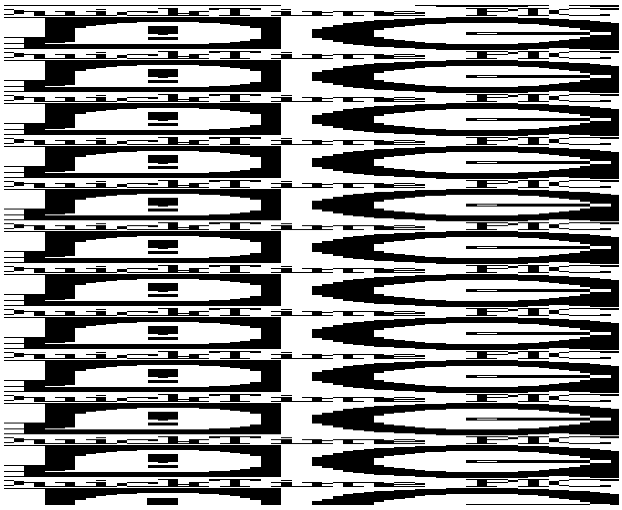
A note about students' writing skills

Earlier it was mentioned that students' facility with language does not necessarily reflect their reasoning ability. To be sure, students who write well often score highly in this category. But students whose writing skills are poor can also score highly. This happens when their response indicates that they grasp the structure of evidential reasoning, even if their vocabulary is sparse and their grammar flawed. In the example given above of a "3" response, the student's writing skills are relatively average.

Here is an example of another response that scores a "3." Note that although the student is not a skilled writer, the response strikes an appropriate balance between interpretation and evidence.

What's going on in this picture?
It look like a eathcatin or a tostare [It looks like an earthquake or tornado]

What do you see that makes you say that?
It look like the wode is bowing fast and the kids or bowing in doift dieracene. [It looks like the wind is blowing fast and the kids are blowing in different directions]



Findings

The first finding of note relates to the research question, Are students developmentally capable of engaging in the kind of evidential reasoning the VTC asks for? If students are not yet developmentally capable, then one would expect their pre-VTC scores to reflect this inability. To see whether this is so, one needs to look at how many students who have not yet received the VTC are able to display at least a minimal level of evidential reasoning in response to the VTC questions. (A minimal level of evidential reasoning is represented as any response that scores a 2 or above. Responses that score 1 are, by definition, those that show no evidential reasoning).

There are two groups of scores that include students who have not received the VTC: The October 1998 pretest scores of the experimental group, and the May/June 1999 scores of control group. Both of these groups include 4th and 5th graders.

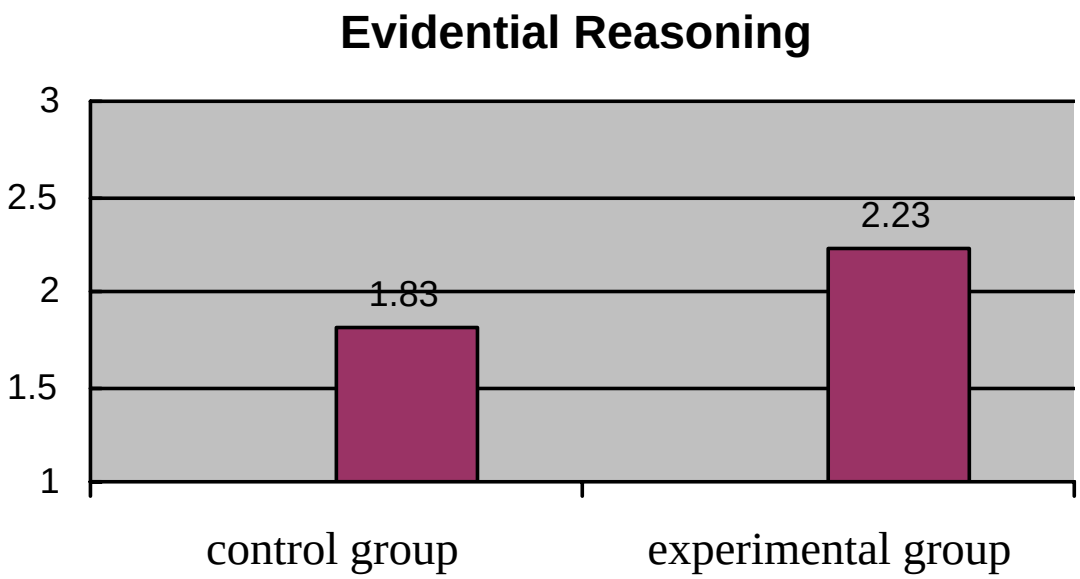
% of 4th graders who display no evidential reasoning:	**55%**
% of 4th graders who display some evidential reasoning:	**45%**
% of 5th graders who display no evidential reasoning:	**48%**
% of 5th graders who display some evidential reasoning:	**52%**

We see that roughly half of the students are able to engage in at least a minimal level of evidential reasoning in response to the VTC questions prior to any training in the VTC. Here is where it is important to take into account the solo, artificial nature of the test. Arguably, students are being asked to display their reasoning skills in the most difficult conditions. There is no teacher paraphrasing the VTC questions or helping to draw out students' ideas. Nor is there a class discussion in which students can hear models of the kind of reasoning being asked for. In short, there is no supporting community of learning. Given this condition, and not even taking into account the fact, that, roughly half the students already display some evidential reasoning without any sort of instructional or group support indicates that students are developmentally ready to learn how to reason evidentially.

The next finding concerns the research question, Does participation in the VTC help increase students' evidential reasoning skills? The control group's combined 4th and 5th grade mean score for evidential reasoning is 1.83 (SD = .87). The combined 4th and 5th grade experimental posttest mean score is 2.23 (SD = .85). (Keep in mind that because 1 is the lowest score, the total spread is 2 points, ranging from 1 to 3). The difference between the control score and the experimental score is .4 points (the standardized effect size is .452). This is a statistically significant difference.[3] This finding indicates that, on average, involvement in the VTC contributes to a modest but significant 20% increase in students' ability to engage in evidential reasoning about an art image. This is a key finding of the performance assessment, and it provides a backdrop to the discussion of several other findings reported later in the chapter.

[3] The alpha level of .05 was used for all statistical tests reported in this document. When a score is reported as significant, it means that it is significant at less than the .05 level. Statistical significance is a way of determining the level of confidence one should place in the observed difference between the scores of different groups. When differences are reported as "statistically significant," it means we have a high degree of confidence that the observed difference is a true difference and not an illusory or random one based on measurement error or chance.

This chart represents differences in evidential reasoning between control and experimental groups:



N= 203
Mean: 1.83

N=158
Mean: 2.23

t. = -4.441 p <.0001

An important question to ask is, where are these gains in evidential reasoning? Which students are moving up? Is it the students who are already somewhat able to reason evidentially (i.e. the "2's " from the pre-VTC tests)? How are the lowest-scoring children faring? For this information, we need to compare the distribution of the experimental group's pretest scores to the distribution of their posttest scores. The distributions are as follows:

Evidential Reasoning

	Pretest scores (n=160)	Posttest scores (n=158)
Number of "1's"	92 (58%)	43 (28%)
Number of "2's'"	35 (22%)	35 (22%)
Number of "3's"	33 (20%)	80 (50%)

1=weak or no evidential reasoning 2=some evidential reasoning 3=strong evidential reasoning

Note that, as a group, well over half the students start out the school year with scores that show weak evidential reasoning. By the end of the year, that number has dropped to 28% and the percentage of students who receive a high score of "3" has more than doubled. Of particular note is that the percentage in the middle range – the "2's" – remains low on the posttest. This indicates that many of the students who receive low scores at the beginning of the program improve fairly dramatically.

AREA OF ANALYSIS: CIRCULAR REASONING

Conceptual Background

We have argued that evidential reasoning is the primary kind of thinking invited by the VTC questions. But, as was also noted, just because the questions ask for a certain kind of thinking doesn't mean that students will oblige. What do students do when they don't reason evidentially in response to the VTC questions? The largest form of departure appears to be circular reasoning.[4] This occurs when students respond to the question, *What do you see that makes you say that?* by repeating their interpretation and citing it as a reason.

Research Questions Addressed

- *How often do students engage in circular reasoning*
- *Does the VTC help cause a decrease in circular reasoning?*

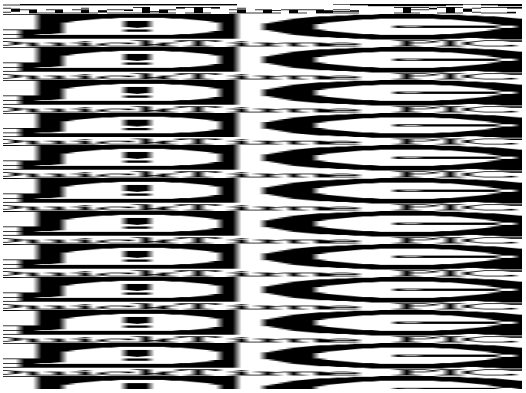
Examples of Responses and Scoring

In this area students receive a yes/no score. They receive a "Yes" if they if they use circular reasoning one or more times, or "No" if they do not. Here are two examples of circular reasoning:

"**Yes**" uses circular reasoning:

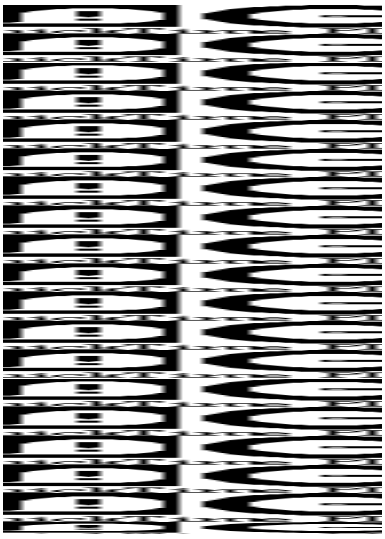
Interpretation.
The people are swinging on the latter rope from the pole. I see a colorful house with a black top.

Circular reasoning:
I see the pole. I see the latter rope and the people swinging on them.



[4] In the Interim Report, the term "ostensive reasoning" was used for this area of analysis. The term has been changed to "circular reasoning" for the sake of clarity.

"**Yes**" uses circular reasoning:



Interpretation:
I see a boy standing next to a black board and it has writing on it.

Circular reasoning:
Because it is true and he is standing next to the black board.

Occasionally students mix evidential reasoning and circular reasoning in their response. The response gets scored accordingly. Here is an example of a mixed response.

Mixed Response:

Interpretation:
I see a chalk board with a baby on it Janine. And I see a man, I see another word ceab. And a rabbit.

Reasoning:
I see all that stuff on the picture. I think it's a chalkboard because writing is on it.

Findings

There is a tendency for members of the experimental group to use slightly less circular reasoning than the control group. In the control group, 63% of the students use circular reasoning, compared to 52% in the experimental group.* This a modest but significant change. * [Chi Square = 3.95, p (probability) <.047].

AREA OF ANALYSIS: AWARENESS OF SUBJECTIVITY

Conceptual Background

This area of analysis concerns students' awareness of the subjective or conditional nature of interpretation of works of art. Because VTC class discussions expose students to each others' views and interpretations, and because teachers are urged to encourage students to see that works of art can be interpreted in many different ways, it has been suggested that the VTC helps students learn about the conditional nature of interpretation. This is a fairly sophisticated and subtle understanding about the world, and it is hard to find reliable evidence for it using the quantitative methods of this study. The qualitative approach to probing students' awareness of subjectivity, taken up in the next chapter on classroom observations, is perhaps more revealing. Nonetheless, the numbers may reveal broad trends.

Research Question Addressed

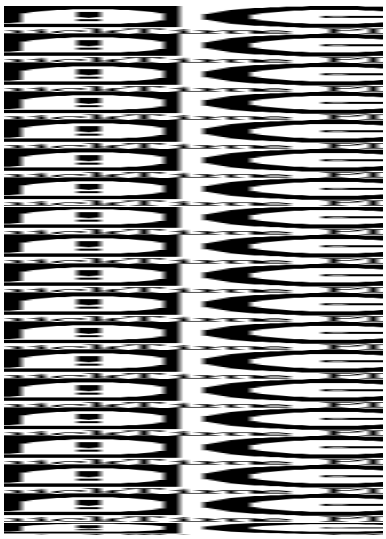
Does students' awareness of subjectivity increase as a result of the VTC?

Examples of Responses and Scoring

One way of looking for evidence of subjectivity is to look for differences in the manner and frequency of students' use of absolute and conditional language when they discuss the art images:

Student uses absolute language:

In this pictur their is a man. The man is walking down the ally looking at the graphett.



Students uses some conditional language:

He <u>looks like</u> a man because he does not have long hair like girls do. and it <u>looks like</u> a wall with a drawing on it.

Student clearly is aware of conditional nature of interpretation:

It <u>looks like</u> a man walk into an abandoned home and is writing on the walls or hes <u>maybe</u> a criminal and this is his hide out. I see an evil grin on his face and in his eyes. I see the name ("Vannie") that might be his name.

I see a certain fear in his eyes <u>as if</u> hes scared of being caught.

Following the gradations represented in these examples, students' responses were rated on a scale of 1-3, where "1" means that the language is fully absolute, "2" means that some conditional language used, and "3" means that the students seems clearly aware of the conditional nature of interpretation.

Findings

The mean score for the control group is 2.12 (SD = .74). The mean score on the experimental posttest is 2.35 (SD = .61). Although the gain is modest (11%), it is statistically significant (t = 1.966, $p<.001$), and it indicates that the VTC contributes to increasing students' awareness of the conditional, or subjective, nature of interpretation.

AREA OF ANALYSIS: <u>QUALITY</u> OF DESCRIPTIVE DETAIL

Conceptual Background

One change that might be predicted as a result of the VTC is a change in the quality of perception students bring to an art image. Students spend a lot of time looking at and talking about art images in the VTC program. So it seems to make sense to expect the VTC to help them "see better."

Research question (and why it can't be answered)

- *Does the VTC increase the quality of students' perceptions*

The answer may be yes. But if so, it is difficult to detect any increase using this Performance Assessment. The story of why a change can't be detected and how we came to realize it may be relevant to the development of new VTC materials as well as to future evaluations of the VTC. So the story is reported here.

As mentioned at the beginning of this section, care was taken not to make high scores dependent on writing proficiency. It became clear by looking at the data that many students are aware of multiple dimensions and aspects of an image yet do not have the language skills to fully describe their perceptions clearly. For example, one student says of the Shahn painting: *The building fall down, maybe it wind. I see a blue sky but they scared.* His language skills may be poor, but note the variety of the dimensions of the work he perceives. Another student may write several well-constructed sentences about the various

signs of deterioration in the image – describing the rocks, the broken window, and so on — and yet not seem to perceive elements across many dimensions. These examples may suggest that descriptive detail can be measured by counting the number of dimensions or aspects of an image students notice, but the ambiguity of students' responses make such a count impossible.

This does not mean that students display no differences in the quality of their perceptions. Of course they do. But the differences are not easily described by rules that involve quantification, such as counting dimensions. One tack researchers sometimes take in situations like this is explore whether those who are scoring the responses can make intuitive judgments about differences in quality, even if the specific nature of the differences can't be specified. This is akin to making connoisseur-like judgments, which rely on experience and "feel" rather than prescriptive adherence to a rule. Following this path, we tried to sort students' responses into three categories of quality: high, medium, and low. While there was general agreement that the data represented a large gradation of quality, there were too many "on the fence" or ambiguous responses for us to achieve any level of confidence in our judgments or any degree of agreement between the scorers.

We also tried this intuitive approach to making judgments about pretest/posttest change within an individual student. Using a small subset of matched pretests and posttests, we asked ourselves whether, as a trend, students seemed to show more descriptive detail after having undergone the VTC. It is our informal observation that there is a very modest trend towards an increase in the descriptive detail of students' observations from pretest to posttest, but that this change cannot be quantifiably measured.

This doesn't mean that the VTC doesn't develop students' observation skills. It just means that, if it does, it is hard to find quantifiable evidence for it in students' written response to the core VTC questions asked on this test. One reason for this may be that the VTC questions on the test are good questions to probe evidential reasoning, but perhaps not the best questions to probe the quality or quantity of students' perceptions. Another reason may be that the changes in students' observation skills are not as robust as changes in their reasoning skills. Yet a third reason may have to do with the written and/or solo nature of the test.

AREA OF ANALYSIS: <u>QUANTITY</u> OF DESCRIPTIVE DETAIL

Conceptual Background

Forget for a moment about the quality of students' perceptions. One way to look for an increase in descriptive detail is simply to count the total numbers of words students use. This is a crude measure, but if, on average, the experimental students use more words on the

posttest than they do on the pretest, then at least it would indicate that something important is going on that a scoring scheme can not capture.

Research Question

- *Do the number of words students use in their written responses to the art images increase as a result of the VTC?*

Scoring

Two kinds of word counts were conducted. One was an overall word count for the entire response. The other was a word count of only those words used to cite evidence in support of an interpretation. Another way of describing the second word count is that it is a count of the number of words students use to answer the question, *What do you see that makes you say that?*[5]

Findings

For the first kind of word count, a count of the overall words in the response, there is no significant difference between the control group and the experimental posttest. Nor is there a significant difference between the experimental pretest and posttest.

Interestingly, there is a significant change in the number of words used to cite evidence. The mean evidential word count for the experimental pretest condition is 21.77 words (SD=17.77). For the control group the mean count is similar, at 22.14 words (SD =17.36). However, the experimental posttest mean count is 27.9 words (SD=18). This finding indicates that although, as a trend, students use the same overall number of words to discuss an image before and after the VTC program, after the program they tend to use a larger portion of those words in the service of citing evidence.

Words Used to Cite Evidence

	Exp. pretest	Control	Exp. posttest
Mean word count	21.77	22.14	27.8

$t = 2.43$ $p<.01$

[5] The evidential word count is not limited to a count of the words that students place under the heading of the question, *What do you see that makes you say that?* Words used to cite evidence are counted wherever they occur, regardless of what question-heading students write them under. The reason for this is that students don't always divide up their thoughts neatly and sort them according to question-heading. Sometimes they discuss evidence in response question 1, sometimes in response to question 2, and sometimes in both places.

B. NON-ART ACTIVITY: FOOTPRINTS ACTIVITY

Overview

Do the skills students learn in the context of the VTC transfer to other areas? This is a large and complicated question, which sits within an even larger and more complicated national debate about the purpose and benefits of arts education. The non-art activity, Footprints Activity, is only one of several transfer probes done in the context of the overall study. In Chapter 5 of this report, we draw from several sources to discuss the issue of the transferability of the VTC more fully. In this section, we simply report the findings from the Footprints Activity and compare them to the findings in the Art Activity.

Purpose

The primary purpose of the Footprints Activity was to explore whether any of the gains in the area of art transferred to an academic, non-art, science-based activity. Specifically, we were looking for the transfer in the areas of:

- Evidential reasoning
- Circular reasoning
- Awareness of subjectivity.

We note that the relationship between the Art Activity and the Footprints Activity is one of "near transfer." It is called near transfer because, although the image used is not a work of art, it has a surface similarity with the kinds of images VTC students have looked at in class, insofar as it is a visual image with a narrative content. Thus, the transfer is not a far stretch for students. For the purposes of contrast, far-reaching transfer of the VTC methodology might involve using the VTC questions in non-visual contexts, for example in explaining the meaning of a human behavior, interpreting the meaning of a text, or explaining numerical operations in mathematics. Testing for these sorts of transfers was beyond the scope of this study.

We also draw readers' attention to the fact that the Footprints Activity was administered immediately following the Art Activity. This proximity in time means that the findings tell us only about short term transfer. They tell us nothing about the robustness of transfer gains over time. The findings from the Footprints Activity are best viewed as findings regarding the potential of the VTC to transfer to other contexts rather than as findings regarding the extent to which it actually does.

Scoring

A comment about scoring the Footprints Activity. Although the Footprints image shares surface qualities with other images students have looked at, students readily perceive that it

is not a work of art, and, as one would expect, they seem to bring different perceptual expectations to it. They don't expect it to have the same sort of "made" quality as an art image, and they don't seem to respond nearly as much to its formal properties or visual details. Because students' responses to the Footprints image don't tend to be as verbally rich as they are to the art images, there is less for scorers to work with. This translates into a need for simpler rating scales. In the Art Activity, items such as evidential reasoning and subjectivity were rated on a scale of 1-3. In the Footprints Activity, all ratings are of the yes/no sort. For example, in the area of evidential reasoning, a response was scored as "yes" if it showed appropriate evidential reasoning, and "no" if it did not. Although the findings from the two activities can still be compared, the statistics for the Footprints Activity are represented in a somewhat different manner than the Art Activity.

AREA OF ANALYSIS: EVIDENTIAL REASONING

Conceptual Background

The same criteria for judging evidential reasoning in the art activity were used for the Footprints Activity: an appropriate balance between interpretation and evidence, and a relationship of relevance between interpretation and evidence. "Correctness of interpretation" was not a criterion.

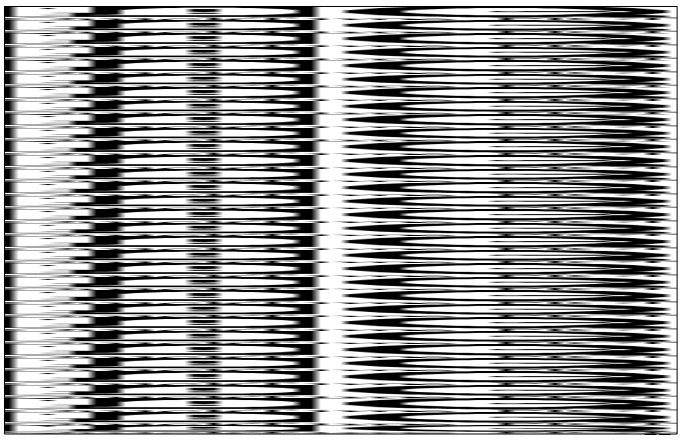
Research Question

- *Does the VTC program have an effect on students' evidential reasoning in a non-art context?*

Examples of Responses and Scoring

Responses that met the above criteria received a "Yes" for evidential reasoning. Responses that didn't meet the criteria received a "No" for evidential reasoning. Here is an example of two typical responses:

"**Yes** " for evidential reasoning:



Interpretation:
It looks like two animals are walking. A big and small one, Sudenly they meet and they start a fight. The bigger animal wins by eating the little animal. Then the big animal walks away.

Evidence:

I see 2 foot prints walking one way. There is a big and small animal. The footprints collide and go around in circles. In the end only the big one is walking.

"**No** " for evidential reasoning:

Interpretation:
It looks like foot prints are walking

Evidence:
I think that because all them look there walk straight.

Findings

There is a tendency for members of the experimental group to show greater use of evidential reasoning than members of the control group. More than half the students in the experimental group used evidential reasoning (53%) compared to less than a third of the control group (31%).* It is interesting to note that the observed difference between these percentages (roughly 22%) is about equal to the percentage of difference detected between the scores of the control and experimental groups on the evidential reasoning portion of the art activity (20%). However, the simple yes-no scoring on the footprints activity only allows for a detection of differences between groups and not the identification of specific gains or effects of the treatment. [* Chi Square = 17.417, p <.0001]

AREA OF ANALYSIS: CIRCULAR REASONING

Conceptual Background

Unsupported or circular reasoning occurs when students respond to the question, *What do you see that makes you say that?* by repeating their interpretation and citing it as a reason.

Research Question

- *How does the experimental group compare to the control group in this area?*
- *If there is a difference, how does the difference compare to the differences in this category in the art activity?*

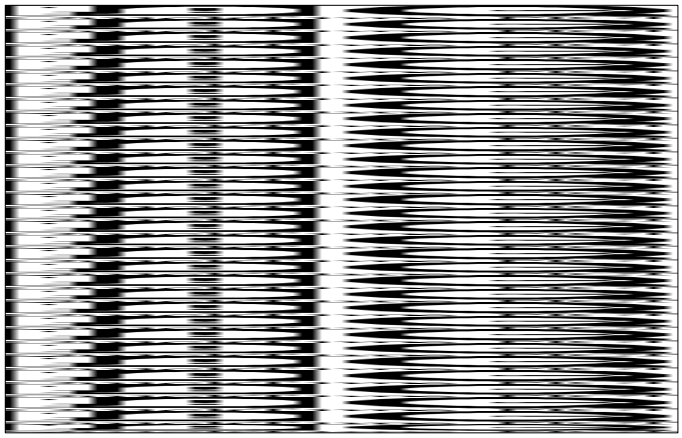
Examples of Responses and Scoring

Students receive a "Yes" if their response shows circular or unsupported reasoning, and a "No" if it does not. Here is an example of a "Yes" response (i.e. a response that shows circular reasoning).

"Yes" uses circular reasoning:

Interpretation:
It is a whol bunch of footprints of animals

Evidence:
Because you can see animal footprints



Findings

There is a tendency for members of the experimental group to show less use of circular reasoning than members of the control group. More than half the students in the control group used circular reasoning (56%) compared to just over a third of the experimental group (36%).* Interestingly, for this category there is a greater differences in the raw percentages between the control and experimental groups on this activity (56% vs. 36%) than on the art activity (43% vs. 33%). However, these differences shouldn't be interpreted too literally as a "gain" or effect but only as a more pronounced difference. *[Chi Square = 14.371, p <.0002].

AREA OF ANALYSIS: AWARENESS OF SUBJECTIVITY

Conceptual Background

This area of analysis concerns students' awareness of the subjective, or contingent, nature of interpretation. It gauges this by looking at manner and frequency of students' use of absolute and conditional language when they discuss the image.

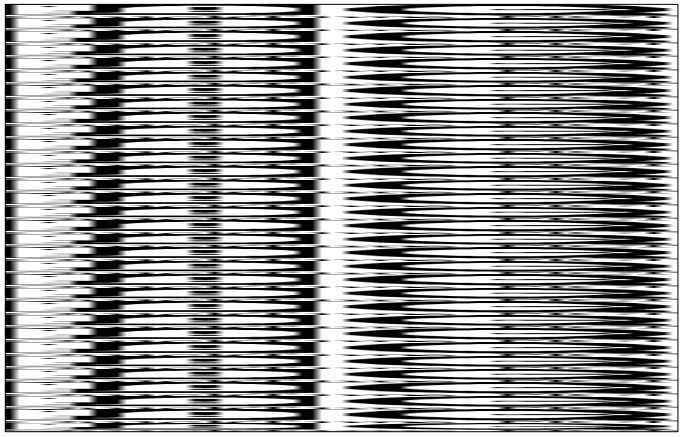
Research Questions

- *How does the experimental group compare to the control group in this area?*
- *If there is a difference, how does the difference compare to the gains in this category in the art activity?*

Examples of Responses and Scoring

Students receive a "Yes" if their response reflects subjective awareness, and a "No" if it does not. Here are examples of both types of responses.

"**Yes**" for awareness of subjectivity:



What is going on in this picture?
Two different animals maybe a chicken and a dog walking and meeting each other. They are probably dancing. The footprints all over the place make me think that there dancing.

"**No**" for awareness for subjectivity:

What is going on in this picture?
I see lots of footprints and some are big and some are small.

Findings

There is a tendency for members of the experimental group to show greater awareness of subjectivity than members of the control group. More than three fourths of the students in the experimental group demonstrate subjective awareness (77%) compared to less than two thirds of the control group (63%).* This mirrors the finding found in this category on the Art Activity. *[Chi Square = 8.439, p <.0037].

EFFECTS OF OTHER VARIABLES ON THE FINDINGS

All of the findings that have been reported for both activities, the Art Activity and the Footprints Activity, are findings about overall groups – the experimental pretest group, the experimental posttest group, and the control group. The findings basically pool all the students within a group and look at numerical trends for the performance of the group as a whole. But of course in reality, all children are different, and there are countless variables that contribute to differences in individual performance. Many of these factors, such as personality, personal preferences, and physiological and psychological health, are difficult or infeasible to measure. Other factors, such as age, grade, and gender, are more susceptible to measurement, although they may not always be the factors that are the most revealing.

Nonetheless, one works with the tools one has. Given what we are able to measure, it is important to ask whether the findings change in any important ways, once different variables are taken into consideration. For instance, the 3 groups just mentioned combine 4th and 5th graders. But as a subgroup, do the 4th graders have the same scores and trends in scores as the 5th graders? What about gender? Are the findings for girls different in any ways than the findings for boys?

Analyses reveal that most of the variables that are customarily examined of this sort do not have an important effect on the patterns of results. For instance:

- 5th graders as a trend have slightly higher scores in some categories than 4th graders, but the difference is not statistically significant.
- There are no significant differences between girls' scores and boys' scores in categories in which gains were found.
- The difference in students' ages does not contribute significantly to differences in scores (most students are between the ages of 9 and 11).
- Students' scores for each image, the Shahn and the Dubuffet, are relatively balanced. The level of performance (i.e. the distribution of scores) are similar for each image.

These findings suggest that the VTC doesn't favor a particular gender, age, or grade level within the students tested. Nor does the artwork used seemed to affect the level of performance. What about students' general ability level or academic standing? Does the VTC favor good students over poor students? We were unable to obtain records of students' academic standing. But recall that the finding reported earlier regarding score distribution told us that the VTC does tend to raise the evidential reasoning scores of many children who initially score low in this category. So, although we don't have a specific variable that represents academic standing or ability level, it is reasonable to surmise that the VTC does not tend to favor stronger students over weaker ones.

TEACHER EFFECT

Conceptual background

There is, of course, one variable that does have an effect on student performance — the teacher. This is to be expected. Teachers are individuals, and the influence they exert on students is strong. Good teaching can summon amazing performances out of students. Weak teaching can block the effect of even the best educational programs. No curriculum can be written to be teacher-proof, nor should it be. If teachers require certain sorts of skills in order to teach a curriculum effectively, then the curriculum should be designed to build those skills when necessary. This last point is taken up in the concluding chapter, when we discuss our recommendations for revisions to the VTC.

Examining what is called "teacher effect" involves comparing the variance in teachers' scores across classrooms: How does one teacher's class perform relative to other teachers' classes? Because of the small sample size in each classroom, it is not possible to test whether individual classroom gains are statistically significant.[6] Nonetheless, the Performance Assessment does provide some information about variance across classrooms. Although this information is useful, it is also limited. It does not tell us anything about the specific characteristics of good VTC teaching and not-so-good VTC teaching. This is where the qualitative data from classroom observations, reported in the next chapter, are so important. As a backdrop to that discussion, this section reports what can be observed from the Performance Assessment regarding the effect of the classroom teacher on the VTC.

Research Questions

- *Is the VTC effective in all classrooms? What sort of variance exists across classrooms and what does it suggest about the nature of "teacher effect?"*

Findings

All of the findings reported here concern the effect of the teacher in the area of evidential reasoning only. This is because the gain in evidential reasoning reported earlier in this chapter is the most robust gain found in this study. As was argued in the subsection on evidential reasoning, it is also the area of analysis that most closely captures the task-demand of the VTC questions as written on the performance assessment.

Concerning the question, Is the VTC effective in all classrooms? The findings show that students' mean scores for evidential reasoning increase in 9 out of the 10 VTC classrooms. However, the degree of increase varies quite substantially across classrooms. Recall that the total spread is 2 points: The lowest score is a 1, and the highest score is a 3. The increase across classrooms ranges from a low of a .28 mean increase (a 14% increase), to a high of a 1.22 increase in mean scores (a 61% increase).

Concerning the question of variance types of gains across classrooms, the following observations can be made:

- The classes in which students have the highest pretest scores are not necessarily those that have the highest posttest scores. In other words, the number of low-

[6] It is important to remember that although the sample size of this study as a whole is large, (366 students), there are only 10 experimental classrooms. In order to look at trends in classroom scores, students within the class must have completed both a pretest and a posttest. Because some students are absent either at the pretest or the posttest, and some get pulled out of class for special programs and therefore don't complete the test, the number of complete pretest/posttest sets for students within a class is often quite a bit smaller than the total number of students in the class. The sample size for the experimental classrooms varies from 8-27. And even 27 is a small number, in terms of using statistical methods to look for trends, which is why most of the findings reported in this chapter are derived from the means of larger groups.

scoring students at the beginning of the year doesn't seem to predict anything about how highly students will score at the end of the year, or what the nature of the gains will be. Some classes have very low pretest scores but high posttest scores. Others have high pretest scores and not-so-high prosttest scores, etc. This tells us that a student's pretest score is not necessarily a good predictor of his or her posttest score. In fact, analysis shows that pretest scores accounts for less than 4% of the variance in posttest scores. This indicates that teachers make more of an impact on a student's gain than the student's ability as measured on the pretest. A simpler but less perfect way of saying this is that if you want get better at evidential reasoning, you're more likely to do so by having a good teacher for the VTC than by starting out with high aptitude.

- Some classrooms show a high percentage of 2 point increases (from 1-3). Some classrooms' 2-point increases are more modest. Nonetheless, there are quite a lot of 2 point gains in most classes. It is important to keep in mind that in order to make a 2 point gain, you have to have received the lowest score – a 1 – on the pretest. So 2-point gains represent large gains by the lowest scoring students. Combining the scores of 10 classrooms, we see that, across all the classrooms, 43% of the lowest scoring students on the pretest – those who received 1's – experienced a 2-point gain. These findings suggest that the VTC is able to impact students who have low ability at the outset of the program. However, the variance across classrooms in this area is substantial. The highest percentage of 2-point gains in a classroom was 50%. The lowest percentage of 2-point gains in a classroom was 4%.

- The classes that have the greatest increase in scores are not necessarily those in which the teacher has taught the greatest number of VTC lessons. For example, the teacher with the largest gain in evidential reasoning, (61% of the students increased their score by 1 or 2 points), taught only 8 lessons, while other teachers who taught between 10-12 lessons had less of a gain. Interestingly, the only teacher whose class showed no gain also taught 8 lessons.

In sum, there is a high degree of variance in scores across classrooms, although most classrooms do experience some gain. The variance of scores appears to be due largely to the impact of the teacher, and much less so to the ability-level of students at the outset of the program. Nonetheless, the robust 2-point gains in many classrooms suggests that the VTC has the potential to have a strong impact on low-scoring students, even in the hands of the less strong teachers.

III. SUMMARY OF FINDINGS OF NOTE

The most striking finding of the Performance Assessment is that the VTC tends to contribute to a modest but statistically significant increase students' evidential reasoning skills. Evidential reasoning is defined in this study as the ability to construct an explanation of meaning that strikes an appropriate balance between interpretation and evidence and that shows a relationship of relevance between the interpretation offered and the evidence used to support it.

Another striking finding that is conceptually related is that the VTC tends to increase students' awareness of the subjective, or the conditional, nature of interpretation. This is conceptually related to evidential reasoning because evidential reasoning is about providing justification for an interpretation. Justification only makes sense in a context where it is recognized that it is possible to have varying observations that lead to different, or multiple, interpretations.

Increases in the foregoing areas do not appear to be limited to reasoning about interpretations about art. The findings from the Footprint Activity show that the evidential reasoning skills developed by students in the context of looking at art appear to transfer to a visual, non-art science context. Similarly, students' increased awareness of subjectivity appears to transfer to a non-art context (i.e. science).

It is interesting to note that, while pretest scores indicate that 4th and 5th graders are developmentally ready to engage in evidential reasoning at this age, these skills do not seem to be cultivated as a result of the normal course of schooling in these grades. This suggests that the VTC may target reasoning skills that are not targeted elsewhere in the curriculum.

Also of interest are the findings that indicate that the VTC has the potential to impact children of low ability. It is relatively easy to design educational programs that target children of average or high ability. It is not so easy to design programs that do a good job of boosting the skills of low-scoring children.

Although there are several gains of note in the Performance Assessment, the variance across classrooms makes it clear that the effectiveness of the VTC is strongly influenced by the classroom teacher. Indeed, in terms of predicting gains from the program, the teacher's influence appears to be a considerably larger factor than students' baseline ability. The mean scores in the areas of evidential reasoning and awareness of subjectivity tell us that the VTC program is powerful enough to do a modest amount of good to most students. However, in the hands of strong teachers, the VTC has the potential to have fairly large effect, while in the hands of weaker teachers, the benefits

students receive are quite limited and modest. The characteristics of stronger and weaker teachers are taken up in the next chapter.

Limitations of the Study: What the Performance Assessment Can and Cannot Tell Us

The Performance Assessment is a written exercise, done solo by each student. In contrast, most VTC lessons involve group discussions in which students express themselves verbally rather than in writing. The limitations of the instrument are therefore obvious. It can't fully capture the character of group learning that occurs in VTC discussions, nor can it capture what students cannot express in writing. These are serious concerns, and embedded within them are two views about learning that are currently popular. One view concerns the social, or group, nature of learning. People learn in contextualized, social settings, it is argued, and therefore instruments that ask people to demonstrate skills in isolated individual settings are not measuring real-world learning. The other view concerns the nature of intelligence. People are believed to have many different kinds of intelligence — verbal, visual, kinesthetic, and so on — and written tests favor only one kind of intelligence.

These concerns are to be taken seriously. Group learning is a real and important phenomenon. People do have different propensities and favor different learning modalities. So a few words about what this Performance Assessment does and does not measure are in order.

Regarding the fact that the test is administered to individuals rather than in a group setting, it is important to remember that individual testing is often used to assess skills learned in the context of a group. A standard example is the learning and testing of language skills. People learn and use language in social settings, yet are typically tested individually. Many people are more linguistically competent in a group context than on a solo test. Nonetheless, we expect that some, although not all, of the language skills they possess will transfer to a solo setting. In the VTC, virtually all of the lessons involve group discussions. What individual testing cannot measure is all of the skills that students are able to use in a group setting. Nor can it measure the quality and character of group interactions. What it does measure is some of the skills that students are able to transfer to a solo context.

Regarding the written nature of the instrument, it is probably true that the task of writing prevented some students from displaying their best thinking. It should also be noted that a few teachers expressed concern that their students were not likely to exhibit the same level of skill on a written test as they did in regular classroom discussions. This, too, is likely to be true. However, several of the categories of analysis for the Performance Assessment aim to capture the thinking behind students' words, regardless of their facility with language. In these areas, it is not the case that strong writers as a rule receive higher scores than weak

writers. In fact, the data suggest that there does not seem to be a straightforward connection between students' writing skills and their ability to reason thoughtfully about the meaning of a work of art. For example, as was reported in the section on evidential reasoning in the Art Activity, some students who write poorly reason quite carefully about the meaning of an image. Conversely, some students who write well don't seem able to reason very well. Nor does there seem to be a strong connection between the overall quantity of text students write, and the quality of their reasoning. As a trend, an increase or decrease in the quantity of text students write doesn't accompany an increase or decrease in their scores. These observations indicate that although the written nature of the assessment may present an obstacle to some students, it is not necessarily a wholly insurmountable one.

CHAPTER 3

CLASSROOM OBSERVATIONS

Overview

Over the course of the year, Project Zero researchers observed teachers conducting VTC lessons in the 10 New York city classrooms involved in this study — six 4th grade classes and four 5th grade classes. These observations occurred in the December 1998 and then again in May 1999. Most of the VTC lessons observed were audio-taped and transcribed.

The purpose of the classroom observations was to collect qualitative data about teacher/student interactions in classroom discussions, and, in particular, about how those interactions supported, or didn't support, students' thinking and learning in the VTC.

The data collected from classroom observations was intended to complement the findings from the Student Performance Assessment. What the classroom observations are able to capture that the Student Performance Assessment can't is the role teachers play in encouraging or discouraging students' thinking when discussing a work of art. This chapter discusses teachers' roles in helping students in the following areas:

- Evidential reasoning
- Awareness of subjectivity
- Creating a culture of friendly disagreement
- Observation
- Creating a conversational culture
- Creating a culture of listening

Towards the end of the chapter, we also discuss how teachers use the VTC curriculum, specifically in the areas of the core VTC questions, summarizing, and the use of information.

EVIDENTIAL REASONING: ENCOURAGING STUDENTS TO SUPPORT INTERPRETATIONS

Conceptual Background

The core questions in the VTC methodology encourage viewers to engage in evidential reasoning. Students who exhibit strong evidential reasoning when discussing a work of art support their interpretations with details or evidence in the image.

Points of Effective Practice

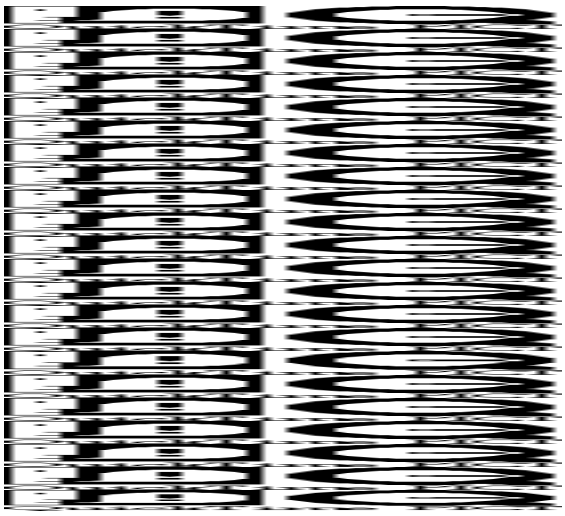
Teachers who seemed to encourage evidential reasoning:

- Ask the question *What do you see that makes you say that?*
- Focus on a specific observation by asking pointed and probing questions
- Go in depth with one student by pressing for a more detailed explanation
- Respond to each student's remarks
- Urge other students to provide additional details in the image to expand upon their classmates' interpretation

Discussion and Examples

Teachers who seemed to promote evidential reasoning almost always encouraged their students to support their observations by asking the question, *What do you see that makes you say that?* or some variant of that question. They helped students engage in thoughtful interpretations by asking pointed and probing questions to draw out students' reasoning. Often teachers would spend time with one student, pressing her for more details, until the student fully supported her interpretation. Many of these teachers would respond to students' interpretations, usually by repeating what the student said, and then asking a follow-up question. These teachers would also encourage the class to expand upon or comment on a student's interpretation.

Below is an example of a teacher guiding a student to support his observations with evidence while discussing the image *Bride and Groom* by Modigliani:

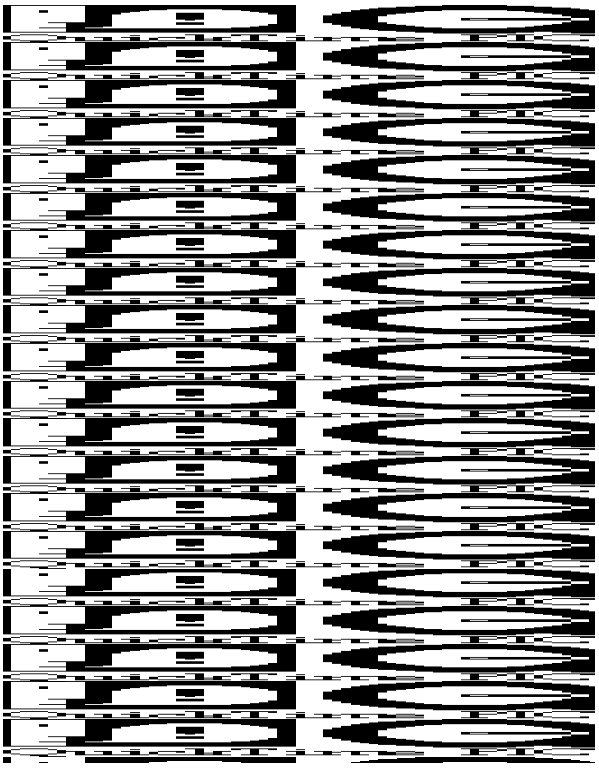


S: I see a man and (unclear)
T: Okay, before you keep going, you see a man. This guy here? What tells you he's a man?
S: The clothes. The suit.
T: What about it tells you it's a suit?
S: The bow and he has a blazer.
T: The bow here and you say it's a blazer. Okay. Because he's wearing a bow and a blazer, we say it's a suit, and because he's wearing a suit, you think it's a man. Anything else in the picture that tells you it's a man that we're looking at?
S: The mustache.
T: The mustache here tells you it's a man.

Here the teacher asks the student to focus on the man, *before [he] keeps going* to support his claim that it is a man. No observational detail is taken for granted, not even the seemingly obvious observation that it is a man. The teacher draws out this one student's reasoning by asking him a couple of questions — *What tells you he's a man?* and *What about it tells you it's a suit?* — until he supports his observation. She also summarizes the student's observation and the evidence he provides — *Because he's wearing a bow and a blazer, we say it's a suit, and because he's wearing a suit, you think it's a man.* After the student supports his interpretation, the teacher encourages deeper looking by inviting others to provide additional details to support the initial student's observation — *Anything else in the picture that tells you it's a man that we're looking at?*

Teachers who did not promote students' evidential reasoning skills tended not to ask students to back up their observations with additional questions such as, *What do you see that makes you say that?* They either did not react to students' interpretations, or gave sparse responses to them. They also rarely engaged individual students in an extended dialogue; once a student provided an observation the teacher would call on a different student to provide another interpretation.

For example, compare the above excerpt of a class discussion with this excerpt of a teacher leading a discussion around *Echo of a Scream* by Siqueiros:



S1: It looks like the one with the big head is crying because he's hungry and
T: (interrupts student) You don't know why he's crying, it looks like he's crying.
S1: The one with the little head looks like he's crying.
T: Alright.
S2: It looks like that person in the red with the little head, she had to feed the baby. It looks like the one with the little head is thinking about all the stuff she has to do, like feed the baby who's crying and clean the house and take out the garbage.
T: Okay.
S3: It looks like that was his house but it got blown down by a twister.
T: Okay we don't know what happened but I see what you're saying.
S4: It looks like the baby is looking in the mirror and that's its reflection.
T: Oh, Okay.

This teacher responds to students' interpretations with *okay* and *alright* instead of encouraging students to expand upon their observations with more details, or to support their interpretations with evidence in the painting. In fact, the teacher seems to be steering the students away from making any type of interpretation at all. When one student interprets the baby's crying to *hunger* the teacher interrupts and says, *you don't know why he's crying, it looks like he's crying.* And when another student speculates that the house was blown down by a twister, the teacher responds, *Okay, we don't know what happened, but I see what you're saying.*

AWARENESS OF SUBJECTIVITY: PROMOTING MULTIPLE INTERPRETATIONS

Conceptual Background

Students who have an awareness of the subjective or conditional nature of interpretation recognize that an image can have multiple interpretations and that their interpretation is just one of many possible interpretations. These students are open to hearing others' point of view and may themselves offer several explanations about an image. The use of conditional language — words such as, *it looks like, I think this might be, probably, either/or* etc. — is also an indicator that students are aware of the subjective nature of interpreting a work of art.

Points of Effective Practice

Teachers who seemed to encourage students' awareness of subjectivity:

- Invite students to provide various interpretations through questions
- Use conditional language
- Spend time on individual interpretations and press students to look more closely to elicit alternative explanations
- Accept and validate many possible interpretations

Discussion and Examples

Some teachers seemed particularly skilled in guiding classroom discussions in which students were comfortable expressing a variety of different opinions about an image. One way teachers encouraged multiple interpretations was to focus the discussion on a particular aspect of an image, and, through questions, press students for alternative explanations.

Below is an excerpt of a teacher leading a discussion around Edward Hopper's *Gas,* in which the teacher directs her students' attention to the clothes the man is wearing. This intentional examination of the man's clothes yields two possible interpretations.

S1: There's a guy there that looks like he's working
T: There's a guy that looks like he's working. What makes you say he's working?
S1: Uniform
T: Does he look like he's wearing a uniform?
Ss: (several students in unison) Yes
T: Yeah. You think it looks like he's wearing a uniform? K?
S2: It looks like a gas station that might have been in the olden days
T: Alright. It looks like a gas station from the olden days. Alright. Lets, I want to just go back there, does he look like he's wearing a uniform?
Ss: (several students in unison) Yes
T: Yeah, that's what it looks like that to you? M?
S3: I don' think so. It looks like because it was in the olden days that he might be like, wearing like a vest and pants.
T: Yes, does he look, I know that many of you think that he might be working at the gas station and he might, or (pause)
S4: He might just be there.
T: He might just be there because he's wearing a vest and his pants and he looks a little bit (pause)
S4: Normal
T: How does he look?
S5: Sophisticated
T: A little bit sophisticated maybe, okay. But he still might be working there.

Notice that both the teacher and students use highly subjective language when discussing this image. They use words such as *maybe; many of you think he might be; it looks like that to you; or;* etc. The teacher spends time with one of her student's interpretation that this man may be working at the gas station because he appears to be wearing a uniform. She asks her class a few times, *Does it look like he's wearing a uniform?* When a student evades her question by making another observation she acknowledges the observation, but instead of letting her question go unanswered, she directs the class again to the man's attire by saying, *I want to go back here, does he look like he's wearing a uniform?* The teacher's probing invites consensus from several students—many agree that the man is indeed wearing a uniform. But her questioning also elicits an alternative interpretation — the man could *just be there*. The teacher accepts and validates both interpretations and encourages her students to support each of their claims: *The man is working at the station because he is wearing a uniform;* or *He might just be there… because it was in the*

olden days, he might be wearing a vest and pants and he looks *normal* and *sophisticated*. Later in the discussion students offered various explanations why the man might just be there such as, *he was lost; his car broke down; he was getting gas; and he was looking at a map.*

CREATING A CULTURE OF FRIENDLY DISAGREEMENT

Conceptual Background

In order for multiple interpretations to be expressed students must realize that it is permissible, and sometimes even encouraged, to disagree with a fellow student's interpretation. The current VTC curriculum encourages teachers to ask students, *Does anyone agree or disagree?* as a means of creating a dialogue and bringing out different points of view.

Points of Effective Practice

Teachers who seemed to encourage a culture of friendly disagreement:

- Urge students to voice their own interpretations
- Explicitly state that it is permissible to disagree
- Validate alternative explanations
- Ask students to support their interpretation with evidence
- Reinforce the subjective nature of interpretation through comments and questions

Discussion and Examples

Teachers who allowed for alternative points of view to be expressed openly encouraged students to agree or disagree with one another. Below is an example of a teacher leading a discussion around *The Dream* by Rousseau:

S1: …I disagree with her about the lady part. I think that's some type of monkey drinking out of something.

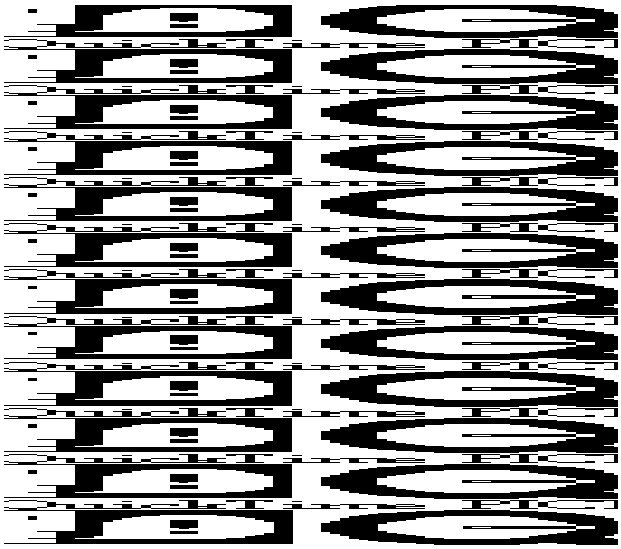
T: Why do you say that? No one is right or wrong. We all have our own opinions about what we might see and why we think that; you can agree or disagree.

S1: I think it's a monkey because, I think, I was studying that one main part that C says, and I looked deeply into the face part and that doesn't look like a human face.

T: Okay, that doesn't look human. Why doesn't that look human to you?

S1: It don't. To me, it looks like the hair is like (unclear) but the face is like (unclear)

T: Okay. Who wants to add?



When this student poses an alternative explanation, the teacher accepts and affirms his interpretation by explicitly stating that *we all have our own opinion about what we might see and why we think that; you can agree or disagree*. However, this teacher doesn't just take a new interpretation at face value, but rather, asks the student to support his interpretation with details in the painting. This sends the tacit message that, while it is okay to have one's opinion, opinions should be supported by evidence. The question, *Why do you say that?*, invites deeper looking, and in fact, prompts this student to *[study] that one main part that C says, and [look] deeply into the face part*. This student seems to be aware of the contingent nature of his interpretation since he uses words such as, *I think, and to me, it looks like.*

While most teachers seemed to promote a culture of friendly disagreement, some openly discouraged it, as exemplified in the excerpt below:

S: I don't agree with her,

T: (interrupts student) There is nothing to agree or disagree with. That's what she sees. Tell us what you see.

Unlike the teacher in the previous example, this teacher explicitly states *that there is nothing to agree or disagree with*. This teacher appears to be trying to validate the previous student's interpretation by telling the student who is disagreeing, *That's what she sees. Tell us what you see,* but this approach is perhaps not the most effective one. Discouraging students to disagree with one another's interpretations and having them focus exclusively on what they see impedes evidential reasoning because there are no interpretations to support. Additionally, when a culture of friendly disagreement is encouraged, a livelier discussion usually ensues, and more observations are brought to the fore.

OBSERVATION: THE MIXED RESULTS OF A FOCUS ON *WHAT DO YOU SEE?*

Conceptual Background

The VTC encourages students to look at and describe what they see in a work of art. This process of engaging students in extended looking aims to develop students' observational skills and their ability to describe various dimensions of an image. However, over-emphasizing observation in classroom discussions can compromise other VTC goals.

Points of Effective Practice

Teachers who balance a focus on observation with other VTC goals:

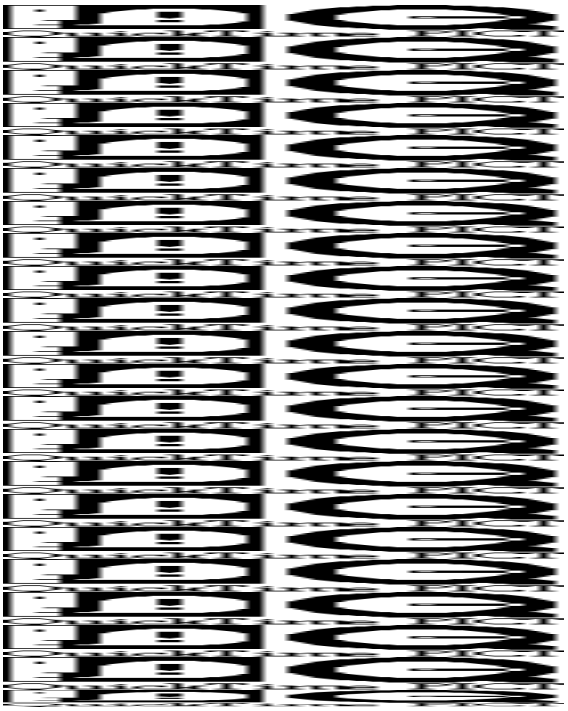
- Do not discourage students from making interpretations
- Accompany the question *What do you see?* with a question asking students to support their observation
- Focus the discussion on a certain set of observations
- Spend time on an image
- Press students to elaborate on their observations

Discussion and Examples

In several of the classrooms we observed teachers strongly emphasized the listing of observations when discussing an image. In fact, in the classrooms we observed, almost all of the teachers initiated the discussion with the question, *What do you see?* instead of *What's going on in this picture?* Often, starting the discussion by encouraging students to notice various aspects of the image yielded rich descriptive details from students. It is clear that teachers feel particularly comfortable with this question. It is also clear that students have a lot to say about a work of art when asked what they see. This is encouraging since developing students' ability to describe various dimensions of an image is something the VTC values and encourages.

However, we also noticed that some teachers made observation their singular focus and placed a secondary value, and, in some cases, no value at all, on students' interpretations and the perceptual evidence they gave to support their interpretations. So, while students in these particular classes may be developing observation skills, other skills the VTC encourages — supporting interpretations with relevant evidence, promoting a dialogue between students, and exposing students' to each other's views and interpretations — are compromised or undermined.

Below is an example of a teacher who focuses solely on eliciting observational details from her students while leading a discussion around Chagall's, *I and the Village*:



T: Okay, on the middle right, *What do you see?*
S: I see an animal
T: Okay, which one looks like a horse?
S: The white
T: Anything else in that area?
S: There's someone sitting next to the white horse.
T: There's someone sitting next to the white horse. Okay, anything else here? Remember we're here lets concentrate here.
S: I think I know what that
T: (interrupts student) Ah! What do you SEE
S: I see the horse and in the blue part I see someone
S: I think the animal is a cow and the man is milking the cow
T: ok you think it's a cow and it's being milked
S: I think the man
T: (interrupts student) Ah what else do you SEE
S: I see horns at the bottom it looks like (unclear)
T: Okay anything else?
S: I see pearls
T: You see pearls around the horses neck
S: I see clouds
T: You see clouds, where?
S: Above the horses head
T: Above here? Okay what else do you see?

This teacher clearly places an emphasis on having her students observe as many details as possible, but at the expense of having her students explore the meaning of the image. In two instances, this teacher interrupts her students just as they appear to offer an interpretation. She also fails to ask her students to support their observations with evidence in the painting. Her follow-up questions are mainly concerned with locating students' observation within the image — *where; anything else in that area; let's concentrate here* — and prompting her students to list more details — *okay anything else.*

Not all teachers focused on the question *What do you see?* to this extent, but many teachers missed opportunities to help students expand upon their observations. Teachers often failed to ask follow-up questions that invited deeper looking so that various meanings in the image could be explored. We observed that when teachers focused their lesson mainly on *What do you see?* classroom discussions usually resulted in a surface investigation of the image.

CREATING A CONVERSATIONAL CULTURE

Conceptual Background

As discussed in the previous section, one goal of the VTC is to develop students' observation skills. But the goal is not to enable students to provide a laundry list of observations, but rather to encourage them to have a meaningful discussion around a work of art. The emphasis on discussion reflects the belief that when students converse with each other about an image, their observations are deepened and various ideas and interpretations are brought to the fore.

Points of Effective Practice

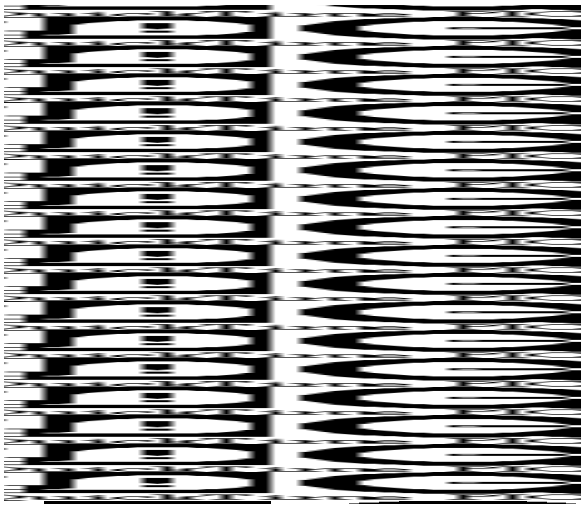
Teachers who seemed to create a conversational culture:

- Encourage students to talk about their classmate's ideas
- Present an idea or theme for discussion
- Push students to elaborate or comment further on an explanation
- Focus the discussion on one theme or set of observations for an extended period of time
- Pace the conversation by not asking too many questions at once
- Encourage students to agree/disagree
- Cite previous observations raised by students

Discussion and Examples

Some teachers were very skilled at facilitating a dialogue in the classroom. These teachers seemed sensitive to opportunities to expand on different students' observations or interpretations, and draw several students into the conversation. These classrooms had a conversational feel. Students and teacher talked with each other, flowing with one theme or set of observations for an extended period of time.

Here is an example of a classroom having a conversation about *Family Group* by Henry Moore:



T: Yes. Let's take a little time and look at the position of these figures. The first person who spoke said, T you said something about them being close together. Can you tell us a little bit more about that?

S1: The reason why I said they was close because the way the guy sits, like his knees are closer to the mother. So like if he's holding the baby, the baby won't really drop.

T: Ah! So their closeness is showing more than physical location but you're telling me some other kind of closeness when you say that he won't let the baby drop. What kind of closeness are we talking about? D, what do you think?

S2: Maybe the lady is handing the man the baby to hold or something.

T: Do you have a sense of this family being close? We said they're sitting close, but is there another sense of being close? It's possible that you don't. What do you think?

S3: (unclear)

T: So when you're talking about being close in a different way then just being next to each other what kind of closeness is that?

S3: Love

T: Yeah, an expression of love. What else for closeness? Let' take a look at their faces for a moment, J?

S4: It looks like the man has no, has nothing on his face and the woman.

T: Yeah. They're not really carved out, are they? And actually this is a pretty good slide. It's clear and everything Their faces aren't quite so, what is the word I'm looking for?

S5: Defined.

T: Their faces aren't quite so defined. Why do you think a sculptor who wants to show this nice close family doesn't bother with their faces so much? R

S6: Because to make their faces is hard to do.

T: Possibly. A?

S7: The face probably has nothing to do with the sculpture.

T: Why?

S7: They want to show that they're part of a family, he doesn't want to show what they look like.

T: So they are showing more of a feeling?

S7: Yeah.

T: …What's the real message then? Does the faces matter? A was talking about this. Do you want to talk a little bit more about this about the faces and whether they matter, G?
S8: I don't think the faces matter. They just want to show that they love each other.
T: Does anybody else agree with G? B you're shaking your head. Why do you agree?
S9: Because the arms show that they (unclear)
T: Good. Let's review what shows us that they care. Let's focus on the arms.

The conversational spirit of this classroom is evident in many ways. The teacher introduces the theme of *closeness* by referring back to an earlier comment made by a student who *said something about being close togethe*r. She invites the student who made the initial comment t*o say a little more about [it]*. This question yields a well reasoned response from the student — *The reason why I said they was close because the way the guy sits, like his knees are closer to the mother. So like if he's holding the baby, the baby won't really drop*. The teacher uses this student's response as an opportunity to explore the meaning of *closeness*. The first student's answer implies that he doesn't quite understand the meaning of the teacher's question. The teacher restates the question leaving open the possibility that her students may not have a sense of this family being close.

The students then engage in a discussion that investigates the possible meaning of the sculpture and the artist's intent. Exploring the theme of *closeness* not only makes for an interesting discussion, it also prompts students to look more carefully at the work of art. These students notice that the faces of the figures aren't defined, and the position of their bodies, specifically mentioning the knees, arms, and handling of the baby. These astute observations are coupled with possible interpretations — the faces aren't defined *because the sculptor wanted to show that they were part of a family*; the knees are close to the middle *so that he won't let the baby drop*; the arms and handling of the baby show that they *care* and *love each other.*

The teacher facilitates extended looking by focusing the conversation on the theme of closeness and asking probing questions such as, *let's take a little time and look at the position of these figures; what else for closeness? let's focus on the arms; do the faces matter?* She encourages her students to participate in the conversation not only by validating their interpretations, but also by referring back to previously mentioned explanations and asking for further elaboration. She also invites students to agree or disagree with one another.

In contrast, teachers who were not as skilled at creating a conversational culture often asked too many questions at once. They tended not to stay with an observation or an interpretation for any length of time. They often didn't wait for students to answer a question.

CREATING A CULTURE OF LISTENING

Conceptual Background

Discussing a work of art in a group context encourages children to listen to each other. It goes without saying that listening is a valuable social skill and an important one for children to practice. Giving someone your attention while he or she is speaking not only shows respect, it is also an important cognitive skill because it is a means of acquiring information and learning new ideas. In the context of the VTC, each time a student listens to her classmates she is exposed to alternative points of view and perhaps is encouraged to look at an image from another person's perspective. Hearing alternative points of view may reinforce a student's own interpretation or cause her to reconsider it.

Points of Effective Practice

Teachers who seemed to encourage a culture of listening:

- Model good listening by being good listeners themselves
- Repeat what students say
- Ask students to repeat or rephrase to be sure they capture their meaning
- Summarize often
- Refer back to students' comments, sometimes specifically using their names
- Do not tolerate students talking over one another

Discussion

Classrooms that reflected good listening were orderly and the conversation was focused on the work of art. Teachers and students who listened to one another often cited previous interpretations, sometimes specifically using a person's name. Referring back to a student's comment affirmed a student's interpretation and kept the conversation going. Frequent summarizing and repeating back what the students said also demonstrated that student's comments were being heard.

TEACHERS' USE OF THE VTC METHODOLOGY AND CURRICULUM

Overview

This section examines teachers' use of the VTC in three areas:

- Use of the core questions
- Summarizing

- Use of information about the VTC art images

USE OF THE CORE QUESTIONS

Conceptual Background

The VTC methodology consists of two core questions: *What's going on in this picture?* and *What do you see that makes you say that?* These questions encourage children to explore different meanings in a work of art and to support their interpretations with observational details in the image.

Points of Effective Practice

Teachers who seemed to used the core questions effectively:

Used both of questions together, or some derivation of these questions

Discussion and Examples

As discussed in a previous section, in the classrooms we observed, almost all of the teachers began the discussion with the question *What do you see?* instead of *What's going on in this picture?* The effects of asking *What do you see?* instead of *What's going on?* seemed to elicit similar types of responses from students; sometimes students cited observations while others gave interpretations. The two questions seemed to be interchangeable and equally effective, but only when it was followed by the second core question *What do you see that makes you say that?* or some variation of that question.

It is possible that teachers who don't use the core questions lack a deep understanding of the VTC methodology. For example, some teachers with whom we spoke felt uncomfortable with the subjective nature of interpreting an art and wanted more information about the artwork. Having their students focus exclusively on the questions *What do you see?* may be a strategy to avoid hard-to-handle or "wrong" interpretations from their students. These teachers may not be convinced that an effective way of grounding students' interpretations is to ask *What do you see that makes you say that?* It is also possible that some teachers may be unclear about the distinction between the two questions, *What do you see?* and *What do you see that makes you say that?*

Some teachers seemed to have an intuitive understanding of the VTC—they realized that observations should be supported with evidence in the painting. They pushed their students to observe and explore the image, but placed equal importance on having their students back up their interpretations with evidence in the painting. This created an effective balance. When both of the core questions were used students were more apt to engage in evidential reasoning and extended looking. The core questions also facilitated a deeper and more engaging discussion.

SUMMARIZING

Conceptual Background

Summarizing is a tool to review students' observations and to promote discussion. It is also an indicator that one's interpretations are being heard.

Points of Effective Practice

Teachers who were skilled at summarizing:

- Include a comprehensive recap of students' interpretations and perceptual evidence supporting their interpretations
- Use conditional language
- Cover many observations and dimensions of the image
- Encourage points of agreement and disagreement
- Recognize ambiguous aspects of the image
- Invite students to add items that were left out or to provide additional observations

Discussion and Examples

All of the teachers periodically summarized or asked their students to summarize the classroom discussion. Summarizing seemed most effective when it occurred naturally in the context of the conversation and at the end of discussing an image. Sometimes the classroom discussion would continue after a summary, if students noticed something that wasn't mentioned or wanted to comment further about an interpretation.

Below is an excerpt of an exemplary summary given by a teacher on Hopper's *Gas*:

T: Yes, that's what M said, it might be a map. So we have this man, he's at the gas station. He might work at the gas station, he might be lost, he might need gas, he might be looking at a map. We've established this is a country setting, this is a country road and there might be a highway beyond there, it looks like a path to something. Somebody said it looks like it was very dry because of the colors of the grass. And that the sun was setting so it might be sunset, about 7 in the evening. We said it was a Mobil station because of the horse that we see today at Mobil stations that it definitely, um, this picture was painted a long time ago. That it's not a modern station but maybe, I don't know, maybe 50, 60 years ago or 100 years ago, we don't know. That we have a house here and in the house they might sell things, and we talked about this building here which might be a bathroom or it might be a place where people go to get tires. or gas. or an ice machine. we can't really tell. Looks like something is going on inside of this house because there's a light reflecting outside the window. What else did we say? I think that's a lot of what we said. Okay, very good. Does anybody have one or two last things to say before we take this out

It is clear from this teacher's summary that she was listening to her students. She does a remarkable job of capturing a variety of her students' observations and interpretations. In several instances this teacher mentions not only her students' observations but also the evidence used in support of them — *Somebody said it looks like it was very dry because of the colors of the grass; And that the sun was setting so it might be sunset; We said it was a Mobil station because of the horse that we see today at Mobil stations;* and *Looks like something is going on inside of this house because there's a light reflecting outside the window*. She reinforces the subjective nature of interpretation by listing the various possibilities for a particular observation using conditional language — *He might work at the gas station, he might be lost, he might need gas, he might be looking at a map*. She mentions observations the class reached consensus on — *We've established this is a country setting* — as well as aspect of the image that are ambiguous — T*hat it's not a modern station but maybe, I don't know, maybe 50, 60 years ago or 100 years ago, we don't know*. And finally, the teacher invites her students to add items that were left out or to provide additional observations.

USE OF INFORMATION

Conceptual Background

Each image in the VTC is followed by text, or a "blurb," that includes: a description of the image, possible reactions from students, and basic information about the artwork. This text has been carefully crafted by authors of the VTC. It is meant to complement student's observations, not provide the correct interpretation. It is also meant to be a resource for teachers to help them prepare their lesson based on experience using these works. Teachers are encouraged delay using the information until after the discussion and not to use the information if it might discredit a student's interpretation. The primary goal of the VTC is not for students to get the "right answers" but rather to think deeply about an artwork.

Points of Effective Practice

Teachers seemed to use the blurbs appropriately when they:

- Connect the information to the classroom discussion
- Expand on student's interpretations
- Paraphrase the text
- Encourage students to continue the conversation

Discussion and Examples

Many of the teachers read the blurbs at end of discussing each image. Some teachers provided information only when students asked for it while others read the blurbs as a matter of course. Reading the blurbs seemed useful and appropriate when the teacher folded the information into the classroom discussion.

For example, after discussing Modigliani's, *Bride and Groom*, students asked their teacher what the painting was called. The teacher read the title and blurb and then asked her students, *Does any one want to comment on the title? Do you see anything in there, now that I give you the title? What makes you think it may be called Bride and Groom?* This teacher used the information to expand on student's initial interpretations and to continue the discussion.

Some teachers used the information to end the discussion or as a means of providing the "right" interpretation. After discussing the image *Echo of a Scream*, by Siqueiros, one teacher asked her class, *Do you want to know what the interpretation is?* As this teacher

read the blurb various students yell out *I've got it!* and *Yes!* when they heard their observations being mentioned in the blurb. Obviously, in this case, reading the blurb discounts many students' interpretations and ends further discussion about the image.

SUMMARY

The classroom observations show that students are able to engage in a meaningful discussion around a work of art. Students demonstrate an ability to provide detailed observations, construct thoughtful interpretations, and respond to different points of view when looking at an image. However, the extent to which students are able to benefit from the VTC is greatly influenced by their teacher.

In the stronger and weaker classes alike, almost all of the teachers began the discussion with the question, *What do you see?* instead of *What's going on in this picture?* The two questions seemed to be interchangeable and equally effective, but only when they were accompanied by a follow-up question that pressed for further elaboration.

In the classrooms where the VTC was at its best, teachers seemed to have an intuitive understanding of the VTC methodology. Not only did they consistently ask the core questions — *What's going on in this picture?* and *What do you see that makes you say that?* (or some derivation of these questions) — but they also appeared to recognize the implicit relationship between these two questions. They realized that these questions, taken together, encourage children to support their interpretations with observational details in the image (i.e., engage in evidential reasoning).

However, the frequency and skill with which teachers asked questions greatly influenced students' ability to engage in evidential reasoning. In the best classrooms, these teachers often would focus on a specific set of observations and ask pointed and probing questions to draw out students' reasoning. It was not uncommon for these teachers to spend time with one student pressing for a more detailed explanation, and then ask others to add to the initial student's interpretation.

The questioning strategy employed by teachers also influenced students' awareness of subjectivity. In the best classrooms, teachers encouraged multiple interpretations by asking students to agree or disagree with an explanation put forth or to provide alternative explanations. In these classes both teachers and students frequently used conditional language when constructing or responding to an interpretation.

The quality and quantity of the descriptive details students observed seemed to be strongest when teachers encouraged students' awareness of subjectivity and evidential reasoning. This is not surprising, since when students are exposed to interpretations different from their own they are urged to look more closely at an image, and perhaps discover a detail that they failed to notice at first glance. Additionally, prompting students to justify an interpretation by asking the question *What do you see that makes you say that?* initiates extended looking because students must seek observational details to support their explanation.

Some teachers were very skilled at creating a conversational culture in the classroom. The richest discussions seemed to occur when students and teacher talked with each other, flowing with one theme or set of observations for an extended period of time. Teachers paced the conversation by not asking too many questions at once, and allowed ample time for students to explore an image. These teachers seemed sensitive to opportunities to expand on students' interpretations. Often a teacher would continue the conversation by citing a previous observation raised by a student and ask the class for further elaboration. They reviewed students' observations by summarizing often and used the information provided in the blurbs to complement students' interpretations or to continue the discussion.

Teachers who seemed to lack a deep understanding of the VTC methodology appeared to place a greater value on the question *What do you see?* and a lesser one on *What do you see that makes you say that?* We noticed that when teachers focused their lesson mainly on *what do you see,* other skills the VTC encourages — supporting interpretations with relevant evidence, promoting a dialogue between students, and exposing students' to each other's views— were compromised or undermined. These classroom discussions usually resulted in a surface investigation of the image. It is possible that some teachers may be unclear about the distinction between the two questions, *What do you see?* and *What do you see that makes you say that?*

Teachers who did not seem to promote students' evidential reasoning skills tended not to ask students to back up their observations by asking additional questions such as, What do your see that makes you say that? They either did not react to students' interpretations or gave sparse responses to them. They also rarely engaged one student in an extended dialogue. Once a student provided an interpretation, the teacher would call on a different student to provide another interpretation. These teachers didn't seem to understand that an effective way of grounding students' interpretations is to ask *What do you see that makes you say that?*

Some teachers did not encourage students to provide multiple interpretations, and in some cases, discouraged students from making any type of interpretation at all. Some of the teachers we spoke with felt uncomfortable with the subjective nature of interpreting an artwork. Often these were the teachers who read the blurbs as a means of providing the "right" interpretation. This use of information often discredited students' interpretations that were not mentioned in the text, and served to end the discussion.

CHAPTER 4

STUDENT INTERVIEWS

Overview

Chapter 3 analyzed the VTC from the perspective of an outsider – the researcher-observer. The classroom observations made it clear that, by and large, students enjoyed VTC discussions and found them engaging and challenging. But what do students themselves have to say about the program?

To explore this question, student interviews were conducted in May/June of 1999. Each class was interviewed as a group by a Project Zero researcher at the end of a VTC lesson. These interviews were recorded and transcribed. The following questions were asked:

- What do you like about looking at pictures and talking about them?
- What is hard about looking and talking about pictures?
- What would you like to do more of?
- What advice would you give to other students who were going to use this program?
- Where else in your lives, inside or outside of school, could you use the VTC questions?

This Chapter discusses students' responses to all of these questions except the last one, which is discussed in the upcoming Chapter on the transferability of the VTC.

Students' responses to the first four interview questions can be roughly divided into six areas:

- Awareness of Subjectivity : Promoting Multiple Interpretations
- Creating a Culture of Listening
- Making Careful Observations
- Think for Yourself!
- The Use of Information
- What Students Would Like More Of

AWARENESS OF SUBJECTIVITY: PROMOTING MULTIPLE INTERPRETATIONS

Perhaps not surprisingly, many of students' ideas fall into areas of analysis that are similar to those used to interpret the data from the classroom observation. One of these areas concerns the subjective nature of interpretation. When asked *What do you like about looking and talking about pictures?* Students responded:

> *You get to see how other people look at pictures and see how they look at them differently.*
>
> *There's no right or wrong.*
>
> *One picture can have many different meanings.*
>
> *I like to describe it. It's fun because there are all different ways to describe it.*
>
> *It could be a lot of things. You have to think about what it could be.*
>
> *There's not one definite thing, there's people's opinions.*

Students appear to be open to hearing multiple interpretations of paintings from their classmates, and keenly aware of the subjectivity of art itself. They also seem to perceive that hearing others' perceptions play a role in developing their own.

CREATING A CULTURE OF LISTENING

In order for students to learn from others' perceptions, they need, first, to listen to them. When asked *What do you like about looking and talking about pictures?* students responded:

> *Telling your own opinion. You can say whatever you like and no one gets mad.*
>
> *I agree with G. When you look at art there is not really a right or wrong answer when you look at it. If you can look at art and tell what you see in it then you can't be wrong.*
>
> *There's a lot to talk about in the pictures.*
>
> *Finding out what other people are thinking about pictures, sometimes you think some one likes it, but they don't when you hear what they have to say.*
>
> *We got to know what other people thought about the paintings.*

These responses suggest that many students appear to be genuinely interested in what their classmates have to say. Like the responses quoted earlier, these responses also indicate that students tend to feel free to speak openly about works of art in VTC discussions.

MAKING CAREFUL OBSERVATIONS

Another aspect of the VTC that appears to stand out to students is how it challenges them to look closely at works of art. When asked *What do you like about looking and talking about pictures?* students responded:

> *Sometimes you find a hidden part. Like the Red Studio, we found paint brushes.*
>
> *Some pictures are funny and you have to get into them.*
>
> *I like looking at the pictures because they are colorful.*
>
> *It makes you recognize details because you need to look for stuff in the painting to see what it's about. You can't just look at it, it has a lot of meanings. It could be a lot of things, you have to think about what it could be.*
>
> *It makes you see more detail and in the future when you look at pictures you are going to know more because you have done it in 5th grade.*
>
> *Sometimes you have to observe and you don't know what it is.*

Careful observation can be challenging and even difficult, especially when looking at a small image in a large classroom. In students' own words:

> *It's small and it's far away and you can't really see it so good.*
>
> *Sometimes when you look at the picture it's all jumbled up.*
>
> *Sometimes it's hard because there is so much going on in the picture.*

These responses suggest that many students were quite interested in observing works of art closely and describing them in detail. When asked if they enjoyed this aspect of the curriculum, many of the students seemed pleased with the slides they looked at and recalled paintings from previous classroom discussions or museum visits.

THINK FOR YOURSELF!

Many students seem to appreciate that the VTC is about constructing one's own interpretations rather than receiving them from an authority. For example, when asked *What advice would you give to new students using this program?* some students responded:

I wouldn't tell them anything cause then they'd get carried away. I want them to discover it themselves

Advise that any answer is right.

Don't be afraid to see things other people don't see.

Don't say the same thing as someone else.

THE USE OF INFORMATION

Relatedly, some students seem to understand that having information given to them about works of art can block thinking about them for oneself. In students' own words:

If you give people information about the picture then the other kids won't have a chance to describe it.

I agree if you don't tell them anything and they see for themselves I think its better.

WHAT STUDENTS WOULD LIKE MORE OF

When asked *What would you like to do more of?* students responded:

Go to the museum more.

Talk more about the pictures.

More expressing opinion, less summarizing.

It's cool seeing the real picture.

SUMMARY

In sum, students' comments indicate that they seem to enjoy the VTC curriculum. They recognize its challenges, but don't tend to perceive the challenges as obstacles. Students seem to especially enjoy the opportunity to develop and express their own opinions, and they seem to genuinely value hearing the opinions of others. They also appear to enjoy the opportunity to observe works of art carefully and talk about them at length.

CHAPTER 5

THE TRANSFERABILITY OF THE VTC

Conceptual Background

Does the VTC methodology transfer to other areas of students' lives, inside or outside school? This may be the essential question, but before taking it up, it is worth saying a few words about transfer in general.

Transfer is the great unspoken ideal at the center of education, arts education or otherwise. Almost everything that is taught in school is taught because of someone's belief that it will transfer in meaningful ways to other areas of students' lives. Yet, despite this fundamental assumption, transfer is mostly taken for granted: very little attention is given to explicitly *teaching* for transfer. For example, we assume that when we teach children scientific principles or mathematical operations, it will be obvious to them where to transfer this knowledge. But the fact that we, as adult educators, perceive the relevance of such knowledge to other areas doesn't guarantee that the transfer will occur to students. And indeed, research repeatedly shows that very often it doesn't.

The message about transfer from educational and psychological research is straightforward: If you want students to transfer skills or knowledge learned in one context to other contexts, the best way to do it is to *teach* for transfer directly[7]. For example, if you want students to transfer the use of mathematical operations out of math class and into everyday contexts, then explicitly teach them to look for everyday contexts in which to apply their knowledge. This may sound obvious, but instruction that does this is usually the exception rather than the rule.

To a large degree, this is a problem of curriculum and policy, not the fault of classroom teachers. For example, consider standardized tests in science or history. Typically, they test for content knowledge in the subject matter; but they don't test to see whether, for example, students are able to think scientifically in a history context or whether history helps them do better in science.

So it is particularly ironic that the current national debate about the value of arts education hinges, in large part, on whether learning in the arts transfers to academic achievement in other areas. The arts are being asked for a level of justification that is rarely asked for in other disciplines. Moreover, even if the potential for transfer in the arts exists, the arts are no different than other subject matters: They aren't likely to live up to their transfer potential until curricula are designed to explicitly teach for transfer. We

[7] Salomon, G., & Perkins, D. (1989). Rocky roads to transfer: Rethinking mechanisms of a neglected phenomenon. *Educational Psychologist, 24* (2), 113-142.

would like to insert an editorial remark here. We are not arguing that it is wrong to investigate the transferability of arts education. In fact, we think it is extremely important. But we believe that education in all disciplines would benefit by an emphasis on transfer, and that arts education shouldn't be required to demonstrate transfer any more or any less than any other discipline. In this respect, we agree with certain colleagues at Harvard Project Zero who argue that requiring the arts to justify their presence in schools solely on the basis of whether they are instrumental in academic achievement puts arts education seriously at risk.[8]

The above remarks are intended to put the question of its transferability of the VTC in a larger context, and to warn against expecting too much. Like many other curricula in the arts and elsewhere, the version of the VTC investigated in this study does not provide much instructional support around transfer, although it verbally encourages it. For instance, there are no lessons that explicitly tell teachers how to transfer the VTC methodology to other subjects they teach. From a research perspective, it doesn't make sense to put a lot of resources into measuring whether a program does something that it hasn't been designed to do. Nonetheless, in our view, the VTC does have a high potential for transfer. It is possible to learn something about the nature of this potential by piecing together data from several sources in this study, as this Chapter tries to do.

Data Sources and Findings

There are three sources of data in this study that are relevant to the question of transfer. One source, of course, is the Footprints Activity. The findings here tell us a little bit about what sorts of skill students are likely to transfer to a science task. Another source is teacher interviews and questionnaires. These tell us something about teachers' perceptions about the transferability of the VTC. The third source is interviews and written responses from students. These tell us something students' perception of the transferability of the VTC as well. The findings in each of these areas are reported below. First, each area is discussed individually. Then, the summary at the end of the Chapter tries to weave them together. We begin by reviewing the finding from the Footprints Activity.

FOOTPRINTS ACTIVITY

The purpose of the Footprints Activity was to explore whether any of the gains from the VTC measured in the Art Activity transferred to a non-art, science-based activity. The findings were reported in full in Chapter 2. Briefly summarized, they are:

[8] This view has been expressed in the Reviewing Education and the Arts Project (REAP): Principal Investigator, Ellen Winner.

- On average, VTC students show a greater tendency to use evidential reasoning on the Footprints Activity than control students.

- On average, VTC students also show less of a tendency to use circular reasoning on the Footprints Activity than control students.

- On average, VTC students tend to show a greater awareness of the subjective, or conditional, nature of interpretation regarding the Footprints Activity than non-VTC students.

These findings suggest that some of the skills students develop in the context of the VTC transfer to a non-art, science-oriented activity. The findings only concerns the transfer of these skills immediately after using the VTC questions on an art image. We know nothing about the robustness of this gain over time.

TEACHER QUESTIONNAIRES AND INTERVIEWS

Teachers' perception of the transferability of the VTC was probed by straightforwardly asking them questions about transfer. This was done in two ways; through a questionnaire and through interviews.

The Questionnaire

Prior to beginning the VTC program, teachers filled out a questionnaire (Appendix D). One question asked whether teachers anticipated making connections between the VTC and other areas of the curriculum. Of the 10 teachers polled, 8 said they anticipated making several connections, including connections to math, literacy, writing skills, and social studies.

Teacher Interviews

Teachers were interviewed at various times throughout the year. These interviews tended to be brief, and were usually wedged into a lunch hour or planning time. All teachers were interviewed once, several were interviewed two or three times.

Early in the year, the interviews confirmed that teachers still had the same expectations they expressed on the questionnaire. By mid-year, none of the teachers felt they were making the connections they had anticipated. Teachers did not appear to have a clear idea of how to transfer the VTC methodology to other subjects they taught, and many felt that the curriculum did not provide them with the kind of instructional support they had hoped for. Specifically, teachers did not appear to have a clear conception of the kinds of skills the VTC methodology was supposed to teach students and how those skills connected to

other subject matters. The transfers of the methodology they did make were of the "near transfer" type. For example, teachers occasionally used the VTC questions with their students to discuss a picture from a storybook. Teacher interviews at the end of the year revealed a continued frustration about the lack of instructional guidance concerning transfer.

STUDENT WRITTEN RESPONSES AND INTERVIEWS

As with teachers, students' perception of the transferability of the VTC questions was also probed by straightforwardly asking them questions about it. This was done in two ways. (1) A Project Zero researcher conducted a class interview immediately following a classroom observation. This was done one time each, in seven different classrooms (these interviews were discussed in the Chapter 4). (2) For the experimental group only, a transfer question was attached to the posttest version of Performance Assessment. The question states:

> *In class this year you learned how to look at pictures and ask the questions, What's going on in this picture? and What do you see that makes you say that? Do you ever use these questions when you are looking at other things, inside or outside of school? When and why?*

Interestingly, students had a lot to say. Also interestingly, they tended to say much more in writing than they did in the verbal interviews, although the general trend of their comments was similar in both contexts. The following discussion draws primarily on data from the written questions.

Findings and Sample Responses

The most striking finding is that the large majority of students quite readily see the relevance of VTC questions to other things they do at school and elsewhere in their lives. For example, on the written question, 87% of the students mention some sort of connection between the VTC and other contexts. This does not mean that they actually do transfer the VTC methodology to the contexts they mention. Nor does it mean that the connections they mention are good connections (although many of them are). But it is notable that, from a conceptual standpoint, it is quite easy for them to imagine transferring the VTC methodology.

Some of the connections students make are easily predicted, such as a connection to visual images in other contexts (made by 44% of the students). For example, many students said that they use the VTC questions when looking at pictures in a book, at photographs, at other students' artwork, at billboards, graffiti, and so on. What is interesting is that quite often students emphasize the cognitive value of the VTC

questions by indicating that the questions help them do things like figure out meaning, explain things, find information, solve problems, or just generally increase understanding (44% of the students explicitly mention cognitive processes such as these). Here are some examples of responses that make a connection to looking at pictures and also have a cognitive slant.

- *Sometimes you find pictures on the wall and you ask yourself these questions to figure it out.*

- *I sometimes use these questions when I'm in school [on] the wall that has paper with drawings and writing. I use it in the yard and [on] the big wall that has drawing and writings. I use them because I want to know them.*

- *[I use these questions] when I'm outside I go to the movies and ask myself what's going on.*

- *The comics in the newspaper that doesn't have words. You must use these questions to figure out what they mean.*

- *When I am outside and I look at certain things that catch my eye. Some of them are easy to figure out and some are pretty hard to understand by some of the shapes or how they are drawn.*

- *[I use these questions] when I am in school because kids do different art projects and sometimes I stop and look and try to see what they're trying to explain.*

- *I think these questions when my class and I are looking at our reading books pictures to see what might happen in the story that we will read. I also think of these questions when [I] go to museums.*

- *Sometimes I use these questions inside and outside of school like inside of school I see pictures on the wall and I ask myself what is it or what are they doing in the picture. And outside of school I see pictures on people's windows cill and I ask myself what is it and what information is the picture giving me.*

- *Like if I am watching a show and I missed a part. By looking at the picture on the screen to find out what happen. Or if there is a billboard and I don't understand a slogan, by looking at the picture I might be able to understand.*

It is also noteworthy that many students connect the VTC questions to contexts that involve careful looking, but not necessarily looking at pictures. Like the foregoing

examples, the following examples emphasize students' perception of the cognitive value of the questions, particularly their value for noticing details and figuring out meaning.

- *[I ask these questions when] I'm playing basketball. Why I do it? I do it to keep my eyes on the ball.*

- *Sometimes I do that [ask VTC questions] when I don't know what is going on. Say a fight is going to start. Two people are arguing and there's a big crowd of people around. I must recognize that it's a fight.*

- *There are other times were I have to look at something and figure out what is going on and figure the answer for example when the teacher is doing a math problem.*

- *Inside science I think [the VTC questions] because you need to know what is it. What is [it] going to do—anything could happen.*

- *[You can use the VTC questions when you are] reading a book that's based on history because you're trying to find out what the picture is or what it looks like or how the picture looks*

- *Looking at pictures sometimes mean describing it. When I go outside sometimes there are disabled people and I describe in my head what is wrong with them and what they are going through.*

Some students report that they connect the VTC questions to non-visual situations, even though the written question specifically asked about visual connections. For example:

- *When I think or use these words is when something you don't know about is going on and you are trying to find out so you can help.*

- *[I use these questions because] sometimes you just have to look and read stuff with careful understanding.*

- *I ask these questions because it's good to discuss things with other kids to feel what they feel and after that I would say what I feel and answer the questions*

The foregoing examples in all three areas suggest that students have no difficulty seeing the relevance of the VTC questions to other learning contexts, both inside and outside of

school. Again, this does not mean that they in fact do use the VTC questions effectively in the contexts they mention, although they might. But at the very least it means that it is

relatively easy for them to imagine doing so. A striking thing about many of the connections students envision is their cognitive feel: students seem to view the VTC questions as being useful for solving problems (*figuring it out*) and acquiring understanding (trying to *see what they're trying to explain*).

SUMMARY

Weaving together the findings from the Footprints Activity, teachers' comments in interviews, and the findings from the student responses just reported, the following story begins to emerge.

In terms of teachers, we see that teachers begin the VTC program with an expectation that they will make connections between the VTC and other areas of their curriculum. This expectation appears to fade fairly quickly and gradually turns into frustration. Teachers note that the current VTC curriculum provides almost no guidance in transferring the VTC questions to other curricular areas. Teachers report that they occasionally ask students the VTC questions when looking at art images outside the context of the VTC, such as pictures in a storybook. But there is very little transfer beyond this. Most teachers have expressed a desire for more instructional guidance around transfer.

In terms of students, the findings from the Footprints Activity show that students' evidential reasoning skills developed in the context of the VTC do transfer to a visual, science-based context. Beyond the near transfer of the Footprints Activity, students are easily able to envision many other learning contexts, both inside and outside of school, in which the VTC methodology might be useful. Many of these connections emphasize the cognitive dimension of the VTC methodology, i.e., its usefulness in figuring out the meaning of things, in observing things closely, and sharpening thinking in general. The fact that students are able to envision such connects doesn't mean that they make them. Indeed, without any additional instructional support, it would be surprising if they did. Nonetheless, the ease with which they can imagine the relevance of the VTC questions to contexts beyond looking at art suggests that there is a foundation on which transfer can be built.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

This report concludes a year of intensive study of the VTC. Using both quantitative and qualitative research methods, the aim of the study was to provide a picture of the VTC that captured broad statistical trends as well specific museum-based and classroom practices. Our hope was that the findings from the study would help MoMA identify some of the specific benefits that the VTC currently provides to students, and, more importantly, that the findings would contribute to a better understanding of the benefits the VTC is potentially capable of providing. Much has been learned, and many changes to the VTC are already under way. This chapter summarizes the major findings of the study, identifies broad themes across several findings, and makes recommendations for the future.

SUMMARY OF MAJOR FINDINGS

Here is a list of the major findings of note. All of these areas have been discussed in more detail in the foregoing chapters.

- The VTC tends to contribute to a modest but significant increase in students' evidential reasoning skills when they are interpreting the meaning of a work of art. These skills also appear to transfer to interpreting the meaning of a non-art image in the domain of science.

- The VTC tends to contribute to a modest but significant increase in students' awareness of the subjective, or conditional, nature of interpretation. Like the gains in evidential reasoning, this awareness appears to transfer to interpreting the meaning of a non-art image in the domain of science.

- The gains that students receive as a result of the VTC do not appear limited to students of high ability or low ability.

- The level of teachers' understanding of the VTC methodology appears to have a strong influence on the degree to which students benefit from the curriculum.

- Teachers who seem to have a good understanding of the VTC methodology tend to ask both of the core questions and seem to realize that there is an implicit and important connection between them.

- Strong teachers tend to push individual students to make detailed observations and justify their interpretations. At the same time, they encourage a culture of conversation in the class by soliciting comments from many students and encouraging students to respond to one another directly.

- Teachers who do not seem to have such a good understanding of the VTC methodology tend to over-emphasize the question, *What do you see?* and tend not to encourage students to form interpretations or to cite evidence for their interpretations.

- Students tend to experience the VTC as challenging and engaging, and they appear to intuitively understand what the VTC questions are getting at. In particular, students seem to understand that the VTC methodology has cognitive value in *figuring things out* and understanding meaning.

- Students find it easy to imagine using the VTC questions in lots of contexts, inside and outside of school, and in fact report that they do so. Almost all of the connections they mention seem appropriate.

BROAD THEMES OF NOTE

In addition to these findings, we would like to draw attention to some broad themes that cross specific findings.

Robustness of the Core VTC Questions

The fact that the gains in the Footprint Activity are roughly parallel to the gains in the Art Activity suggests that the skills students develop as a result of the VTC are, in a sense, a natural cluster. Although we repeatedly warn that the findings say nothing about the robustness of transfer over time, it is notable that the areas in which there are gains are similar in the two activities. It is possible to view this as evidence of the cross-domain power of the core VTC methodology. It appears to teach an integrated set of skills that cohere naturally in the minds of students. One way of thinking about this is to view the VTC methodology as addressing a naturalistic learning challenge, i.e. one that students intuitively recognize as occurring naturally in lots of different contexts. Further evidence for this can be found in the student interviews. Recall the cognitive slant of the transfers students mentioned. According to them, the VTC methodology can be used in other areas to help you *figure things out, explain things*, *get information*, and *understand things*. These comments suggest that students see the VTC questions as addressing thinking and learning challenges that commonly occur in their lives.

The Potential for Transfer

Throughout this area of the report we have urged caution in drawing conclusions about transfer. Having expressed such caution, we also want to report that we believe that the VTC methodology has the potential to transfer quite powerfully to other areas of the curriculum as well as to students' lives outside of school, so long as appropriate support is provided to teachers in teaching for transfer. It is very striking that students quite readily see the applicability of the VTC questions to all sorts of situations. Indeed, it is possible to read their comments about where they use the VTC questions (reported in Chapter 5) as evidence that they do transfer the methodology. But, as compelling as students' comments are, it is equally striking that teachers find it quite difficult to envision how the VTC can transfer to other areas of their curriculum, although initially it was one of their expectations of the program. The issue of transfer is one that deserves special attention when thinking about revisions to the VTC.

Benefits for All Children

The VTC has the potential to appeal to, and benefit, children with varying levels of ability. This is seen in the fact that all but one of the VTC classrooms showed at least modest gains in several areas. This is a very real strength and one that is not all that common in many educational programs.

Enabling Teachers to Use the VTC Effectively

Although it seems that most students are likely to benefit somewhat from the VTC, the degree to which students benefit is strongly influenced by the classroom teacher. This influence, or "teacher effect," is more than just a matter of differing teacher personalities. Some teachers have a much better grasp on the goals and purpose of the VTC than do others. The classroom observations show this, and the findings from the Performance Assessment suggest it as well.

An implication of this is that the revisions to the VTC should make a special effort to include clear and concrete help for teachers in acquiring the skills and understandings they need in order to use the curriculum effectively. Sometimes this may take the form of simply giving teachers written information (as the current VTC does). But it is important to remember that, as learners, teachers share the same characteristics with learners everywhere. In addition to learning from written information, they need supportive hands-on practice, exemplary models of VTC practices that they can emulate, informative feedback, and so on. It is possible to provide much of this in a written curriculum, so long as the authors of the curriculum are creative. We recommend that the new VTC seek innovative ways to help teachers develop the skills and understandings central to the VTC. We are aware that some of this is already being planned. For

example, an instructional video for teachers is being planned to accompany the new VTC that will model effective teaching practices and help teachers and others understand some of the theory behind the VTC methodology. This will be very useful. We recommend that, in addition to the video, attention to modeling effective practices and building teachers' theoretical understanding of the goals of the VTC be featured in the written curriculum itself.

Based on the findings reported in this document, other areas in which teachers appear to need more support include:

- Understanding the purpose and rationale of the VTC questions, especially the way in which they invite the development of thoughtful interpretations grounded in perceptual evidence

- Understanding the cognitive and social goals of the VTC. In particular, understanding the thinking skills it aims to cultivate and the conversational culture it aims to encourage in classroom discussions

- Recognizing and assessing the strengths and weaknesses in students' use of the VTC, and knowing how to provide students with useful feedback

- Transferring the VTC methodology to other areas of the curriculum

- Understanding the purpose of providing students with information about artworks and using the information wisely

- Developing group discussion techniques to deepen students' thinking

RECOMMENDED NEXT STEPS

We recommend continuing with the revision efforts in the same vein as the School Program's staff has been proceeding. Revising the VTC requires a substantial amount of work. We recommend capitalizing on the momentum and energy that already exists in the Education Department. For example, when possible, make the writing of the curriculum central to staff's duties instead of "add-on" responsibilities.

We hope that the authors of the new VTC will take the findings reported in this document into account when making revisions. In particular, we urge that care is taken that the written curriculum addresses the areas of teacher support listed in the foregoing section. We are gratified that this seems to be the direction in which the program is going.

We endorse the plans to develop a video for teachers (and possibly students) to accompany the revised VTC.

We strongly urge developing a plan for pilot testing new VTC lessons carefully. For example, we urge the staff to observe teachers using the new lessons, to seek and analyze feedback from teachers and students about their experiences with the new lessons, and to plan on revising lessons after they are pilot tested.

FINAL WORDS

As the parent institution of the VTC, MoMA is in a fortunate position. In its current form, the VTC already demonstrated some significant strengths, as the research reported in this document attests. Its noted shortcomings can be addressed by drawing on the expertise and experience that already exists among the School Programs staff, and by attending to the results of the research just completed: what is now an adequate curriculum stands a chance of becoming a truly great curriculum. We applaud the energy and expertise MoMA has committed to the VTC revision efforts.

Appendix A
Research Activities

PROJECT ZERO ACTIVITIES
October, 1998 —November, 1999

Over the past 13 months Project Zero researchers have engaged in are 4 areas of activities: 1) Data collection, 2) Data analysis, 3) Development and analysis of materials, and 4) Collaborative activities.

I. Data Collection

- Observed 2 teacher training workshops
- Observed 4 mentor lessons
- Observed 1 museum visit by teacher from previous year
- Developed and administered Teacher Questionnaires and Student Questionnaires
- Developed and administered Student Performance Assessment (Art Activity) to experimental group
- Observed VTC classes in 4 schools: 8 in the fall, 10 in the spring
- Interviewed 9 teachers, and 1 arts coordinator
- Met twice with "pilot" teachers about their experience with new VTC pilot materials
- Collected samples of student work related to pilot VTC materials
- Developed and administered Student Performance Assessment (Art Activity and Footprints Activity) for post experimental and control groups
- Developed and administered Teacher Questionnaires and Student Questionnaires for control group
- Interviewed experimental group students and teachers, December 1998 and May/June 1999

II. Data Analysis

Reviewed, coded and analyzed data from:

- MoMA staff interviews
- Teacher Questionnaires: control and experimental group
- Student Questionnaires: control and experimental group
- Student Performance Assessment (Art Activity): pre/post experimental and control groups
- Student Performance Assessment (Footprints Activity): post experimental and control groups
- Classroom observations and interviews: experimental group

III. Development and Analysis of Materials

- Pilot testing of supplementary VTC materials
- Analysis of the VTC text, drawing on learning theory and teacher feedback
- Developed coding categories for Student Performance Assessment (Art Activity and Footprints Activity)
- Quantitative analysis of Student Performance Assessment (Art Activity and Footprints Activity)
- Qualitative analysis of student and teacher interviews and classroom observations

IV. Collaborative Activities

- Consulted with Project Zero researchers with experience in arts education and arts evaluation about the direction of the work
- Met with MoMA Education Department on a continuous basis to review and provide updates of findings, establish new directions and explore implications for ongoing work
- Presented preliminary research findings with MoMA Education Department at Learning in Museums Seminar, American Association of Museums, Bozeman Montana, September 25-27, 1999.
- Revision of VTC

Appendix B
Student Performance Assessment

Art Activity

Image 1: Ben Shahn, *Liberation*

Image 2: Jen Dubuffet, *Wall with Inscriptions*

Non-Art Activity

Image 3: *Footprints from the Past*

Appendix C
List of New York City Public Schools

List of New York City Public Schools

Experimental Schools

PS 133 2121 5th Ave. (130th St.) New York, NY 10037	2 classes (4th grade)
PS 144 134 West 122 St. (Lenox Ave.) New York, NY	2 classes (4th grade)
PS 75 735 West End Ave.(96th St.) New York, NY 10025	2 classes (5th grade)
PS 103 4125 Carpenter Ave. Bronx, NY 10466	4 classes (2 4th grade/ 2 5th grade)

Control Schools

PS 103 4125 Carpenter Ave. Bronx, NY 10466	8 classes (5 4th grade/ 3 5th grade)
PS 84 M 32 W. 92nd Street New York, NY 10025	1 class (5th grade)

Appendix D
Student and Teacher Questionnaires