

Visual Art and Student-Centered Discussions

by Philip Yenawine

originally published in *Theory into Practice*, Autumn 1998

Mark: It looks like, if she was alive, she's from a bad part of town because I think that thing on her arm is a weapon, protecting herself.

Philip Yenawine: So you are looking at this, which someone else called a bracelet, and thinking that it might be a weapon, or protector?

Kaneesha: It looks like she's a queen of Africa, and that's her son.

Philip: Kaneesha is also mentioning Africa, and thinks this might be a queen with a baby boy.

Tim: In Africa they used to be naked and didn't think it was offensive.

Philip: So Tim is saying that in Africa it used to be different from here, and that it is not considered inappropriate to be naked.

Andy: I don't think it's a weapon, it's a splint.

Philip: OK, so Andy has us looking at the this arm band again, and he says that he thinks it's a splint.

Monique: Not just in past, there are still people who don't wear clothing.

The conversation above took place in a fifth grade class I was guest teaching in Urbana Illinois. These comments represent a fragment of a twenty minute discussion of a slide of an African carved mother and child. It was disjointed but rich with evidence of fifth graders' ways of thinking about something from a different culture. There was nervousness, stereotypical thinking, visual analysis, expansive observation, agreement/disagreement about the identity or purpose of a myriad of details, jokes, deeply reflective associations and recollections, and by the time we were done, enough thoughtful consideration for me to feel that the students had both been allowed to be themselves and thorough in their exchange of ideas and information concerning the work. To me, this is the definition of a liberatory educational experience.

In this article, I shall provide short arguments for what I see as liberating factors:

- student-centered, stage-appropriate teaching that helps foster the individuality of young people, motivates their learning, and maximizes their potential for growth;
- open-ended, facilitated discussion that can encourage individual expression, productive group interactions and the development of appreciation for diversity; and
- art as a subject that is tailor-made to increase flexible, reflective thinking, and appreciation of multiple possibilities.

I will also describe a specific teaching program—the Visual Thinking Strategies (VTS)—designed by cognitive psychologist Abigail Housen and me to address all of these. The VTS focuses on structured but open group discussions about diverse art objects. It has two congruent purposes, the first of which is to help beginning viewers develop a rapport with art and increase their aesthetic understanding—a broad and deep amalgam of intellect and emotions. The second is to expand participants’ ability to solve problems cooperatively. Watching students participate in VTS discussions, one sees an exciting process of discovery that sticks with students as both an experience and a strategy, and interactions among diverse beings that stress individuality as an essential ingredient in group productivity.

Student-centered practice and aesthetic stage theory

In order for student-centered curricula to be designed, it is more than helpful to know the natural arc of development regarding a particular area or discipline. What do learners naturally do at various points along the pathway of their learning? What abilities can we support at any moment, and what concerns should we address? What are appropriate challenges? How do we as teachers recognize and assess accomplishment? After certain achievement, what comes next; how do we help her/him keep moving?

The VTS curriculum has been developed based on a body of data that answers these questions. Abigail Housen’s research (1983, 1987, 1992) supplies a tested and detailed model for aesthetic development. What follows is a short summary of her method and findings with regard to aesthetic thinking, and how together we used her theory to inform the creation of the VTS.

Housen began in the mid-1970s to try to understand how varying degrees of experience viewing works of art affected people’s meaning-making strategies. Her search for understanding of what she came to call aesthetic development was based on the work of

James Mark Baldwin (1975), Rudolf Arnheim (1969, 1972), Jane Loevenger (1976) and Jerome Bruner (1973). Like Piaget (1926, 1951) and Vygotsky (1962, 1978) she looked for patterns and order in behaviors she could observe in the world. All of her interpretations emerged from her observations.

Housen spent most of the 1970s and 80s developing a reliable method of studying people's aesthetic thought through their speech, a method that allowed her subjects to speak freely, candidly, naturally and minimizing any influence from her presence. During that time, she listened to people of all backgrounds and ages as they looked at and talked about works of art. At the same time, she was evaluating programs that attempted to foster aesthetic growth, searching for all of the dimensions which nurture it. She compared her hypotheses to the work of other scholars who were interested in this same phenomenon—cognitive scientists, philosophers, and other kinds of theorists, such as those listed above.

Over the course of the years, Housen studied the voices of different viewers and identified five distinct patterns of thinking that correlate to the amount of exposure subjects have had to art. I shall mention only the first two here because of how they relate to the VTS (Housen et al 1997).

Stage I

Accountive viewers are storytellers. Using their senses, memories, and personal associations, they make concrete observations about the work of art which get woven into a narrative. Here, judgments are based on what is known and what is liked. Emotions color their comments, as viewers seem to enter the work of art and become part of the unfolding narrative.

Stage II

Constructive viewers set about building a framework for looking at works of art, using the most logical and accessible tools: their own perceptions, their knowledge of the natural world, and the values of their social, moral and conventional world. If the work does not look the way it is “supposed to”—if craft, skill, technique, hard work, utility, and function are not evident, or if the subjects seem inappropriate—then this viewer judges the work to be “weird,” lacking, and of no value. The viewer's sense of what is realistic is a standard often applied to determine

value. As emotions begin to go underground, this viewer begins to distance him or herself from the work of art.

One thing to note here is the richness of the thinking involved in both stages. In Stage I, it includes memories, associations, and stories stimulated by observations. Imagination and emotions come into play. Openness to what one finds, acceptance of the realness of what one sees are operative. Individuality is apparent. In Stage II, viewers focus differently, becoming more critical and searching. They want to become more objective in their responses and add the use of logic to the cognitive mix. Questioning and curiosity, comparing a new object or idea to known ones, and wanting to probe, to analyze, and to find out more all emerge, forcefully in fact. A desire to learn motivates the Stage II viewer.

Here is an example of how a very beginning viewer thinks (a fourth grader, though it could be an adult with little or no experience) as revealed in the non-directed interview format developed by Housen. Nothing has been omitted from the interview except for several prompts from the interviewer, such as “anything else?” The viewer is examining a still life by the artist Janet Fish, having chosen this image from among several.

Student One

Well, I see pretty things. Goldfish. I see pretty things. Goldfish made out of glass. Nice cloth. Flowers. Reflections. Goldfish. Um, leaves. A picture, a bowl, a plate, a platter. A flower vase. Nice colored cloth. Trees. And more flowers. And tree trunks. And violets. Um (pause). Glitter-type looking stuff. Raspberry looking things. And gravel at the bottom of the fish bowl. A goldfish and a butterfly. And nice colors. And that’s probably just about it.

A large array of things goes through the mind of this viewer, despite the interview’s brevity and limits. She quickly makes a kind of judgment, probably revealing her personal likes and dislikes: “I see pretty things”, “nice cloth”. While mostly taking inventory of things simply observed (“goldfish”, “flowers”), she also draws a few conclusions, associations with things known from elsewhere: “goldfish made out of glass”, “glitter-type looking stuff”. She reveals incipient awareness of the formal vocabulary of art: “and nice colors”, again qualifying the observation with an indication of preference.

Here is another fourth grader who thinks somewhat differently and is exemplary of the next viewer stage, though still a beginner. This viewer is examining a painting by Thomas Hart Benton of the ride of Paul Revere, represented as a small mounted figure riding through a rural landscape. The image was chosen from several options that included the still life chosen by Subject One. I have shortened the interview, removing comments that added nothing new in terms of the range of thoughts (I have indicated these by "..."), but it is otherwise unedited. The viewer spoke easily and at length, needing no prompting to produce a viable sampling of thoughts.

Student Two

I see that they have added a lot of trees. And that they have, have put, um, rivers and, and bridges. And there's like farm crops. And it looks like they're growing broccoli... And then in the way off distance, you can see a windmill. And you can see some barns in the distance... And the hills, are, they're round and green... There's, there's a tree standing by itself. They have added shadows to the trees. And there's another windmill. And there's a bunch of houses in the background. And um, the field is brown, brownish. And there's, it looks like that horse has a puppy following behind it. And the horse is white... And then there's something sticking out of the trees. It has a shadow, but I don't know what it is...

This individual, like Student One, makes many simple observations ("a lot of trees", "rivers", "bridges"), but is more detailed and descriptive ("farm crops", "water tower", "the field is brown"), associating what she sees with what s/he knows. She finds short narrative elements, animating the action: "it looks like they are growing broccoli", "that horse has a puppy following behind it". She builds on earlier comments: "and the horse is white", "there is another windmill". She is aware of the formal element of space: "in the way off distance". She hints at awareness of an artist/creator: "they have added shadows to the trees". She is able to question her/his perceptions: "I don't know what it is". (These notes, as well as those that follow, were formulated with the guidance of Karin DeSantis, principal research associate to Abigail Housen.)

We might first think about these observations in terms of what we can deduce about the subjects as individuals: Student One seems an inventory-taker with a sense of her/his preferences. Student Two seems quite confident, and while as thorough as Student One, s/he is perhaps not so methodical. Subject Two seems less egocentric in the sense of making it clear that s/he is aware of others, including the artist. Both are acting

independently and representing individual characteristics of their own personalities and styles.

Looking at these interviews another way, we see the path a viewer takes through Stage I. Both subjects make an inventory of observations, but while Student One adds little other than a sense of what pleases them, Student Two adds qualifying descriptors and tends to supply interpretation of the observations by way of narratives—people are growing things, puppies are following horses. Student Two acknowledges that the image is made by someone, but, like Student One, nonetheless sees the things depicted as if they were real and in front of them. Both recognize the world created within the image and enter willfully into it.

This concrete evidence of the thinking processes is useful in curriculum design in many ways, but there are two things that are particularly germane to this article: it tells us that viewers have many common traits and patterns, but also remain individual and idiosyncratic. Since teachers are consigned to working with groups, it is helpful to understand, be able to work with, and predict based on shared meaning-making strategies within groups. But to the degree that we want students to remain themselves, it is a comfort to see that aesthetic thinking is individualized at the same time as stage characteristics indicate collective behaviors.

Housen agreed to help construct a curriculum based on her theory, and quickly we saw that there were implications for both image selection and teaching strategy. For example, considering that it seems natural for beginners to take a visual inventory of the picture, we selected images that have a good deal of detail, and made sure that the imagery was recognizable so that viewers feel confident in their identifications. We chose a wide range of images to appeal to different tastes. Given the narrative instinct, we chose art rich with stories to make it comfortable for the inexperienced viewer to indulge in this behavior.

We sequenced art objects, reasoning in the same way that different books are selected to nurture different stages of reading. At any given moment, we want art that will puzzle viewers but not stump them. At first, the more they can recognize and identify correctly in an image, the more likely they are to ponder the aspects about which they are not sure. Later, as students gain confidence, ambiguity and mystery become less daunting and more interesting. Once they have successfully delved into a wide range of art, and

felt empowered by doing so, they are willing to consider what they do not know as a reasonable challenge.

While considering a strategy, we chose to activate their initial exploration with a question that legitimizes their inclination to find meaning through narrative. Since the most beginning viewer tends to list observations while those who are slightly more practiced are more descriptive of what they see, we structured the lessons around asking for expanded observations to encourage the predictable arc of growth. Since most beginning viewers tend to probe very little, we created a strategy that keeps them looking for an extended period, urging them to find more and more. And so forth.

Open-ended, facilitated discussion as a learning tool

Our research lab for field testing the VTS was the classroom, by definition a site of group instruction. At first it was simply a pragmatic necessity to deal with groups, but quickly we realized that it was an advantage. Lev Vygotsky's theories (1962, 1978) concerning the relationship between language and thought played a significant role in our thinking: they provide the rationale for our emphasis on discussion, something that had long been a focus of Housen as well.

The two tenets of Vygotsky that are most relevant are, first, his conclusion that all thinking is inextricably intertwined with language. According to him, in order for higher level thought processes to occur, learners need the opportunity to verbalize their thoughts. Secondly, Vygotsky observed that individuals were limited in development when solving problems independently, but that their potential is increased significantly when assisted by peers with greater capabilities.

In creating the VTS, we combined these tenets, and designed a strategy that uses discussion among peers as the central mechanism for growth: In VTS discussions, individuals of roughly equal (often very little) exposure to art bring their different life experiences, knowledge, talents, and interests to bear on solving a problem—the possible meanings of an unfamiliar work of art. Their exchange is structured so that thoughtful, reasonable consideration is given to each image. With repeated experience, our controlled testing has shown that significant aesthetic development occurs among participants, or trends toward growth even in cases where experiments have lasted only a few months (Housen, DeSantis, Duke 1997).ⁱ

We have therefore observed that structured interaction among peers, even in the absence of someone of greater capability, can produce growth in the realm of aesthetic cognition. Should follow up studies corroborate these findings, we may then have evidence that will enable us to expand on Vygotsky's original hypothesis. I have made an additional observation: when an "expert" —someone with greater knowledge—is present, discussion among peers seems generally truncated. A question, then, for future research is to see if inhibited discussion actually limits growth, as Vygotsky's logic indicates that it will.

Art as subject

To start any discussion, and to keep it going, there must be a topic that interests all participants and gives them a sense that they have something worthwhile to contribute. There are a number of properties of visual art that make it a good topic for discussion. The first is that it deals with subjects that have fascinated whole cultures; concerns and subjects often span cultures, and continue to intrigue over long periods. Moreover, art objects are concrete, stationary (so that you can study them over time) and contain obvious visual information; however, they are usually clear only up to a point. Beyond the obvious, their meanings are imprecise, ambiguous, open to interpretation, and often mysterious. They pull you in with visual appeal but perplex you once engaged. In addition, they are multi-layered and complex, and encountering them repeatedly does not always provide the same experience.

Because of these properties, art objects time and again prove fertile topics for thoughtful comment even among beginning viewers. Reflect back to the kinds of thinking represented in the interviews above: one can observe these novices functioning unaided, yet at productive levels, using many different kinds of operations. As they grow, their thinking becomes more complex and different operations are engaged. One can argue that aesthetic thinking is a paradigm for thinking generally, and that art as a topic produces excellent exercise for minds.

Visual Thinking Strategies

Finally, then, the details of the K-6 VTS curriculum:ⁱⁱ It consists of lessons taught by classroom teachers spread over the school year—nine in the classroom and, for grades three and above, one in a museum. Each lesson comes with a set of carefully-sequenced

images (usually three) from many different cultures and times, and in various mediums. Except for kindergarten and first grade where large reproductions are used, the images are presented in slide form to allow groups to focus on the image and discuss it.

Students are first asked to look at an image without talking. In order to encourage verbal participation, the teacher/facilitator then asks specific, open-ended questions (“What’s going on in this picture?” “What more can you find?”) which not only encourage the students to examine what they see but also to use their strengths as beginning viewers. Later more specific, probing and directed questions are added. From the start, students are also asked to back up interpretations with evidence; whenever they state an opinion, teachers ask them, “What do you see that makes you say that?”

If speaking out is one half of the participatory coin, then listening to others is the other half, and teachers demonstrate a very active listening process. They insure that every response is heard and acknowledged, by pointing to what is mentioned as a student talks, and then paraphrasing what s/he has said. As the discussion evolves, they draw links to various related answers, helping to make students aware of their converging and diverging views: “We seem to have several people who think such and such” or “We have several ideas about what might be happening.” This device fosters an environment in which listening, taking in a variety of observations and opinions, debating, adding, building are encouraged, and students develop skills at constructing shared, yet varied meanings together.

When questions occur, students are first asked if they can figure out the answer by looking. If unable, they then are asked where they might look to find the answer. Only as a last resort does the teacher give the answer, if in fact they know it—not often the case with classroom teachers who are not art specialists.

Discussions of any given image generally last from twelve to twenty minutes—long enough for students to look carefully, develop opinions, express them, consider multiple viewpoints, speculate together, argue, debate and/or build on each other’s ideas, and possibly revise their conclusions.

Here is an excerpt from a typical discussion among fifth gradersⁱⁱⁱ, facilitated according to the VTS strategy. The students are new to the curriculum; this is the third lesson the class has had, and the second picture discussed that day—and the text here represents about one-third of the entire discussion. The image being examined is a Japanese woodblock

print, The Great Wave by Katsushika Hokusai, 1823. The text is largely verbatim, edited only to shorten it slightly and to help it make sense without the context of the classroom and the image. I have used pseudonyms.

Philip Yenawine: All right, let's look at the next picture. Look very carefully before you start talking. Ah—your hands are in the air before you even looked. What's going on in this picture? Triona?

Triona: It looks like there's a storm and the wave, the wave and, um, they're like rowing in a boat and the boat's right there and the storm's gonna start and the waves are going up in the boat...

Philip: All right, good. Triona's seeing a boat that's in a wave, a big wave with a storm that's about to start. How do you know that's a wave?

Various: Eh, man.

Stewart: It's a tidal wave.

Triona: I know what a wave looks like.

Philip: 'Cause you know what one looks like. OK. Good. Darcy?

Darcy: It looks like in Free Willy 1 where he says that story about the killer whale...it doesn't look like...but it looks like the boat that broke in half...and he's falling in the water right now.

Philip: You're talking about the picture before?

Darcy: No. Free Willy.

Philip: Is this Free Willy?

Darcy: Yeah. It's the part where like he says the story about how the first whale came along and it's like old Indian folk tales...and it says like the man and he got shipwrecked or something... and dumped the water kind of whale in the boat...and in the end he'll um...

Philip: OK, good. Another story from a movie. What more can you find?

Mark: It looks like God created this storm to kill, to kill the enemy.

Philip: OK. What do you see that makes you think it was God who created this storm?

Mark: Because the blackened clouds.

Philip: OK. So God is striking from the darkened sky. OK. Jessie?

Jessie: It looks like, in those boats right there, it looks like there's people in them and it looks like they're having a war or something.

Philip: OK, and what makes you say that?

Jessie: I don't know.

PY: OK, so Jessie sees people in the boats and he thinks maybe they're having a war but he's not exactly sure why he thinks that.

Lindsey: I think maybe that the boat in the background, and the one up here, the people set off from the island back here, and maybe they're going to catch fish or something for a, like, a big feast. And then there's a big storm, they all got washed over...

Philip: OK, Lindsey thinks these are fishing boats that have set out from that island to catch fish for a big feast and they've gotten caught in a storm. OK. Eddy?

Eddy: Those things look like canoes. Maybe Indians were, um, maybe traveling over the ocean. It looks like a killer whale's fins right there that's coming up out of the water.

Philip: Where's that?

Eddy: Like the big wave—it kinda looks like a killer whale's fin.

Philip: All right. I don't see where that is quite...

Eddy: Up to the right. No, not right there. That big one. That one: It looks like the fin of a blue whale, of a killer whale and it's coming up, jump up underneath there.

Philip: All right, so that this shape isn't a wave but the shape of a fin of a killer whale that is leaping up. Jessica?

Jessica: I have a question. What's that thing over there in the corner?

Philip: OK. Jessica wonders what this is. Is that what you mean? Any ideas?

Various: Chinese writing. Japanese writing.

Philip: And Sherilyn thinks Chinese writing. What do you see that makes you think China?

Sherilyn: The way it looks.

PY: Just the way it looks.

Sherilyn: 'Cause Chinese people write that way.

PY: OK. Stewart, and then Jonathan.

Stewart: I think that it is two boats, right? That one right there is one whole boat where the wave is coming up and it looks like a Viking boat 'cause Vikings have those long boats? And maybe they're like going out to fish and their driver got drunk and got into all the waves....

Philip: OK, so it's sort of a mistake in driving, a bad judgment on the part of the... We've heard canoes and then Viking boars for these shapes. OK. Jonathan and then Lisa.

Jonathan: Well, I was thinking it's like a Japanese race because there's two boats and they didn't know a hurricane was gonna start and now they're trying to turn to get to that little mountain over there.

Philip: OK, so he's, so you're thinking about the writing when you say Japan? so these are Japanese boats having a race and they didn't know a storm was coming and now they want to turn back and get to land. OK, Lisa.

Lisa: I think that they were shipwrecked into Antarctica so all this is just snow and ice.

Philip: Aha. What do you see that makes you say that?

Lisa: Because it looks like snow.

Philip: So it looks like snow coming down so it's a very cold place like Antarctica. Triona?

Triona: You know when Mark said that God probably strikes enemies down? I don't think that God strikes enemies down because God loves everybody.

Philip: Ah, so it's not God sort of striking enemies down because God loves everyone and would never do that, says Triona, responding to that earlier remark. Andrew?

Andrew: Maybe it is a race, and it's like worth a lot of money. That other boat's starting to go back and that one boat that's ahead, facing the big wave, wants to go all the way.

Philip: So Andrew is sort of saying that this guy is really sort of determined to win a race for a big prize. So he agrees with Jonathan's point that it might be a race. OK, Mark?

Mark: I have two. First, I have to disagree with Triona because in the Bible, God has struck down a few people. And also I have to disagree with Lisa. That's the white caps of the ocean.

Lisa: Yeah, I know. I've seen them but it still looks...

Mark: It can't be. That's not freezing water.

Philip: OK, Mark says that it's possible that God did strike some people down—he remembers that from the Bible—so he's not so sure that he agrees with Triona. But he also thinks that this is just a white cap from a wave, not cold, but Lisa says she's seen waves too but she thinks it can be so cold it's freezing, maybe 'cause of the snow?....

The discussion starts out with a description of some of the obvious features to be seen in the image—waves and boats. The teacher either repeats or paraphrases what has been pointed out. An association is then made by a student who is reminded of a movie, and the

teacher asks for clarification at one point. One interpretation—that somehow the storm depicts the wrath of God—is returned to twice as one student objects, based on her own knowledge of the Bible, and the original student later defends his first statement. More stories are tossed out: a war, a fishing party, and a race, and there are various thoughts on why the boats are out in the storm. The teacher accepts them all as possibilities. Some observations seem idiosyncratic: interpreting the wave as the fin of a whale, and while this is accepted by the teacher, the thought seems to get discarded. One interpretation—of a ship wreck near Antarctica—gets debated, and the logic of two arguments is acknowledged. The teacher consistently asks for visual evidence of opinions unless it is provided without prompting. There are a number of opinions about what kind of boats are depicted, and the teacher links various suggestions. A question is asked about some writing that appears in the picture, and the teacher throws it open to the class which correctly identifies the writing as Asian, although they don't seem clear whether it is Japanese or Chinese. Later the scene is again associated with Japan, although the teacher never indicates a “right/wrong.”

This short segment indicates how the strategy works at the beginning of the process. It provides some of the color of discussions, if not the extent of the richness that develops over time—although the content of the discussions always depends on the image and the age of the students, too. In kindergarten, students stay with simply pointing out and naming what they see, sharing their discoveries. In third grade, when more probing questions are introduced (“What more can you say about who these people are, or where this is taking place?”) writing and/or drawing assignments are added, and small group work begins, we see both more focused attention on aspects of probable import to the artist as well as decreasing dependence on a large group for speculative and reflective thinking. In fourth grade, other probing questions are added, including a set that asks students to think about the choices photographers make: what might have interested them in a subject, where were they standing to take the picture, what would happen if the camera were shifted. We see a concomitant willingness to shift from discussions based solely on the participants' views to ones which takes into account the intentions of the artists. In fifth grade, students are asked to consider what rules might underlie an artist's style, and they begin a process of analytical viewing. By sixth grade, students are conducting mini research projects in order to answer their own questions about artists who particularly interest them. All along, teachers are facilitators of the students' process, never the expert.

The VTS is designed for use by general classroom teachers and requires no prior art background. A course of training is provided to enable teachers to teach themselves what

is new in the curriculum as well as to expand their own experience with art. The training is based on the premises of the curriculum itself: self discovery is a powerful way to learn. Participating teachers discuss the method and theory behind it, led by a syllabus focused on questions, activities and reflection—enriched by a combination of expert demonstration, printed guides, videotapes, a CD ROM program, and internet access to the program’s creators.

Concluding remarks

Having watched groups of students in both New York City and in his home in St. Petersburg Russia, veteran educator and member of the prestigious Academy of Arts, Vladimir Orlov, addressed a roomful of his Russian colleagues in March 1994 about the possibilities he saw in the VTS. It could, he stated, “democratize and humanize the classroom.”^{iv}

He was using “humanize” because the curriculum focused on art and because it supported the development of individual rapport with art; no prescribed responses were ordained, as was normally the case in Russia, even then. He used “democratize” in a broad-but-pointedly political sense: the program not only sought a shift away from an authoritarian teaching mode, but also emphasized a variety of possible interpretations of an object’s meanings. He saw these as keys to a democratic classroom, a phenomenon he sought to institute in a re-forming Russia.

It is easy to appreciate the significance of open-ended thinking and open discussion to a reform-minded educator in a former communist nation; but, to me, his hope for change in Russian schools underscored problems that we face all classrooms. As we know them, classrooms have inherent political implications both because of structure—a teacher/authority with a group of students—and function—to teach sets of skills and information for betterment of the students. There are normative expectations of both behavior and performance. The content taught is limited. There is little emphasis given to creative thinking, to independence or individuality.

In the VTS, productive discussions are provoked by arresting, accessible, yet still-challenging subjects—works of art selected for their relevance to the group, and their ability to stimulate interest. The discussions are initiated by appropriate questions—ones which challenge and at the same time feel answerable by the participants using what they know. Opening questions are followed up by others that insure rigorous, thorough, and reflective examination of the subject. Teachers are taught to indicate clearly that they hear

and understand what each student contributes. All are thus made to feel capable of participating; their contributions are welcomed, heard and appreciated. Cooperative work by a group of peers produces sharing of ideas and information that results in rich interpretations of previously-unfamiliar works of art. At the same time, individuals are strengthened by digging into their existing store of knowledge and expressing themselves thoughtfully. Both the individual and the group are served simultaneously.

Bibliography

- Arnheim, Rudolf. *Toward a Psychology of Art*. Berkeley and Los Angeles: University of California Press, 1972.
- Arnheim, Rudolf. *Visual Thinking*. Berkeley, Los Angeles: University of California Press, 1969.
- Baldwin, James Mark. *Thought and Things: A Study of the Development and Meaning of Thought or Generic Logic, (Volumes III and IV)*. New York: Arno Press, 1975.
- Bruner, Jerome. *Thoughts on Art Education*. Los Angeles: Getty Center for Education in the Arts, 1989.
- Bruner, Jerome. *Beyond the Information Given: Studies in the Psychology of Knowing*. Selected edited and introduced by Jeremy Anglin. New York: W.W. Norton, 1973 .
- DeSantis, Karin and Housen, Abigail. *A Brief Guide to Developmental Theory and Aesthetic Development*. New York: Visual Understanding in Education, 1997.
- Housen, Abigail. *The Eye of the Beholder: Measuring Aesthetic Development*. Ph.D. Dissertation: Harvard Graduate School of Education, 1983.
- Housen, Abigail. "Three Methods for Understanding Museum Audiences." Museum Studies Journal. Vol. 2,#4, pp 41-49. Spring-Summer, 1987.
- Housen, Abigail. "Validating a Measure of Aesthetic Development for Museums and Schools." ILVS (International Laboratory for Visitor Studies) Review, Vol. 2, #2, pp 213-237. 1992.
- Housen, Abigail; DeSantis, Karin; and Duke, Linda. "Report to the Museum of Fine Arts, Boston on Image and Thought Program." New York: Visual Understanding in Education, 1997.
- Loevinger, Jane. *Ego Development: Conceptions and Theories*. San Francisco: Jossey-Bass, 1976.
- Piaget, Jean. *The Language and Thought of the Child*. New York: Harcourt Brace, 1926.
- Piaget, Jean. *Play, dreams, and imitation in childhood*. New York: W.W. Norton, 1951.
- Vygotsky, Lev. *Thought and Language*. Cambridge, MA: MIT Press, 1962.
- Vygotsky, Lev. *Mind in Society*. Cambridge, MA: Harvard University Press, 1978.

ⁱ Visual Understanding in Education (VUE) has a variety of reports on phases of testing the VTS which contribute pieces of information to back this up. For further information, VUE is located at 149 Fifth Ave, New York, NY 10010; www.VUE.org on the web.

ⁱⁱ The principal authors of the Visual Thinking Strategies are Abigail Housen and Philip Yenawine; others who have contributed in essential ways are Karin DeSantis, Elaine Chu, Linda Duke, Catherine Egenberger, Carol Morgan and numerous teachers, teacher trainers and school administrators in Byron MN, Urbana/Champaign IL, St. Petersburg, Russia and Almaty, Kazakstan.

ⁱⁱⁱ This discussion took place in March 1996 in Marcia Richard's fifth grade classroom in the Wiley School in Urbana IL.

^{iv} Closing remarks by Vladimir Nikolaevich Orlov (Ph.D., professor of culturology at the University of Pedagogical Mastery, St. Petersburg, Russia; and also member of the Academy of Arts at the Visual Thinking seminar, March 1994, in Pushkin, Russia, under the sponsorship of the Soros Foundation. His remarks were made in Russian, and translated by an interpreter, and are cited here from the author's notes taken on that occasion. Regrettably, Orlov died a few months after this seminar took place, and never wrote down his sense of the possibilities in student-centered education based on art, although they have often been quoted by his Russian colleagues since.