What Do You See That Makes You Say That?: The Role of Asking Young Children to Provide Evidence for their Observations in Visual Thinking Strategies Discussions

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Child: Um, that I see the volleyball right on the ground, that lady, when she's scared she might just feel like, she might be like outside. So she's scared 'cause she might be outside in a place where somebody forgot her... Cause birds are outside...

Teacher: You're also wondering where this person is, and you think that this person might be outside ... and your evidence, the reason that you used was thinking that if this is real bird, and real birds are outside, then she must be outside. Ok.

Child: And somebody forgot her at, the um, what are the called - the beach

Teacher: Oh, and you're also thinking that she's nervous cause she's been left at the beach? What do you see that makes you say that she was left alone?

Child: Because nobody's there... Cause always families stay together.

The preceding excerpt occurred during a Visual Thinking Strategies (VTS) discussion of Pablo Picasso's painting, *Child With a Dove* (Appendix A), with a group of Kindergarten students. In this excerpt, we can see the interaction between the child and the teacher as the child works to make sense of the image that is being discussed. The child worked to identify the different aspects of the image, make connections to her own beliefs and experiences, and to explain her reasoning. Throughout the course of the discussion, the children actively made connections to one another's ideas and engaged with looking at two separate images over the course of thirty minutes.

What is of interest to me is how young children interact with VTS discussions and methodology, particularly the cognitive skills that are employed during the course of the discussion. Through the discussion children are asked to label what they perceive and explain their decisions. They are also challenged to consider the possibility of alternate perspectives. Specifically, I will examine what skills are employed in answering Question 2 of a VTS discussion, "What do you see that makes you say that?," and how those skills align with current knowledge of where children are developmentally in the early childhood years. Question 2 challenges individuals to explain how they know what they know and to

ground their reasoning in the image. This discussion will progress through five stages: (1) a review of the Visual Thinking Strategies Methodology, (2) an overview of perspectives focusing on cognitive and metacognitive development for children ages 3-6, (3) an examination of how our knowledge of metacognition stands to inform how VTS is facilitated, (4) a discussion concerning how VTS discussions benefit the development of cognitive and metacognitive skills, and finally (5) recommendations for moving forward both in research and in practice.

Throughout the course of this discussion, I will be interspersing the theoretical knowledge and research with applied examples from VTS discussions with Kindergarten and Preschool-aged children. These discussions occurred with students who were engaging with VTS for their first time and who come from a range of social, economic, and developmental backgrounds. While my particular interests focus on children in these early years of education, and the perspectives that follow will examine this age range, I believe that much of what follows has greater implications both for how we consider the impact of the environment fostered by VTS as well as for how VTS is facilitated to scaffold the skills of learners.

Visual Thinking Strategies

Before we can delve further into how young children interact cognitively with the VTS curriculum, it is important to learn more about the methodology itself and its founding philosophy. Abigail Housen and Philip Yenawine developed VTS in the early 1990s in response to Housen's research regarding aesthetic development (Housen, 2001-2, p. 99). In coding people's individual, stream-of conscious responses to works of art, Housen identified five stages of aesthetic development that characterized the range of reactions that she observed. The five stages can be characterized in the following way:

Stage 1: Accountive: Concrete observations are made about the work, there is often an element of narrative or storytelling.

Stage 2: Constructive: The viewer works on establishing a framework for looking at a work of art, there can be an emphasis on what looks "right."

Stage 3: Classifying: The viewer uses intellectual and art historical knowledge to place the work of art within a place or time.

Stage 4: Interpretive: The viewer uses critical skills to foster an emotional encounter with the work of art and the process of the aesthetic experience is seen as evolving over time.

Stage 5: Re-interpretive: The viewer creates a sense of personal history with the work of art in which time is a key component. Personal history becomes integrated with the perception of the painting (Housen, 2001a, p. 8-10).

While Housen describes aesthetic development along a series of five stages, there is a stress that the aesthetic experience is "characterized by a spectrum of thoughts, with those of one stage intermingled with adjacent stages. (2007, p. 12)" Housen additionally found that the majority of individuals (from children through to adults) who interacted with works of art were in the first two stages of development, and VTS was designed to meet the developmental challenges present in Stage I and Stage II viewers. In fact, as opposed to other stage-based models (see the work of Michael Parsons 1987 book, *How We Understand Art: A Cognitive Development Account of Aesthetic Experience*, for a counter example), Housen's stages of aesthetic development are not tied to ages but to time spent looking at and engaging with art. While VTS is designed for individuals at the first two stages, Housen argues that VTS provides viewers of all stages with a context for entry into a discussion and taking a deeper look (2001b).

Vital components of the VTS discussion include the selection of images to discuss, the amount of time provided to look at the artwork, and the socially constructed nature of the discussion. In order to learn how to look at things in a new way, the child is encouraged to build on "his own experience, rather than trying to appropriate the experts' way of seeing. (Housen, 2001a, p. 5)" The group nature of the discussion exposes children to perspectives and ideas that they may not have considered if they had explored the work on their own. VTS supports this model as being particularly beneficial if begun with

younger learners and continued over a number of years. Longitudinal research findings of VTS in examining elementary school students in Byron, Minnesota suggest that this model of a thinking disposition has a greater impact if it is begun with children in grade 2 rather than grade 4 (Housen, 2001b, p. 19). Through the extended period of time spent looking at art, and through having the opportunity to examine multiple works, viewers have the time to shape their perspectives as they take a second look and to build a vocabulary and history of visual information. Housen cites the particular benefits of well selected artwork for discussing with children in stating that "a well-chosen work of art is a self contained world" and does not require specific background knowledge (2001-2, p. 121). But why is background knowledge considered unnecessary? The goal of VTS focuses on the personal experience gained through having the opportunity to spend an extended amount of time *looking* at art.

During the course of a Visual Thinking Strategies conversation, children are provided with an extended period of time to engage with a work of art and are encouraged to share their interpretations in an environment in which all ideas are welcome. According to the official website for the VTS curriculum, the guiding principles of VTS are (1) to develop a global community, (2) encourage critical thinking, (3) support affective teaching strategies, (4) advocate for the use of an innovative curriculum, and (5) create motivated learners (Visual Thinking Strategies, 2010). From the initial "What is going on in this image?," through the successive requests of "What more can we find?," learners are encouraged to look, and then look again as they hear and respond to the observations of their peers. Many of the traits of a VTS discussion (and the guiding principles of the methodology) are in line with the type of environment, as outlined by Shirley Larkin (2010), which is beneficial for the development of metacognitive thought. Larkin explains that "becoming more metacognitive is about slowing down and taking time to enjoy the thinking process, even to marvel at the ability we have to think about so many

different things and to allow ourselves to follow our thoughts. (p. 5)" In VTS, a critical aspect of the discussion, with any age group, is allowing for this extra time to look and follow the train of thoughts.

Participants in a VTS discussion are also asked to be self-reflective and evaluative learners as they respond to Question 2: "What do you see that makes you say that?" Throughout the course of the discussion, participants are encouraged to provide explanations for, and evaluate, their own responses to a work of art. For example, if a child believes that there is a tree in the image, how does she know that it is a tree? Similarly, if another child contributes that there is a confused person in the image, what visual information does he use to define confusion? The facilitator in a VTS discussion serves the role of a neutral party. All responses are received and paraphrased with the goal of scaffolding ideas, illuminating connections, and maintaining a wide range of further possibilities through the use of conditional language. Neutral facilitation is maintained so that the learner begins to see that there are a wide range of responses to a single work of art and that there can be connections between seemingly disparate responses (Housen, 2001a, p. 18). The facilitator is the torch bearer, ensuring that no one gets lost along the way.

Of particular importance to this investigation are the specific recommendations for children in grades K-2 who are engaging with the VTS curriculum. According to the implementation guide, VTS recommends that facilitators in Kindergarten and 1st grade classrooms wait until the end of the year to begin asking Question 2 (Housen & Yenawine, 2000). At the time of this writing, there is no official Preschool curriculum, although a set of images has been piloted by the Isabella Stewart Gardner Museum in Boston, MA. The implication is that younger children, particularly those in their first year of the curriculum, benefit from a period of waiting before being asked "What do you see that makes you say that?" Returning to the goals of the VTS methodology, particularly the goal to enhance and develop

critical thinking, it is my hope to explore the skills that are needed to answer "What do you see that makes you say that?" and how this question intersects with perspectives in child development.

Cognitive Development

In examining children between the ages of 3-6, it is important first to define our scope. In the book, Beyond Universals in Cognitive Development, David Henry Feldman (1980) explored how domains of knowledge and skills exist along a continuum from universal, to cultural, to discipline based, to idiosyncratic, to unique (p. 23). "Universals" are, as the name suggests, skills and domains that, along a normative course of development, are acquired by individuals. Examples would include the ability to communicate or to understand abstract representations. These are domains of knowledge that are learned in a stage-like progression and can be loosely connected to set periods of maturation. According to Feldman, the nonuniversal domains "are not necessarily mastered at the highest (or even initial) levels by all children in all cultures, nor are they achievements which can be acquired spontaneously, independent of the environmental conditions prevailing in a particular culture at a particular moment in time. (1980, p. 8)" Housen's stages of aesthetic development would fall into one of these nonuniversal domains, as progression through her stages does not occur independently of set conditions (Feldman, 1980; Housen, 2001-2002). Returning to the continuum established by Feldman, I believe that Housen's stages would fall between a cultural and discipline-based domain of knowledge. According to Feldman, "cultural" domains concern skills achieved by all members of a particular culture while "disciplinebased" domains are achieved by a group of people within a culture (1980, p. 31). Within the context of VTS and this paper, it then becomes the goal to identify which skills are used during a VTS discussion and to consider if those skills are accessible to children in the age range of 3-6. I believe that the question "What do you see that makes you say that?" is a question that is metacogntive in nature as it asks the individual to reflect on their thinking process and identify what led them to a certain conclusion. Thus, I

will explore both the cognitive universals and current research that examines the metacognitive skills possessed by children in this age range.

Universal Cognitive Development from Ages Three through Six

A theorist who explored the concept of universal stages of development, and whose work has had a huge influence on the fields of psychology and education, is the work of Jean Piaget. Although Piaget's work has been explored in a range of sources and to a greater-depth then I will undertake here, his consideration of children in his Preoperational Stage (ages 2-7) of development is of particular interest (see Cole & Cole, 2001; Feldman, 1980; Henniger, 2005; Larkin, 2010; Piaget & Inhelder, 2000; and Rogoff, 1990 and for in-depth reviews of his work in connection to metacognition and/or the creative arts). Tenets of this stage include an increasing ability to classify and name objects within the world, as well as an increase in the ability to use language as a regulatory tool. One such skill within this range is an increase in the ability to label objects in the environment (Flavell, 1979). Here we can see intersections with Housen's Accountive Stage, the first stage of aesthetic development, in which individuals focus on labeling concrete aspects of the image or developing narratives.

Another aspect of Preoperational Stage is what Piaget refers to as egocentrism, or the difficulty children have taking the perspective of others (Piaget & Inhelder, 2000). A point raised by Feldman (1980) that is important to consider is that, upon the age of 2, children do not automatically gain all of the skills of a stage, nor do all of the skills progress in an equal, predictable fashion. In fact, Feldman cites evidence that "it takes children several years to achieve different concepts belonging to the same stage of development; a minimum of five to six years seems to be required for the acquisition of various conservation concepts. (p. 4)" Traits that are considered tenets of a stage, such as egocentrism, are also constantly in transition and development. This is evidenced in the transcripts of VTS discussions with Kindergarten and Preschool-aged children. In discussing the animal in Henri Rousseau's *The Sleeping*

Gypsy (see Appendix B), the preschool children offered their opinions and built off of one another's responses to determine the type of animal. Towards the beginning of the discussion, one child offered that the animal was a tiger because it had a tail. Other children then offered that they thought it could be a lion because of the amount of the hair and that tigers don't have hair in front. Towards the end of the discussion, the first child raised his hand and contributed that he had changed his mind, that he also thought it was a lion because of the hair. I would argue that the ability to be open to other interpretations, alternate reasoning, and revisions of prior conclusions points to how skills may transition at different rates in different domains throughout a stage. This is seen in how conservation of different properties (mass, length, etc) occurs at different times for children (Elkind, 1961). In connection with this, it may be that skills could emerge in a VTS discussion before manifesting in other domains (or vice versa) due to the nature of the discussion itself.

Therefore, a final consideration, for the purposes of this exploration, should be to understand how children in this age range are likely to process new information. In examining the intersections between art and cognitive development, Efland (2002) noted that the schemata of younger children is more dependent on their senses and concrete environment (p. 25). Barbara Rogoff (1990) considered children's development to be largely influenced by their interactions with peers and adults, in the spirit of Lev Vygotsky's theories regarding cultural influences and the Zone of Proximal Development (ZPD) (Lim, 2004; Vygotsky, 1986). To Rogoff, the "development of young children into skilled participants in society is accomplished through children's routine, and often tacit, guided participation in ongoing cultural activities as they observe and participate with others in culturally organized practices. (1990, p. 16)" These points again link back to the traits attributed to those in the Accountive Stage of aesthetic development, with a focus on concrete observations and labeling. While, as noted earlier, Housen's

stages of aesthetic development are not linked to biological age, it can be assumed that young children who have had little exposure to art would be within the first stage.

Definitions of Metacognitive Development

A specific aspect of cognition that ties into the skills used during a VTS discussion is metacognition. Metacognition consists of a large umbrella of skills, but is generally understood to be how we think about thinking (see Flavell et. al., 1995; Harris et. al., 2010; Jacobs, 2004; Larkin, 2010; Peskin & Astington, 2004; Schneider, 2010; Schwartz & Perfect, 2002 for a range of definitions). Flavell (1979) has been generally credited with first labeling metacognition and, from there, researchers have worked to understand its myriad of components. The skills that fall under metacognition cover a broad range of categories: from knowing the sources of our own beliefs and those of others, to regulating actions and emotions, to how we consider our memories, to self-explanation and assessment (to name a few). As can be imagined, metacognition and cognition exist in a "reciprocal relationship," and work together to shape our actions and understandings (Shamir et. al., 2009, p. 48). Our ability to comprehend, label, and reflect upon our own thinking is dependent upon our capacity for thought at a certain moment in time.

Metacogntion is also based upon our ability to employ skills that are associated with this realm of cognition: including memory, labeling, and problem solving. Returning to my observations of young children, the majority of their comments fall into the realm of labeling (ex. I see a house) as opposed to higher order thinking (ex. The house appears to be falling down and I am wondering if the artist is commenting on the state of the family) because this is where they are developmentally. While there are also examples of narrative, as evidenced in the discussion that opened this paper, the majority of the observations include labeling objects. Following along this line of reasoning, children could reveal their ability for self-explanation through the content of the observations. In other words, if I am saying it is a

house, then I am ready to be scaffolded to consider why it is a house. Building off of Shamir and colleagues (2009) understanding of there being a reciprocal relationship between cognition and metacognition, Carr (2010) highlights that cognition needs to be in place before the knowledge can be reflected upon at the metacognitive level (p. 180).

Metacognition has commonly been divided into the categories of declarative, procedural, and conditional metacognition (see Larkin, 2010 and Schneider & Lockl, 2002 for particularly useful reviews). Declarative knowledge is commonly referred to as "knowing that", procedural as "knowing how", and conditional as "knowing who, where, and why. (Schneider & Lockl, 2002)" Of these three categories, declarative metacognition would hold the most relevance for the skills used in a VTS discussion. Larkin (2010) considers "knowing that" to be "the knowledge that we have and build up about our own and other's cognition. (p. 37)" For example, our knowledge of what we know and remember is considered to be a part of declarative knowledge. Procedural metacogntion would include a child's ability to reflect on the process of a VTS discussion. For example, at the beginning of the discussion when children are able to provide the information that they will be looking "from top to bottom, side to side, at the big things and at the little things" when they are looking at the work of art.

Other aspects of metacognition that are particularly relevant to VTS include the ability to provide explanations for our reasoning and evaluating responses. Cheng Pui-wah (2008) describes this type of metacognition as "meta-learning," or our thoughts connected to our thinking during the learning process. In Visual Thinking Strategies, particularly in Question 2, we are asking children to provide explanations for their perceptions. While "meta-learning" is ultimately a form of thinking about our thinking, as demonstrated by the wide range of types of metacognition, it is important to understand what aspect of metacognition we are exploring in order to examine its emergence and development in young children.

Findings in Metacognitive Development in the Early Childhood Years

There are differing conclusions on when children develop the ability to think metacogntively, with some evidence pointing to emergence around seven or eight (Brown, 2002; Dewey, 1910), and others documenting evidence in children as young as three (Larkin, 2010; Whitebread et. al., 2009). In examining these studies, key factors that influence its emergence include how metacognition is defined and how it is measured. As reviewed, metacognition covers a wide array of skills, and it is important to be clear in what is being looked for. Just as perspective-taking presents itself in children in a variety of forms and in a variety of contexts, so too do aspects of metacognition emerge. Some theorists have raised the point that measuring metacognition via self-reporting will naturally exclude younger children due to the constrictions of language (Larkin, 2010; Whitebread et. al, 2009). However, in controlling for language ability and multiple methods of measurement, there is strong evidence of the presence of a range of metacognitive skills as children move from three to six. Whitebread and his colleagues (2009) developed an observational checklist known as the Children's Independent Learning Development (CHILD 3-5) checklist to document metacognition in children from ages three through five. While the study focused primarily upon emotional control and regulation, one of the indices on the scale that they developed relates directly to a skill that can emerge within VTS discussions. The measure examines whether the child "adopts previously heard language for own purpose," a skill that children use in VTS discussions as they incorporate the vocabulary and phrasings of their teachers and friends into their own observations (p. 76).

The following example is from the Kindergarten classroom discussion of Paul Manship's (1939) *Group of Bears* (see Appendix C). The children had previously adopted the word "background" into their observations and, during the course of Lesson 3, a female child both incorporated the word background and worked to extend it to describe a new concept. Referencing the backdrop as evidence that the

image appeared to be a photograph, the child referred to the bottom of the image as the "bottomground." This example demonstrates a capacity to synthesize new information and understand how it can be applied for personal use. However, just as an observational check-list opens up new behaviors to be considered as metacognitive thought, it also leaves room for misinterpretation.

Just as it is important to understand what is being looked for, and how it is measured, when examining metacognition, it is also important to link our understanding of metacognition back to the cognitive skills that are also present in this age range. Carr (2010) highlights that "the ability to use metacognitive skills, such as monitoring and planning during problem solving, is influenced by the students' state of current conceptual understanding. (p. 180)" Therefore, it is important to understand the metacognitive skills used during a VTS discussion and understand if they lie within the potential of conceptual understanding for children in this age range. While research has pointed to the presence of metacognitive thought in children as young as three, there does appear to be a critical transition in metacognitive thought that occurs from three through six years of age.

In studying 3-5 year-old children's ability to identify and remember the source of their beliefs, Gopnik and Graf (1988) did find limitations to the types of questions children were able to answer, particularly those at the younger end of the spectrum. In their study, Gopnik and Graf found that 3 yearold children were unable to provide an answer to the question "How do you know that?" when asked about the sources of their beliefs (p. 1367). While this question is similar to Question 2 of VTS ("What do you see that makes you say that?") I would argue that grounding the question in concrete visual images has the possibility of making such reflective questions more accessible to younger learners in order to remain in their Zone of Proximal Development. This emerges in the responses to Question 2 seen in discussions with 4 year-olds. When asked to explain their reasoning for identifying an animal or an object, the Preschool children often responded with a color or a particular feature (ex. noting that it was

a lion because it had a mane or that it was the sky because it was blue). Such reasoning is in line with the general cognitive abilities of classifying and is an appropriate response that is grounded in what is physically present in the image. Heyman (2008) also provides an in-depth review of literature focusing on how children as young as three employ critical thinking when learning from others. Consistent throughout the review was the finding that 3 year-old children are capable of discerning between different types of sources. For example, that children as young as three can identify a doctor over a mechanic as a more reliable source of information regarding how to care for a broken bone.

Moving from three to four years of age, four year old children have been found to be able to comprehend and use mental verbs such as "know" and "think. (Peskin & Astington, 2004, p. 258)" The emergence of mental verbs in young children is also supported by the research of Schneider (2010) and Schneider and Lockl (2002). Additionally, four year old children are capable of employing metacognition in peer-based scenarios, in which age-peers work to help one another with problem solving scenarios. Shamir and colleagues (2009) found that procedural metacognition emerged to a higher degree in peerassisted learning than in self-reports when looking at children ranged 3-5 (p. 57). Deanna Khun cites an important skill that emerges between the ages of four and six, namely the ability to distinguish theory from evidence (Khun, 1999; Larkin, 2010). In her research, Khun asked young children why they knew that a person won a race based on the content of a picture. Children at the younger end of the spectrum were more likely to provide a theory (ex. "because he has fast sneakers") as opposed to children at the older end of the age range who were able to provide evidence based on what was present (ex. "he's holding the trophy") (Khun, 1999, p. 20). Again, while this suggests that there is a point at which children are too young to provide evidence for their assertions, it is possible that the highly contextualized nature of the question "What do you see that makes you say that?," may make the question more accessible to younger learners. Finally, growth in the ability to provide self-explanations has been

shown in children at the later end of this age range when they are provided with a predictable environment. Again this links back to our knowledge of procedural metacognition. Once there is comfort with the format, the child can reflect on its use and apply that knowledge to the situation at hand. In working with five year olds, Siegler and Lin (2010) found that children increasingly used evidence based reasoning over multiple trials to explain an answer provided by an experimenter (p. 86). This suggests that self-explanation is possible in younger learners, but that they may require a period of time in which to become accustomed to the questions that are inherent to the VTS discussion.

Ultimately, how we view cognitive and metacognitive ability is at the heart of how we understand its intersections with VTS. In a VTS discussion, participants are asked to give voice to their perceptions, explain the visual information that gave form to said observations, and evaluate and connect their observations to those of their peers. Not only are we interested in labeling, explanation, and evaluation, but we need to know if these skills are accessible to children from ages three through six. Based on the reviewed research, there does appear to be a transition in skills as children move through this range and that children at the younger end of the spectrum may be on the cusp of necessary skills, but not quite ready. That being said, it does appear that children as young as four years of age have the skills to both participate in VTS discussions and answer the question "What do you see that makes you say that?" when asked in a predictable environment.

The Impact of Cognitive Development on Visual Thinking Strategies

Visual Thinking Strategies is a methodology designed to be sensitive to learners at different aesthetic developmental stages, and there is strong evidence that current understandings of cognitive development can be used to refine VTS to be sensitive to the needs and capabilities of younger learners. The areas in which there is the potential for impacting VTS is in (1) how we consider the progression of

skills, (2) when we ask Question 2 with children, (3) how discussions are facilitated, and (4) in how children make meaning from the image through the course of the discussion.

Progression of Skills

A knowledge of cognitive development can influence how we consider the progression of skills in a VTS discussion. If we consider children to belong to a certain stage of development – whether it is Piaget's Preoperational Stage or Housen's Accountive Stage – it is important to remember that there exists a wide range of skills within the stages themselves that benefit from instruction and intervention. Regarding skills associated with meta-learning: Kindergartners have been shown to benefit from instruction that incorporates predictable questions, and thus creates opportunities to build upon their procedural metacognition. In examining the use of probes to elicit metacognitive talk about writing, Jacobs (2004) found that children grew in their ability to respond to the questions over the course of the academic year and increasingly used mental verbs such as "thinking" in their answers (p. 20). Not only did Jacobs find that Kindergartners were "capable of metacognitive thought," but also that "the quality of answers appeared to grow over time" during the course of the academic year (p. 22). Therefore, facilitators of VTS with younger learners should anticipate that while there may be some initial expressed inability to respond to Question 2 upon first being exposed to it, young children have the skills needed to grow in their responses to the question over the course of months. What is more, that repetition and predictability are important parts of the process.

When We Ask Question 2

According to Brown (2002), once a skill becomes automated, the skill becomes open to reflection and evaluation, and thus open to metacognition as well as transfer. This has important implications for how VTS is viewed as it *could* suggest that children need to become comfortable with the first question of VTS (What do you see?) before they are able to provide self-reasoning or reflection

for their responses. However, it becomes important to consider exactly *what* skills need to be automated. I would argue that children with the ability to label and categorize comfortably are within range to be challenged by being asked to provide reasoning for their observations. In exploring the application of cognitive skills, Perkins and Salomon (1989) echo that using the skill in a wide variety of situations and building up confidence is a necessary element for transfer (p. 22-3).

Carr (2010) implies that there is a relationship between metacognition and cognition; that our ability to reflect on our thinking is connected to our current cognitive ability (p. 188). The reciprocal relationship between metacognition and cognition suggests that the children themselves will tell us when and for what Question 2 should be asked for. Thus, if the child says "I see a boy," then there should be the knowledge present to explain what she sees that makes her say it's a boy. Similarly, if the child observes "I see a boy who is sad," his or her additional information is indicating the possibility of evaluating a more complex concept. This knowledge can then transfer to how VTS is facilitated. In examining the types of intellectual behavior used during reasoning activities, Benjamin Bloom and colleagues (1956) identified a hierarchy of six types of responses to knowledge within the cognitive domain of development. These types are (from most basic to most complex): knowledge, comprehension, application, analysis, synthesis, and evaluation. An impact of Bloom's taxonomy on educational practice is that the questions themselves can be of varying difficulty in what they are asking for. If a facilitator is working with a group that he or she is unfamiliar with, research would imply that even the youngest of school age children are capable of answering Question 2, and that it would be possible to get a sense for where the group is as a whole by asking probes that are less complex at the onset of the discussion and raising difficulty (based on the responses of the group) as the discussion progresses.

Corresponding to Housen's stages are 9 domains (subdivided into 63 issues) that are meant to describe the range of potential responses to a work of art. For example, in the domain of association (when parts of the image that remind the viewer of other objects, events, or historical eras), statements can range from idiosyncratic to identification and empathy with the work of art (Fairchild, 1991, p. 270). Idiosyncratic responses are the "looks like" responses that may or may not be obvious to other people looking at the same image, for example it "looks like advertising" (Housen, 1983, p. 259). It may be that within these domains, there are issues that are easier or more difficult to provide self-explanations for. While the facilitation guide developed by Housen and Yenawine (2000) recommends waiting until later in the year to begin asking Question 2 with younger learners who are new to VTS, I believe that careful and thoughtful facilitation is a key that can open this question to young children.

Facilitation of the Discussion

Careful and thoughtful facilitation that is informed by knowledge of cognitive and metacogntive thought could also impact how children engage with Question 2 and learn from one another. Jacobs' (2004) work with asking kindergartner's evaluative questions regarding their writing suggests that there are different levels of metacognitive questions in terms of difficulty. Out of the different probes asked, children had the trickiest time with the question, "How do you think that idea came into your mind? (p. 21)" However, in line with the suggestion that predictability is important for younger learners (Shamir et. al., 2009), the ability to respond to that question increased over time. During the Preschool VTS discussions, there was also an increase in children's ability to respond to Question 2, with "I don't know" responses decreasing to an average of one per discussion (or approximately one out of every fifteen observations) after two lessons of being exposed to Question 2. This suggests that it is to be expected that young children may have a difficult time when first hearing Question 2 due to the newness of it, but that it is a question they are capable of answering with time and experience. Even as an adult I can

readily recall situations when, even if I might have possessed an answer, I was unable to answer a question due to the unfamiliarity of its wording. Time, experience, and language skills are necessary components of the experience. It then becomes the responsibility of the facilitator to respond to answers of "I don't know" in a manner that leaves the door open for future exploration and risk-taking. This would then leave open the possibility that there are things that we wonder about that we may not know the answers to, and that questioning is an active part of the process.

In examining the science program, *Let's Think*, Larkin (2010) highlighted the important role played by the teacher. According to Larkin, the role of the teacher is "to clarify ideas, to challenge the children's thinking, to act as a memory store for the discussion, and to summarise (sic) at an appropriate point. (p. 52)" The *Let's Think* program, alongside their description of the role of the teacher, has clear correlations to VTS. It emphasizes how the teacher plays a crucial role in making the activity accessible, challenging, and an environment for self-reflection. It also demonstrates how the facilitator is part of the process in developing critical thinking and metacognition through asking for evidence, modeling neutrality, and responding conditionally to observations.

Making Meaning in a Visual Thinking Strategies Discussion

The findings of Koroscik (1984) support what is already known in VTS: that having the ability to focus on semantic meanings, and being encouraged to focus on process, leads to greater meaning (pp. 331-333; Housen, 2001-2). By asking children throughout the process to explain their reasoning, reflection and evaluation become ongoing components of the discussion. Reflective thought becomes a habituated skill rather than a task that is relegated to the end of the process. This is seen even with Kindergarten and Preschool-aged children who, by January of a year working with VTS methodology, begin including "because" statements into their observations before being asked Question 2. Evaluation and explanation become something that is *just done*. Observations become statements that are

interconnected with the available evidence. This influences the possibility of transfer, because, as noted previously, once a skill becomes automated it is open to transfer (Brown, 2002). Beyond connecting perception and evidence, Larkin (2010) asserts that asking evaluative questions throughout the process also works to ensure that the content of the discussion is not forgotten. (p. 64). There is also the question of what kinds of probes encourage meaning making. In the *Let's Think* program, teachers reported that children responded more evaluatively to "how" questions as opposed to "why" questions (Larkin, 2010, p. 109). Ultimately, we have seen that children ages 3-6 are capable of evaluative thought and that, through considerations that keep the methodology of VTS intact, facilitators can work to make art and Question 2 more accessible to young children. Question 2 already opens the door to more evaluative responses and the job then becomes to make facilitation both accessible and challenging.

The Impact of Visual Thinking Strategies on Cognitive Development

Just as knowledge of development can inform implementation of VTS, VTS also stands to impact the development of young children. Previous research studies have documented how, longitudinally, participation in the VTS methodology impacts Aesthetic Development (Housen, 2001-2) in grades 2 and older. Beyond the benefits to aesthetic development, there is also strong supporting evidence that suggests possible benefits to children ages 3-6 in multiple domains. VTS possesses specific benefits for the development of young children due to the environment fostered by the lessons. This environment includes the art images themselves, the role of open-ended inquiry within the context of art, and the influence of peers and social learning. Just as the earlier highlighted skills of cognitive and metacognitive thought were shown to be available to children from three through six, this section will highlight research of programs similar to VTS to emphasize the important role played by this methodology for young children. Thinking back to the work of Feldman (1980) and how the non-universal domains of

development grow due to external intervention, the evidence suggests that the skills targeted by a VTS discussion address such domains of development and thus become open to intervention.

Why discuss Art?

Through VTS children are exposed to multiple works of art for an extended period of time, and they are also provided with opportunities for extended reflection and interpretation. Efland (2002) touches upon why the art objects themselves are beneficial to an open-ended environment, like that of a VTS discussion. He states that, "one answer to the question of why the arts are cognitively significant is that they provide encounters that foster the capacity to construct interpretations. (p. 161)" Göncü and Rogoff (1998), build upon the beneficial nature of art in highlighting the benefit of categorization tasks that focused on concrete objects (p. 336). For example, it is easier to label the similarities between cats and dogs when viewing the two side by side. Beyond the concrete basis for the discussion, the ability to construct interpretations of art objects is valuable on a variety of levels. Eisner (2005) outlines these benefits succinctly: "the arts teach students to act and judge in the absence of rule, to rely on feel, to pay attention to nuance, to act and appraise the consequences of one's choices, and to revise and then to make other choices. (p. 208)" Because the arts are considered an open-ended experience, children become free to view a work of art from a variety of perspectives and draw their own conclusions. Rather than searching for the one correct answer before moving on, children are given the space and time to consider multiple viewpoints. In discussing Edvard Munch's Springtime on the Karl Johann Street (Appendix D), the Kindergarten students wondered as a group about the weather depicted in the image. The painting depicts a promenade in which people are walking with umbrellas and is painted using flecks of color. One student initially wondered if it was raining, noting the umbrellas and the flecks of color. A second student added that he thought that it was snowing instead because the flecks appeared to be white. A final student then contributed that she thought that it wasn't raining or

snowing. She noted that sometimes people use umbrellas to protect themselves from the sun and that, perhaps, the flecks were a tool used by the artist to make the picture seem more real. Echoing the work of Eisner, Housen (2001b) effectively summarizes the beneficial characteristics of the arts: (1) that it is accessible, (2) it is ambiguous, (3) it is compelling, (4) the experience unfolds over time, and (5) it addresses enduring themes (p. 24). Art provides an experience through which children are able to construct their own opinions and have those opinions tested by their peers.

Open Inquiry in Visual Thinking Strategies

As art is open to multiple interpretations, it naturally fosters a space where children are encouraged to engage in debate and inquiry. What is more, the literature would suggest that the structure of a VTS discussion, combined with the art image, work together to make debate and inquiry that much more accessible to learners. Returning again to the goal of improving critical thinking skills, several researchers have highlighted the importance of context in teaching cognitive and metacognitive skills (Brown, 2002; Perkins & Salomon, 1989; Prawat, 1991). The cumulative evidence is that the teaching of critical thinking skills best occurs when embedded in context. Larkin (2010) highlights one possible context for young children in her evaluation of the Let's Think! program, and I argue that VTS provides young children with another strong context for the development of evaluation and reasoning skills. While this has already been illustrated with children in older grades (Housen, 2001-2), the evidence suggests that the readily accessible nature of the artwork discussed in a VTS discussion, combined with the power of the open-ended social environment to scaffold learning, create an ideal environment for the development of these skills. Thinking again to how the Preschoolers approached identifying the lion in *The Sleeping* Gypsy, the boy's revision from labeling that animal as a tiger to calling it a lion highlights how the child was able to compare the observations of others to his own beliefs and evaluate one against the other.

Additionally, the interplay of the work of art and an inquiry-based discussion method creates an environment in which children are challenged to consider the opinions of others. Gopnik and Graf (1988) outline the importance for children to be able to identify the sources of their beliefs in stating, "knowing about the source of a belief plays an important role in evaluating the belief and in deciding how trustworthy or justified it is and how easily it should be discarded. (p. 1366)" VTS provides children with an important skill in that it encourages them to provide explanations for their beliefs in an openended learning environment in which there is not a set correct answer. With such flexibility, children are empowered to raise different opinions and to have the opportunity to justify them with their perceptions.

The Social Environment

This inquiry cannot take place in a vacuum, but rather, is dependent on the collaboration of peers during a VTS discussion. Evidence has found that the influence of peers is particularly beneficial in developing critical thinking skills in young children as it exposes them to a variety of opinions and to the possibility that a breadth of ideas exist (Heyman, 2008). Across domains of development, social interactions provides an impetus for change. As Feldman (1980) states, "the desire to communicate with others and to have others accept one's views seems to energize the change process. (p. 13)" VTS can also influence how younger learners (and learners across age ranges) approach problem solving through fostering the idea that there are multiple ways to solve a problem. A mastery-oriented approach to learning is supported by an environment in which there are "challenging and open-ended activities," and opportunities for children to "engage in self assessment. (Whitebread et. al., 2009, p. 68)" This is in agreement with Larkin's (2010) findings that metacognitive development "can only be done alongside a facilitation of empowerment and self oriented learning. (p. 28)"

VTS encourages active participation and an environment in which participants shape the course of the discussion through their observations regarding the art image and interactions with one another. In examining five year old children, Göncü and Rogoff (1998), found that children demonstrated the highest level of success when children were actively engaged participants and when the goals of the activity were clearly articulated. The predictable nature of the VTS discussion, in which the questions remain constant although the content will change, should then help to foster engagement. In support of this idea, Larkin (2010) argues that it is the engagement itself that is necessary for the development of metacognitive thought. She critiques methodologies that only include a reflective period at the end of the lesson and recommends that it remain embedded throughout (pp. 6-7). As Larkin is particularly focused upon younger children, this points to the potential need for including Question 2 in discussions with Kindergartners and Preschoolers. As discussed earlier, children in this age range have demonstrated the ability to reason at a metacognitive level and to understand the mental verbs associated with this type of reasoning. Additionally, the inclusion of Question 2 encourages the selfexplanation and the extended amount of time spent looking at art that is critical to the development of metacognitive skills. Finally, the inclusion of Question 2 throughout the course of the discussion encourages children to engage with both experiential (participating in) and reflective (evaluation of) forms of intelligence. The integration of the two forms of intelligence has been found by Efland (2002) to be particularly important to the learning process (p. 25). Overall, VTS has particular benefits for young children due to the predictable structure of the lessons, the active and conversational environment, the basis on concrete images that are open to multiple levels of interpretation, the opportunities for children to provide evidence for their reasoning, and the emphasis on critical thought.

Remaining Questions and Conclusions

What do you see that makes you say that? It is a question that challenges learners of any age to take a second look, reflect, and find evidence for their perceptions. It is a question that is both challenging and powerful, and one that is often removed from the learning process. All too often, once the right (or wrong) answer is received, it is labeled as such and we move on without pausing to consider why or how it is so. There is a clear power to Question 2, and something that I have considered throughout is whether Question 2 is appropriate to ask young children, how it might be approached to make it more accessible, and what about its inclusion in a VTS discussion provides particular benefits to younger learners.

An interesting idea raised by Jacobs (2004) work, that has already been discussed, is the idea that some evaluative/reflective questions are more difficult than others. While there is only one format for Question 2, the facilitator has the discretion to choose what aspect of the student's comment Question 2 is asked about. I raised the possibility that some concepts may be easier or harder to reflect on, and I believe that this concept is worthy of study. Not only would it benefit facilitation for children ages three through six, but it could provide a useful framework for facilitators working with learners in any age range. Thinking about Housen's stages of Aesthetic Development, graduated facilitation may also be a form of providing challenges to viewers at any stage of development. As mentioned previously, VTS is designed to be both challenging and accessible for individuals at the first two stages of Aesthetic Development. Graduated facilitation maintains this accessibility while continuing to provide challenges to individuals at stages 3, 4, and 5. What is needed is more study of how people, particularly children from ages 3-6, answer Question 2 based on the types of prompts that are hypothesized to be more or less difficult. For viewers in the Accountive and Constructive stages, the second question of VTS

encourages viewers to move beyond their initial reactions and to delve further into the nuances of the image (Housen, 2007).

A question raised by research in the VTS methodology is whether or not the skills touched upon in a VTS discussion transfer to other elements of the child's life. In examining transfer with elementary students in Byron, Minnesota, Housen (2001-2) did find evidence of transfer of critical thinking skills when children in grades 2 through 5 moved from discussing works of art to discussing non-art or material objects, but that such transfer took a minimum of two years with VTS. In other words, children first grew in aesthetic stage within the context of looking at art before transferring the skill to discussing new content (material objects) in a similar context (the stream-of-conscious interview). This appears to support Brown's (2002) findings that transfer is possible when a skill becomes automated. In regards to this exploration, the question emerges whether or not similar evidence of transfer would occur with younger children. In considering the relationship between cognitive skills and the context in which they are learned, Perkins and Salomon (1989) found that context was an integral component to teaching cognitive skills and that transfer was possible when there was the combination of a perceived use for the skills, a large variety of situations in which to use the skill, and a high level of mastery in the skill itself.

The domains of knowledge utilized during a VTS discussion are skills and can, as such, be encouraged to develop through the intervention of external sources. As demonstrated by examples from Kindergarteners and Preschoolers, children in this age range are capable of answering Question 2. Children's comfort with Question 2 is benefited by time, experience, and a predictable environment (Jacobs, 2004; Shamir et al., 2009). Based upon my own observations in the classroom, children are capable of Question 2 but the question remains as to what the longitudinal benefits are to be gained through beginning the question earlier as opposed to later in the year. The research reviewed above

suggests that the environment provided by VTS is beneficial to the development of metacognitive thought, as well as providing a number of other benefits to young children. Returning to the guiding principles of VTS, if our goal is to develop critical thinking skills and we know that children are capable of answering a question that will develop critical reasoning, then Question 2 should be asked to younger children.

The focus of Question 2 then is to benefit metacognitive thought as opposed to moving the child through aesthetic stages. That being said, I would not say that Question 2 is universally appropriate for everyone. The literature suggests a critical change that occurs around the age of 3 or 4, and I believe that we need to know more about how children at the youngest end of the spectrum of 3-6 interact with Question 2. Ultimately, the role of asking young children "what do you see that makes you say that?" is to maximize the time spent looking at art in an environment that encourages reflection and evaluation. It illuminates the observation process, so that everyone in the group benefits from the observations of each individual.

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APPENDIX A



Pablo Picasso (1901). *Child with a Dove* [oil on canvas]. Photograph retrieved April 6, 2010 from: http://www.nationalgallery.org.uk/paintings/pablo-picasso-child-with-a-dove.

APPENDIX B



Henri Rousseau (1987). *The Sleeping Gypsy* [oil on canvas]. Photograph retrieved April 6, 2010 from: http://michaeljosephtherapy.com/blog/2009/01/.

APPENDIX C



Paul Manship (1939). *Group of Bears* [bronze]. Photograph retrieved April 11, 2009 from: http://www.mmaa.org/sites/4d7874e8-0b8f-4445-9da2-d00c8bec7902/uploads/Manship-Bears.jpg.

APPENDIX D



Edvard Munch (1892). *Springtime on the Karl Johann Street* [oil on canvas]. Photograph retrieved May 2, 2010 from http://www.moscow.ucla.edu/wp-content/uploads/2008/08/munch.jpg.