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CONSTRUCTIVIST APPROACHES IN MUSEUM TOUR AND WORKSHOP SCHOOL PROGRAMS

by

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ABSTRACT

CONSTRUCTIVIST APPROACHES IN MUSEUM TOUR AND WORKSHOP SCHOOL PROGRAMS

Juyoung Yoo

This research investigated how constructivist approaches are conceptualized and implemented in “gallery tour and studio workshop” programs at three art museums, and the relationship that exists between the gallery and studio learning. To address these questions, I examined how administrators from each museum designed programs and supported educators, how educators facilitated teaching, and how students responded to the gallery and studio learning.

I employed a basic qualitative multi-case study. This method suited my research—an investigation of three cases (three iterations of a program at each museum)—because I aimed to understand the uniqueness of each case while examining a range of similar and contrasting cases. Data collection methods included observations of program sessions, interviews with museum administrators and museum educators, casual conversations with participating students, photos of students’ artworks, and museum documents.

The cases offer examples of educators' teaching approaches, which reflect—or do not reflect—constructivist tenets, as well as factors that influence the connection—or lack of connection—across gallery and studio learning. Specifically, the findings indicate that a smaller students-educator ratio and knowing students' information in advance helped ensure a conducive learning environment. Another relevant factor was the educators' facilitation of dialogue. Students became more involved in interpreting artworks when educators were most responsive to their ideas, and less involved when educators asked leading or less open-ended questions. Program themes, reflections on the tour prior to the studio session, and motivating questions for studio activities helped ensure connections between gallery and studio. Additionally, exploratory studio activities and small group discussions in the studio helped students make unique choices within their art projects, whereas step-by-step demonstrations led to prescriptive artworks. Further, students' responses reflected the sequencing of the program: ways of discussing artworks travelled from the galleries to the studio, and student artworks referenced visual elements from artworks displayed in the galleries.

While the findings of this research are not generalizable, they provide insight into methods and approaches that might be adopted by museum administrators, museum educators, and art educators who aim to provide school students meaningful and well-connected museum "gallery tour and studio workshop" educational programs.

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I – INTRODUCTION

I grew up in Korea, where most of the classes I took were lecture-based. My educational habits largely involved listening, taking notes, and memorizing in preparation for exams. I learned art history and studio art, among other subjects, through lectures focused on imparting knowledge and developing skills. Accordingly, when I made visits to art museums, I habitually guessed the artist and title of the artworks and didn't spend much time in front of each artwork. Nevertheless, I loved viewing, making, and talking about art that I decided to study art education at Teachers College (TC), Columbia University. At TC, I learned about the ideas of John Dewey (1934/1980), Paulo Freire (1970/2017), and Lev Vygotsky (1978) among others—ideas that emphasized the importance of learning by doing, reciprocal exchange of information between teacher and students, and social interaction in learning. Moreover, when I started observing, assisting, and working at art museums in New York, I noticed that most of the gallery-based educational programs were based on constructivist approaches. The central idea in constructivist educational pedagogy is that learning cannot be delivered by memorizing a body of knowledge, but happens while people are engaged with questions that provoke interaction and thought; creating new meanings by connecting new insights into what they already know (Schmidt, 2004; Shulman-Herz, 2010; Villeneuve & Love, 2017).

I was intrigued by how the aforementioned approaches allowed students, myself included, to be active participants in learning and how effective learning could be if students constructed their own knowledge through experiences. For example, when I

went to an art museum as a part of the museum education course at TC, I was asked to choose one artwork to observe for fifteen minutes and to take notes on my observations and interpretations without looking at the wall label. After closely observing and writing notes about the chosen work, I looked at the contextual information provided by the wall label and then shared my experience with my classmates. The activity made me realize that, in spite of my arts-oriented education at a private arts middle and high school, and holding BFA and MFA degrees, I never spent more than a few seconds in front of an artwork, and that I always depended on the interpretations of others or perceived facts. Also, the activity allowed me to not only experience deeper engagement with the artwork, but also to fully use and reflect upon my prior knowledge and experience. This allowed me to interpret the work of art, and also compelled me to question my prior ways of teaching and learning in the arts. After this experience, I gained a new perspective on viewing artworks in museums, and I was inspired by the possibility of giving others a similar experience through teaching.

Constructivist Approaches in Museum Galleries

As briefly mentioned above, constructivism is a philosophical perspective and theory about knowledge and learning, which mainly argues that knowledge is actively constructed through the learner's participation, interpretation, and meaning-making experience (Fosnot, 2005; Wiggins, 2015). Accordingly, a constructivist view of teaching rejects teachers' transmission of information to passive students, but rather encourages students to be actively involved in their own process of learning by doing: raising questions, searching for patterns, interpreting, and discovering (Fosnot, 2005; von

Glasersfeld, 2005). Museums have aligned themselves with constructivism, and constructivist approaches became the norm in current art museums since the late 1980s (Burnham & Kai-Kee, 2011; Hubard, 2015; Terrassa, Hubard, Holtrop, & Higgins-Linder, 2016; Villeneuve & Love, 2017; Yenawine, 2013). Even though museum educational programs have evolved over time, over the last 3 decades, museums have come to adopt a particular constructivist approach based on group dialogue—albeit one that can take many forms—in a gallery teaching (group dialogue accompanied by gallery activities). As I will explain in detail in the review of the literature section, approaches used in museum education include, for example, Visual Thinking Strategy (Housen & Yenawine, 1998), and dialogical approaches (Burnham & Kai-Kee, 2011; Hubard, 2011), which all encourage visitors' participation in the interpretive process.

I began to experience this from an educator's perspective through my museum teaching practice in the United States. When I started working at art museums, I was trained to ask groups of visitors open-ended questions to facilitate dialogue that involves students in observing and interpreting the chosen artworks. To be specific, I often started my gallery tours by asking simple questions, such as "What do you notice?" and "Can you describe what you see?" Then I occasionally paraphrased what students said about the artworks, asked follow-up questions to elicit their imaginative thoughts and interpretations, and inserted contextual information in between students' comments, a common practice in museums (RK&A, Inc., 2015). This teaching method, which some call the inquiry-based teaching approach, mainly required educators to facilitate dialogue through asking sets of open-ended questions and to provide relevant information in

between student responses, as students were curious to learn more as they constructed their interpretations about the artwork (Shulman-Herz, 2010).

So far, I have focused on what typically happens when students look at artworks in museum galleries. However, in recent years there has been an increase of children's studio workshops in museums, followed or preceded by gallery tours, which has led to curiosity about the role of constructivism in the studio portion of the programs. Also, as an artist myself, I've always been drawn to art-making in the museum setting.

Studio Learning in Art Museums

Before gallery dialogue became such an attraction, studio experiences were prevalent in museums. At that time, the format was different than it is now, as studio workshops were not necessarily paired with in-depth group exploration of artworks, as they often are these days (Burnham & Kai-Kee, 2011). In the late 1960s, art classes prevailed in museums and creative hands-on activity became more important than art history (Burnham & Kai-Kee, 2011). The Whitney Museum of American Art, the Metropolitan Museum of Art, and the Museum of Modern Art all offered studio art for children, teenagers, or adults. However, the studio programs became less popular with the popularity of dialogue-based gallery tours.

As mentioned earlier, there has been an increase of studio workshops paired with gallery tours in recent years. In these gallery tour and studio programs (the focus of my research) students engage with artworks in the museum's galleries and participate in a related hands-on art-making workshop during a single session. However, even though gallery-based educational programs that are rooted in constructivism have been widely

used in many of the museum galleries and are well documented, a methodology for studio teaching in art museums is relatively less researched (Ecker & Mostow, 2015). Moreover, although there is a tradition of constructivist approaches in art classrooms, often facilitated through dialogic group inquiry (Beal, 2011; Burton, 2000; Lord, 1958/1996; Lowenfeld, 1975), I noticed that some museums I collaborated with were not necessarily facilitating studio-based workshops that adopted constructivist approaches, though they were using them in the galleries. For example, one of the most frequently used workshop formats in the museum where I have worked included step-by-step instructions, although all the educators—most of whom are experienced teachers that freelance at several art museums in New York City—incorporated and supported constructivist approaches in their gallery teaching. To be specific regarding this studio workshop: after looking at the sculptures made of different types of rocks (sedimentary, basalt, and marble), the workshop asked students to 1) familiarize themselves with the small rock, 2) trace the rock many times, 3) cut out and glue the rock shapes on a separate piece of paper, and 4) add textures inside their cutout shapes. The workshop was product-driven, teacher-centered (Hafeli, 2014), and not open-ended enough for students to explore, imagine, and interpret their own artworks as they did the artworks in the galleries.

Constructivism is a very broad term, and it can include many different approaches to teaching and learning. However, one example of an art room aligned with constructivist thinking would be a place where students freely explore and manipulate materials while they continuously exchange ideas with the teacher and peers to shape ideas and create meaning (Burton, 2000, 2001). The art teacher's role is to be the

facilitator that encourages and provides a safe environment for experimentation, exploration, and discussion. This educator should also enable students to discover artists' working processes through their own creations (Douglas & Jaquith, 2009; Jaquith & Hathaway, 2009).

Hollie Ecker and Sarah Mostow, authors of *How might you...? Seeking inquiry in the museum studio* (2015), pointed to the issue that there is scant information on constructivist approaches in the museum-based studio, and identified concrete strategies for studio teaching in museums, which parallel the inquiry-method used in gallery teaching. They insisted studio educators ask a "motivating question" to inspire students' immediate and personal responses, design open-ended art activities to connect to the artwork in the gallery and children's experiences and provide individualized guidance accompanied with feedback and information (more will be discussed in the Literature Review section). However, beyond Ecker and Mostow, there have not been many published studies that discuss how museums might design the workshops taking place in their studios.

Connection Between Gallery and Studio Experiences

My concern regarding an imbalance between gallery tour and studio workshop programs in art museums fueled my interest in the connection between gallery learning and studio learning for student participants. Another example that sparked my interest in the connection between gallery and studio learning is when I conducted a pilot study of a newly launched tour and workshop program at an art museum in 2012. The study investigated if the inquiry-based learning continued from the galleries to the studio I

examined both spaces in the museum, studying how museum educators structured their teaching and students responded, as well as if students' artworks revealed any connection between the two learning areas. Unfortunately, in many cases, I did not see inquiry taking place in the studio. Nevertheless, I saw the ideas of the artists' traveling across gallery and studio. For example, the museum educator asked students to pick one of the animals featured in the artwork they saw in the gallery, draw it on their paper, and add a background. When students were told to write their names on their artworks, one of the students remembered that one of the artist's, whose work they had seen in the galleries, had placed his signature hidden in the character's armpit, and remarked, "I am going to hide my name like that wire sculpture!" Other students were then inspired to bring in the artist's idea of hiding the signature and thought of distinctive places to hide it, such as on or under a character's body parts, the sun, or the grass.

Yet, in practice, recognizing and promoting connections of this sort within tour and workshop programs seemed challenging. One reason is that the educators leading the same group within a program are often different: one educators is in charge of the gallery; another in charge of the studio portion. In addition, the sequence of students' learning experience sometimes differs: half of the students do the gallery first and then studio, while the other half do the studio first. Since the nature of the museum program is learner-centered, students shape their own interpretations and experiences with the artworks in the galleries. Consequently, experiences and learning may differ depending on each group, even though they look at the same artworks and make art with the same materials—and, given how programs are structured—the educator that led them in the gallery is not there to lead the studio portion. In short, there is a potential disconnect.

Integrating Art Viewing and Making in Education

Scholars have referred to the interrelationship between art viewing and art-making. For example, Marshall and Donahue (2014) encouraged teachers to implement the inquiry-based approach, integrating contemporary art across curriculum because the integration of viewing/interpreting and making the art would serve as a platform for students to explore questions across disciplines that lead to understanding. Recognizing the art museum as an important educational resource for young children, Trimis and Savva (2004) insisted that the visit to the art museum would serve as a stimulus and extend students' firsthand knowledge about materials and ideas. In line with Trimis and Savva, Eckhoff (2017) also supported the idea of incorporating art viewing (either a visit to the museum or exploration of a museum's online resources), art-making, and art appreciation in early arts education because it would inspire students and promote a new understanding of oneself as an artist. However, we don't know enough about whether or how this integration may be happening in tour and workshop programs, which offer children both art viewing and making in the single session in the art museum setting.

Problem Statement

To sum up, museum education has embraced constructivist approaches in gallery teaching for the past three decades as a way to help students experience museum artworks (Burnham & Kai-Kee, 2011; Hubard, 2015; RK&A, Inc., 2015; Villeneuve & Love, 2007; Yenawine, 2013). However, although the constructivist approaches in gallery teaching have been widely used in many of the museum galleries and are well

documented, in my observation, constructivist approaches are not necessarily the norm in many museums' studio sessions. Moreover, there is scant scholarship on constructivist approaches to studio learning in museums (Ecker & Mostow, 2015). Interestingly, where it concerns art classrooms in school settings, scholars in the field of art education (Barrett, 1997; Burton, 2012; Chapman, 1978; Douglas & Jaquith, 2009; Jaquith & Hathaway, 2012; Pelo, 2007) have already accepted the use of constructivist approaches for decades. With the scant information on constructivist approaches in the museum-based studio, we do not know what these approaches might look like and what sorts of connections students may be making between studio and gallery in tour and workshop programs.

Fueled by these concerns, the purpose of my research is to investigate (1) how constructivist approaches are conceptualized and implemented in art museums' "tour & workshop" programs and (2) the relationship between the gallery and studio learning experiences.

Research Questions

In conducting this research, the following question will be addressed:

- How do three art museums conceptualize and implement constructivist approaches in their gallery tours and related studio workshops? Further, what is the relationship between these two learning experiences?

Specifically:

- How do administrators in three museum education departments support tour and workshop school programs in ways that claim to (1) adopt a constructivist

approach and (2) promote (or do not promote) connections across the gallery and studio?

- How do educators in the three museums facilitate students' gallery experiences in ways that support (or do not support) a constructivist approach?
    - In what ways do students' responses/actions/comments/etc. in the gallery reflect (or not reflect) the sort of learning processes that constructivist approaches aim for?
- How do educators in the three museums facilitate students' studio experiences in ways that support (or do not support) a constructivist approach?
    - How do students' responses/actions/comments in the studio reflect (or not reflect) the sort of learning processes that constructivism aims for?
- How do education programs in the three museums promote (or do not promote) connections across the gallery and studio?
    - How do students' responses/actions/comments/etc. in the gallery and studio demonstrate (or do not demonstrate) connections between gallery and studio learning?

Assumptions

For the purpose of this dissertation, I make several assumptions.

Assumptions Not to Be Debated

- Museums are unique learning environments and that students can learn in museums.

- Museum learning is valuable to students.
- The study assumes that every individual learns differently, but certain learning commonality can be found among museum educational program participants, such as experiences stemming from observation, investigation, and the exploration of artworks.
- In line with constructivist theory, people construct meaning by connecting existing understandings and new experiences.
- This study assumes that the constructivist approaches in the museum's studio will help students to engage with the artists' artworks, as well as their own.

Assumptions to Be Debated

- Gallery and studio experiences can enrich each other.
- The size of the museum, as well as the collection may influence the participating students' experiences.
- The different teaching experiences and philosophies of the educators may influence the students' experiences.
- The well-connected tour and workshop art museum programs can provide more cohesive learning experiences.

Theoretical Framework

Constructivism underlies the theoretical framework for this study, which informs the choice of my research topic, research questions, literature review, data collection methods, and analysis. Constructivism is a philosophical perspective and theory about knowledge and learning, which explains how people might acquire knowledge (Fosnot,

2005; Wiggins, 2015). Jean Piaget (1973) and Lev Vygotsky's (1978) theories focusing on learning as dynamic process comprising successive stages of adaptation to reality and social interaction, language, and culture on learning (respectively) served as a pivotal role in evolving the constructivist theory. Building onto their ideas, John Dewey's work (1934/1980) that put emphasis on the social individual and learning from experience enhanced it further (Fosnot & Perry, 2005; von Glasersfeld, 2005).

To be specific, the constructivist theory mainly argues that knowledge is actively constructed by the learners rather than passively transmitted by the teachers (Fosnot, 2005; Wiggins, 2015). Specifically, the constructivist view emphasizes the learner's participation, interpretation, and meaning-making experience. Even though constructivism is not a teaching theory, general principles from constructivism theory inform how educators teach (Fosnot, 2005). A constructivist view of teaching rejects that learning happens through transmission, symbols, or exact copies of the teachers' instruction (Fosnot, 2005). Rather, the students bring prior knowledge into a learning situation in which they must critique and re-evaluate their understanding of the concepts (Fosnot & Perry, 2005). In the constructivist classroom, both teachers and students think of knowledge as a dynamic, ever-changing view of the world we live in and the ability to successfully stretch and explore that view (Fosnot & Perry, 2005).

From this constructivist stance—which is mainly concerned with how people construct their worlds—my study aims to describe, understand, and interpret how people understand the world as they experience it (Merriam, 2009; Williamson, 2006). In particular, social constructivism is underpinning theoretical lens that supports and informs my study (Merriam, 2009). Social constructivism assumes that reality is socially

constructed, and there is no single and observable reality but multiple realities or interpretation of a single event (Merriam, 2009). Thus, it focuses on how people develop meanings for their activities together (socially constructing reality) (Williamson, 2006).

In the same note, the researchers do not find knowledge, but they construct it. The researchers seek to understand the complexity of views that are often subjective and are negotiated socially and historically (Merriam, 2009). Thus, the constructivist approach recognizes that the researchers' backgrounds will influence their interpretations of the data, which means that researchers shape their data collection and redirect their analysis as new issues emerge (Williamson, 2006).

A Summary of Methodology and Design

I examined nine gallery tour and studio workshop programs that took place in three different art museums in the United States. Each program provided children the opportunity to engage with the artworks by looking and discussing during the gallery tours and by art-making and discussion in the studio workshops, all in a single session.

The examination I conducted was a qualitative multi-case study, and this method suited my research that aimed to understand the uniqueness of a certain situation, or how people make sense of their world and experiences, often starting from people's expressions, as well as activities in their temporal or local contexts (Flick, 2009; Merriam, 2009). Further, I wanted to examine a range of similar and contrasting cases (Merriam, 2009).

In order to study diverse programs with varying facilitation and design, I selected museums that are different in size and have different types of art collections. Even though

I wanted variation, I only chose three sites, as I needed a number of sites that would be manageable for me to collect from and examine data in depth. Within each site, I studied three iterations of the same tour and workshop program. The participants in the study included a total of four administrative staff members, 15 educators, and approximately 202 students (9 groups of students).

The data collection method included observations of program sessions, interviews with the museum administrative staff members and museum educators, casual conversations with the participating students, photos of students' artworks, and museum documents (if available). Observations allowed me to see how the museum programs were structured and facilitated, and also permitted me to see the interactions and responses of the students in the two different learning spaces: gallery and studio. Interviews enabled me to understand the views of the museum administrative staff members and museum educators that were involved in the design and teaching of each program.

My background as an artist and museum educator was an important factor in this research, as the experience inevitably shaped my research interest and what I was able to capture in the data collection and analysis. This includes the selection of the sites, formation of questions, and conduct and interpretation of the observations, interviews, and documents. However, I am mindful of my interpretation of observations and interviews as I am the primary instrument for data collection. As Maxwell (2012) put it, qualitative research is concerned with understanding a researcher's values and expectations. Also, I am aware that it is impossible to be aware of the researcher's theories, beliefs, and the perceptual lens formed through years of teaching. However, my

background, learning experiences, and awareness of the field and its culture brought depth and guidance to the study.

Outline of the Dissertation

The first chapter presented readers with the context of the research question: How do three art museums conceptualize and implement constructivist approaches in their gallery tours and related studio workshops? Further, what is the relationship between these two learning experiences? It offered background to this question by describing the brief overview of constructivist approaches in museum galleries and studio learning in art museums, as well as my concern regarding the connection between gallery and studio experiences. I also introduced my research questions and presented my approach to investigating the problem, including the assumptions, and methodology design.

Chapter II will present a review of the literature discussing the contextual issues briefly described in Chapter I. To be specific, I will delve into constructivism, focusing on the development of the constructivism theory and its application to classrooms; museum education, with a focus on the development of constructivist approaches and prevalent approaches aligned with constructivism including (inquiry-based approach, VTS, other dialogical approaches, and gallery activities); studio art education, with a focus on the development of constructivist approaches and application of the approach in art classrooms; studio learning in the museum; and integrating/combining art viewing and studio practice in education. Chapter III will present the methodology I have adopted, as well as specific details central to conducting the research—including sites and participants, methods of data collection (documents, observations, interviews), data

analysis, and limits of the study. Chapter IV will present the findings of the three cases that resulted from my analyses. Chapter V will interpret the findings through literature presented in Chapter II as well as literature identified upon further review. The last chapter, Chapter IV will present implications for education, questions for further research, and end with conclusion.

II – REVIEW OF THE LITERATURE

Introduction

Given that this study examined tour and workshop educational programs in three art museums, focusing on constructivist approaches and the connection between the two learning experiences, the literature review below will detail the following areas: the idea of constructivism and its application and development in classrooms, museum education, and art education, as well as attempts to integrate art viewing and art-making.

Constructivism

Constructivism is a philosophical perspective and theory about knowledge and learning (Fosnot, 2005; Wiggins, 2015). The theory's main argument is that knowledge is actively constructed—not transmitted—through the learner's participation, interpretation, and meaning-making experience (Fosnot, 2005; Wiggins, 2015). Even though constructivism is not specifically a teaching theory, a constructivist approach is rather radical and controversial compared to the instruction used at most schools (Fosnot, 2005). That is, a constructivist view of teaching rejects that learning happens through transmission, symbols, or exact copies of the teachers' instruction (Fosnot, 2005). Rather, in a constructivist classroom, the focus tends to shift from the teacher to students. In this model, teachers become facilitators and learners take on more ownership of the ideas (Fosnot, 2005). The educator provides learners with opportunities and incentives to build on, and the learners can search for patterns, raise questions, model, interpret, and defend

their strategies and ideas through opportunities meant to create concrete and contextually meaningful experience (Fosnot, 2005; von Glasersfeld, 2005). The implication of the theory is controversial because people are often confused that the teachers should avoid giving any direct instructions to students in constructivist classrooms (Fosnot, 2005). However, the goals of constructivist classrooms include autonomy, mutual reciprocity of social relations, and empowerment (Fosnot, 2005).

Development of Constructivism

Constructivism, which insists that much of learning originates from inside the child, has its roots in the ideas of rationalism, empiricism, and pragmatism (Wiggins, 2015). That is, philosophers have debated about how humans attain knowledge for centuries. The two main views include the empiricist and rationalist views (Kamii & Ewing, 1996). The major differences between the two theories involved the philosophers' views on the role of experience. Empiricists (Locke,[1] Berkeley,[2] and Hume[3]) asserted the notion of a "clean slate," which connotes that human beings are originally blank (Kamii & Ewing, 1996). Thus, knowledge, which has its source outside the individual, is acquired by internalization through the senses (Kamii & Ewing, 1996; Wiggins, 2015). The sole function of experience is knowing, and experience is gained through observation. On the other hand, rationalists (Descartes,[4] Spinoza,[5] and Kant[6]) argued that reason is more important than sensory experience because reason allows humans to know with certainty (Kamii & Ewing, 1996; Wiggins, 2015). To elaborate, rationalists did not

[1] John Locke (1632-1704): A British empiricist.
[2] George Berkeley (1685-1753): An Irish philosopher.
[3] David Hume (1711-1776): A Scottish philosopher, historian, economist, and essayist.
[4] Rene Descartes (1596-1650): A French philosopher, mathematician, and scientist.
[5] Baruch Spinoza (1632-1677): A Dutch philosopher.
[6] Immanuel Kant (1724-1804): A German philosopher.

deny the necessity of experience, but they pointed out that the senses could not provide reliable knowledge. Kant insisted that "we are not a blank slate, we organize, think, and take in" (Kamii & Ewing, 1996).

One of the founding philosophers of constructivism, Jean Piaget (1974) studied knowledge, aiming to resolve the debate between two different views (empiricism and rationalism) using science (Fosnot & Perry, 2005). Accordingly, Piaget studied the evolution of science in order to understand the nature of knowledge. He also further observed and interviewed children (Kamii & Ewing, 1996; Terrassa, Hubard, Holtrop, & Higgins-Linder, 2016). As a result of more than 50 years of research, he took the notion of adaptation—a relationship between living organisms and their environment out of the biological context—and developed his genetic epistemology (von Glasersfeld, 2005). Piaget rejected the idea that learning is passive assimilation of given knowledge, but argued that learning is a dynamic process comprising successive stages of adaptation to reality during which learners actively construct knowledge by creating and testing their own theories of the world (von Glasersfeld, 2005). Thus, Piaget's theory served as a foundation of learner-centered and constructivist-based learning, allowing teachers to consider the individual child as a learner who builds new ideas onto their previous knowledge in order to construct a new meaning of themselves.

Similar to Piaget, Lev Vygotsky (1978) thought that learning was developmental and constructive, but his main focus was on social interaction, language, and effect of culture on learning (Fosnot & Perry, 2005). While constructivism conceives human development as a relatively isolated process determined by an individual's relation to the external world and surroundings, Vygotsky argued that the world is interpreted and

mediated by means of language, artifacts, and collective human activity (Pierroux, 2003). In his sociocultural theory, language is not a fixed system, and the meanings of words may be developed or changed due to a vital human interaction: speech (Pierroux, 2003). Thus, Vygotsky emphasized the role of reciprocal exchange of language in learning. Specifically, Vygotsky argued that a child's learning should take place when the child becomes an active learner, interacting with the social environment and conversing, questioning, explaining, and negotiating meaning with an adult (Fosnot & Perry, 2005). In contrast to Piaget's argument concerning children being independent thinkers and learners, Vygotsky emphasized the role of an adult or teacher's guidance to advance children's learning and development. Accordingly, Vygotsky developed a theory called the "Zone of Proximal Development" that said humans learn in a step-by-step process where knowledge is constructed while interacting or receiving assistance from an adult or advanced peer (Thompson, 2015).

John Dewey, an American philosopher, psychologist, and educational reformer is also often associated with constructivism (Fosnot & Perry, 2005; Lim, 2004). Although Dewey did not use the concept of constructivism, his progressive argumentation—the social individual and learning from experience—adds to Piaget's and Vygotsky's ideas concerning the importance of active learning, construction of knowledge, and social interaction (Cuffaro, 1995). Dewey believed human learning was a communal process whereby the learner gathers and constructs knowledge by being immersed in the real world (Cuffaro, 1995). He argued that school should be a learning community that emphasizes children's individual growth, as well as a cooperative community through featuring group activities (Efland, 1990). Dewey "locate[d] the construction of

knowledge in the organism-environment transaction," and argued that knowing is not a passive registration of the world outside but an active construction of reality (Vanderstraeten, 2002, p. 242). To be specific, Dewey advocated for child-centered schools that emphasized children's own needs and interests. He argued that education should focus on individuals and their whole experience, rather than memorization of facts (Cuffaro, 1995).

Constructivism Applied to Classrooms

As mentioned above, constructivism is a theory about learning and not about teaching. However, general principles from constructivism theory inform how educators teach. The basic tenet of constructivism is that students bring prior knowledge into a learning situation in which they must critique and re-evaluate their understanding of the concepts (Fosnot & Perry, 2005). Learning is also a self-regulatory process of struggling with the conflict between existing personal models of the world and new insights (Fosnot, 2005). Although learning is a self-regulatory and individual process, constructivist classrooms emphasize group work, dialogue, and shared norms because cooperation will help students to understand their own ideas, as well as create new ideas (Walker & Shore, 2015).

Thus, unlike the traditional classroom, the constructivist classroom is not a place where the knowledgeable teacher pours information into passive students. In the constructivist model, the students are urged to be actively involved in their own process of learning by doing. In the constructivist classroom, both teachers and students think of knowledge as a dynamic, ever-changing view of the world we live in and that they have

the ability to successfully stretch and explore that view (Fosnot & Perry, 2005). Bawa and Zubairu (2015) outlined the key assumptions of the perspective:

> 1) What the student currently believes, whether correct or incorrect, is important, 2) Despite having the same learning experience, each individual will base his/her learning on the understanding and meaning personal to them, 3) Understanding or constructing a meaning is an active and continuous process, 4) Learning may involve some conceptual changes, 5) When students construct a new meaning, they may not believe it but may give it provisional acceptance or even rejection, and 6) Learning is an active not a passive process and depends on the students taking responsibility to learn. (p. 73).

Also, the main activity in a constructivist classroom is solving problems where “students use inquiry methods to ask questions, investigate a topic, and use a variety of resources to find solutions and answers” (Bawa & Zubairu, 2015, p. 73).

There are a variety of teaching approaches aligned with constructivism. For example, problem-based learning is a structured educational approach that presents a problem for the learners to use to activate their previous knowledge, and then the learners collaborate in small and large group discussions and reflect on the new information to critically analyze the problem (Schmidt, Rotgans, & Yew, 2011). Another example is the inquiry-based approach, which asks students to pose and answer questions individually and in groups (Mui, 2010; Walker & Shore, 2015).

Art Museum Education

In this section, I will present a brief historical summary of the development of constructivist approaches in art museums and detail on constructivist pedagogical approaches used in current art museums.

Development of Constructivist Approaches in Museums

A museum is defined as “a permanent, non-profit institution, essentially educational or aesthetic in purpose, with professional staff, which acquires objects, cares for them, interprets them, and exhibits them to the public on some regular schedule” (Professional Practices, Association of Art Museum Directors, N.Y., 1972; as cited in Lee & Henning, 1975). As stated, museums (including art museums) in the United States were first formed to provide a cultural base for society by using artifacts organized to promote learning (Taylor, 1975). However, education received relatively less attention compared to other museum functions, and it wasn’t until the late 1900s that education gained attention and funding (Buffington, 2007; Ebitz, 2005).

Over the years, art museums have been transformed from palaces for the scholarly elite to educational institutions for the public, and teaching in the museum has also developed (Buffington, 2007). Since its inception, due to the demands of growing audiences and societal changes, the role of education and teaching in the museum continued to transform (Buffington, 2007; Burnham & Kai-Kee, 2011). An earlier form of education in museums encompasses the emergence of museum schools founded in the early 19th century. These functioned as schools to train artists and artisans using the museum collection (Buffington, 2007). However, as art departments began to be established at colleges and universities, art museums refocused their educational efforts on the public (Buffington, 2007). In the late 19th and early 20th centuries, museums became prominent institutions within communities, offering educational lectures and gallery talks. The goal of education in U.S. museums was to deliver correct information

about museum objects and philosophies, while also providing access to the underserved (Buffington, 2007).

In the early 1900s, U.S. art museums developed educational programs for children and school groups focusing on highly structured lessons (involving museum objects) and artistic skills (Buffington, 2007). Although there were some discussion-based educational programs inspired by Dewey's writings (1916), in the 1920s and 1930s, informational lectures focusing on art history were more common (Buffington, 2007; Burnham & Kai-Kee, 2011). Museums' educational work grew, and museums experimented with various forms of educational programs, experiencing both successes and failures (Buffington, 2007).

In the 1950s, museum attendance increased rapidly, and museums tried various forms of discussion in their galleries. In efforts to create programs that espoused the goals of active participation and freedom, museum educators designed museum games for children (Burnham & Kai-Kee, 2011). Consequently, many educational activities and programs emphasizing "informality and freedom to ask questions or comment" replaced the traditional lecture tours (Burnham & Kai-Kee, 2011, p. 31). In the 1960s, new museums were emerging, and the attendance increased. As a result, museums had to rely on volunteers to lead the visitor education programs (Burnham & Kai-Kee, 2011). Increased support for arts in schools in the late 1960s brought about the "arts-in-education movement," including the support of initiatives by a new federal art bureaucracy (Burnham & Kai-Kee, 2011, p. 36). The movement aimed to provide children with an experience of art through making and viewing, rather than through lessons about various disciplines (Efland, 1990). Similarly, art classes in museums

became extremely important, as creative activity overtook art history and appreciation (Burnham & Kai-Kee, 2011). The Whitney Museum of American Art began its Independent Study Program, which offered advanced studio art, art history, and museum studies to teenagers and college students, and the Metropolitan Museum of Art offered courses for teenagers and adults focusing on the artistic techniques represented in their collections (Burnham & Kai-Kee, 2011; Whitney Museum of American Art, 2008). As Victor D'Amico, head of the Museum of Modern Art's education department from 1937 to 1970 put it, "When people know how to create. They respect others' creativity" (as cited in Burnham & Kai-Kee, 2011, p. 36).

In the 1980s, the goal of museum education was to encourage visitors to actively engage with art objects, and museum education departments put new emphasis on using the questioning method—which still dominates museum teaching—as an interactive format (Burnham & Kai-Kee, 2011). Accordingly, art-making in the museum was less relevant in this decade. Instead, museums focused on encouraging visitors to verbalize their observations and opinions about artworks, as well as teaching art history and aesthetic education. The teaching of art history and aesthetic education is also due to the rise of Discipline-Based Art Education (DBAE), which quickly became the most prominent approach in art classrooms expanding to museums in the 1980s. DBAE is a conceptual framework ensuring all students are involved in visual art as a part of their general education. It is comprised of art history, art criticism, aesthetics, and art practice. DBAE, however, was a rigid approach for museum educators because learning about the art history and art criticism components of DBAE could distract students from the

holistic experience of the art objects themselves. Also, it focused on the content of art disciplines, and not on so much on learners (Burnham & Kai-Kee, 2011).

Since the 1990s and 2000s, museum education focused on visitor-centered learning, and constructivist approaches became prominent in the field. Museums highlighted a visitor's active role in interpreting objects (Burnham & Kai-Kee, 2011). The following section will discuss constructivist approaches in museum teaching, while describing some of the noted scholars and approaches, specifically related to gallery teaching.

Constructivist Approaches in Museums

Museum educational programs continuously tested new teaching strategies, strengthening the educational role of museums over time. As a result of the experimentation, constructivist approaches are now accepted as the norm in art museums (Burnham & Kai-Kee, 2011; Hubard, 2015; Villeneuve & Love, 2007). Some of the noted scholars in the field of museum education that consider museum education from a constructivist stance include George E. Hein, John H. Falk, Lynn D. Dierking, Rika Burnham, Elliott Kai-Kee, Abigail Housen, Philip Yenawine, and Olga Hubard.

George E. Hein, profoundly influenced by John Dewey, was interested in how people learn in museums, and specifically the learner's personal making of meaning in the context of museums. Hein wrote an influential book called *Learning in the Museum*. Hein (1998) argued that museum learning takes place when visitors connect what they see, do, and feel about the context of the museum with what they already know and understand (Hein, 1998). That is, visitors don't necessarily learn what is intended in an exhibit or program, but they do make sense and meaning based on the new experiences

and how these fit into their preconceived notions about the world around them (Hein, 1999). Consequently, he insisted educators find out about the diverse experiences individuals bring with them and what they make of the exhibit (i.e. through visitor studies) and consider how all other aspect of museum's surroundings—parking problems, admission fees, and visitors' physical comfort—influence visitors' interpretations. Hein (1991) further emphasized that museum learning is an active process, which benefits from language involvement, physical and hands-on experiences, connection with the other people (teacher, peer, or other visitors), plenty of time for reflection, and motivation (understanding of the ways in which the knowledge can be used).

Similarly, John H. Falk and Lynn D. Dierking insisted that museums are "excellent environments for meaningful learning because they offer rich, multi-sensory experiences" (p. 114), which human beings—as social organisms who learn while talking to, listening to and watching other people—benefit from (Falk & Dierking, 2002). Falk and Dierking (2000) formulated a framework called the Interactive Experience Model that tried to accommodate the diversity and complexity surrounding learning. They then refined the model and called it the Contextual Model of Learning. They argued that all learning is situated within a series of contexts, and their model involved three overlapping contexts that interact over time: the personal, the sociocultural, and the physical. To be specific, the personal context stated that learning is about affirming the self; the learning is facilitated by personal interest, foundation of prior knowledge, motivations (specifically the intrinsic motivation) and a combination of emotional, physical, and mental action. The sociocultural context presents the idea that humans are all part of a larger group or society, and that learning is both an individual and a group

experience. Finally, the physical context suggests that learning appears to be inextricably bound to the environment where it occurs, and that all “learning is influenced by the awareness of place” (p. 65). Thus, Falk and Dierking (2002) argue that educators and museum professionals should consider these three contexts in order to offer better and more personal learning experiences for visitors. Falk and Dierking’s model drew heavily on the ideas of constructivism because of its emphasis on the inextricable interaction between the learner’s personal, sociocultural, and physical variables while in the museum.

As described above, Hein, Falk, and Dierking think about the function of museums in the broader sense. They argue that a museum is a well-suited place for both personal meaning-making, and communal learning built on the idea of constructivism. The following sections will elaborate on some specific teaching approaches used in museums that are rooted in constructivism, including the inquiry-based approach, VTS, types of dialogic teaching, and gallery activities.

Inquiry-based approach. Inquiry-based learning is grounded in constructivism and the works of Piaget, Dewey, Vygotsky, and Freire, among others (Walker & Shore, 2015). However, the inquiry method itself traces its origins back to Socrates’s time (Hubard, 2011; Schmidt, 2004). He was arguably the earliest educator that believed learning could not be delivered, but only occurred when his pupils were involved. He used questions as a way to include his students in their own learning process. Indeed, the inquiry-based curriculum is learner-centered, requiring students’ active participation in observation, posing questions, examination, investigation, and proposing answers, all in order to acquire new knowledge (Mui, 2010; Walker & Shore, 2015). Students

reflectively connect new learning to existing cognitive structures through collaborative and cooperative learning processes between other learners, with teachers, and disciplinary masters (Bruner, 1961; Dewey, 1997; Piaget, 1972; Prince & Felder, 2006; Vygotsky, 1978; as cited in Walker & Shore, 2015). Thus, the teacher's role is important in facilitating the students' learning.

According to Schmidt (2004), in inquiry approach, educators should ask initiating questions, then response and follow-up questions, and insert information at key points. Schmidt (2004) argued that initiating with open-ended questions instead of didactic questions, or questions with right and wrong answers, will encourage students to inquire on their own and to think more deeply, as well as involve them in active motion—probing, eliciting, pressing for, searching, seeking, and scrutinizing. Follow up questions would help students clarify, expose points of view, review assumptions, push for reasons and evidence, and probe implications or consequences of their ideas. Lastly, the insertion of information (stories, anecdotes, documents, charts, photographs, paintings, etc.) at key points would assist students in the construction of new knowledge by adding information to their discoveries that is based on their prior knowledge. Schmidt wrote about education in general, not museum education, but her ideas have influenced museum educators.

In the field of museum education, the inquiry-method often takes the form of asking open-ended questions about artworks, to be discussed through dialogue. This approach has been widely adopted since the 1980s (Burnham & Kai-Kee, 2011; Hubard, 2011; Shulman-Herz, 2010; Terrassa, Hubard, Holtrop, & Higgins-Linder, 2016). Rebecca Shulman-Herz (2010) mentioned that an inquiry-based museum education means that individuals do not learn by memorizing a static body of knowledge, but by

creating new meaning through an intersection of what they already know and believe with fresh ideas and knowledge. The inquiry-method allows visitors to voice their views of the art, and facilitates participation in the museum interpretive process (Burnham, 2011; Villeneuve, 2007). Unlike the traditional lecture-based tours, the purpose of inquiry-approach is to help visitors learn the skills of observing, comparing, classifying, hypothesizing, and evidential-reasoning, all leading to discovery (Burnham & Kai-Kee, 2011).

Visual Thinking Strategies. A particular inquiry-based pedagogical approach, Visual Thinking Strategies (VTS), a sequential-art viewing program, was developed by Philip Yenawine and cognitive psychologist Abigail Housen, and has been widely adopted in museums since the 1990s (Burnham & Kai-Kee, 2011; Yenawine, 1998). The work is based on the ideas of Baldwin (1975), Arnheim (1969, 1972), Loevinger (1976), Piaget (1951), and Bruner (1973). Vygotsky's theories (1962, 1978) also played a significant role in their thinking. To be specific, Vygotsky's idea was that all thinking is inextricably intertwined with language and that learners should verbalize their thoughts. He also stressed the benefits of working with peers, which was central to developing VTS. VTS encourages facilitated open-ended discussion that supports individual expression, productive group interactions, and the development of the appreciation of diversity (Yenawine, 1998). In addition, Housen and Yenawine insisted that artworks are multi-layered and complex, and the meanings of artworks are often imprecise, ambiguous, open to interpretation, and mysterious.

Specifically, VTS asks teachers to encourage students to first look carefully at an image or an artwork without talking, and then to ask three open-ended questions in

sequence to engage those students. The questions are: "What's going on in this picture?" "What makes you say that?" and, "What else can we find?" Teachers are facilitators of the students' process, never experts, and they never indicate a "right or wrong" answer. Yenawine (2013) further described that teachers pointed to what students observed, paraphrased what the students said, and linked what students said to validate their different interpretations and opinions. Students are active inquirers that look carefully, develop opinions, express them, consider multiple viewpoints, speculate together, argue and build on each other's ideas, back up interpretations with evidence, and possibly revise conclusions. Discussions generally last 12 to 20 minutes per artwork (Yenawine, 1998). However, Burnham and Kai-Kee (2011) argued that since VTS emphasizes students' interpretation and educators only question open-ended sequential questions without correction of information or without offering any context, students might end up with incorrect information regarding the artworks (Burnham & Kai-Kee, 2011). In fact, while discussing the role of information with Danielle Rice in a *Conversation on Object-Centered Learning in Art Museums (2002*), while Rice advocates the role of information, which might validate viewers' responses and encourage them to analyze further, Philip Yenawine shows his opponent view on giving information because it might teach "passive reception" to the viewers and disengage them from looking (p. 292). While VTS is very influential in the field of museum education, I have also witnessed it being criticized because of the lack of contextual information and the potential prescriptiveness of the questions being asked.

Dialogical teaching without questions. Instead, in their book, *Teaching in the Art Museum,* Rika Burnham, Head of Education at the Frick Collection and Elliott Kai-Kee,

Education Specialist at the J. Paul Getty Museum, insisted that dialogical teaching without questions could guide visitors' deep understanding and experience with the artworks (2011). Their dialogue-based approach is built from Isaacs' dialogical model for interpreting artworks that encourages discovery. Isaac's dialogical model is a four-sided model (mover, follower, bystander, and opposer[7]). Burnham & Kai-Kee argued that the teacher deliberately guides and shapes the flow of discourse, but not toward the teacher's pre-determined goals. A teacher and participants might all adopt any of the four roles at any time of the dialogue. They emphasized that the dialogue they support is a contribution of the knowledge, observation, and insight of all the participants, and the whole process is "a cooperative, reciprocal enterprise based on trust and respect" (Burnham & Kai-Kee, 2011, p. 95). They also added that in a successful dialogue, the questions arise primarily from the students, and both teachers and students gather information from various sources into the dialogue.

Open interpretive dialogue. Although she did not propose another approach, Hubard (2010) investigated the different ways museum educators facilitated dialogues about works of art. Even though they are often inseparable in practice, Hubard distinguished between pre-determined dialogue, thematic interpretive dialogue, and open interpretive dialogue. In a predetermined dialogue, the educator asks a "sequence of carefully crafted questions" to guide students towards an understanding of the pre-identified knowledge and ideas of the educator. This type of dialogue requires reasoning

[7] Mover pushes the dialogue forward by sharing observation and idea; Follower agrees with the flow of the dialogue and may offer supporting evidence with both verbal or non-verbal cues; Bystander observes, suspends the desire for certainty; Opposer actively disagrees with another's point of view. The teacher jumps all roles to correct an error of fact or a line of inquiry that leads away, rather than toward the artwork.

from the viewers, but the students' right or related answers are validated through the dialogue, and the teacher often has to redirect conversations that "veer off course" (Hubard, 2010, p. 42).

Both (thematic and open) interpretive dialogues aligned with constructivism aim for the viewers to create their own meaning about the artworks, and the intention is not to direct them towards pre-identified ideas. In the thematic interpretive dialogue, the educator establishes a clear limit by offering students a specific lens for interpreting an art piece. Although the dialogue may lead to students' rich and varied interpretations, the educators might ask questions with expected answers in mind (Hubard, 2010). Hence, Hubard (2010) emphasized that the themes educators select should be visually evident, broad, central to the artwork, and relevant to the viewer. On the other hand, the aim of open interpretive dialogue rests on the notion that artworks are more than the embodiment of a single theme, and it provides multiple avenues for inquiry that will emerge organically from the viewers' responses.

Although all different modes of dialogue can be intertwined in a single conversation, Hubard (2010) held the stance that themes may limit the possible interpretations that artworks invite, and supported open interpretive dialogue. In her view, an open interpretive dialogue is flexible and welcomes uncertainty and contradiction as part of the meaning, while also allowing the teacher to share the process of discovery and construct new meaning with the students.

Gallery activities. Along with group dialogues, a prevalent practice is activities—different ways of engaging with artworks in the museum galleries. According to a *Survey of Single-Visit K-12 Art Museum Programs* (a total of 270 art museums were

involved) conducted by Randi Korn & Associates, Inc. (2015), "less pervasive but still popular activities include writing (67 percent), making art/sketching in galleries (60 percent), telling stories (59 percent), handling materials (59 percent), and role-playing or enacting the art (57 percent)" (p. 12). To elaborate, Hubard (2007) argued that artworks, unlike written contexts, present the physical entity and provoke viewers' bodily and emotional responses as well as interpretations. Non-discursive activities can facilitate embodied responses to a work of art that can help viewers experience the structure of a work, highlight the feel of its materials, and facilitate connections to the artist's process, and further help viewers to empathize with its emotional tone or its cultural significance.

Accordingly, Hubard suggested "teachers who want students to look beyond the conventions that surround them" should consider incorporating instances of non-discursive approaches to facilitate embodied responses to artworks that will not only aid in the construction of knowledge but also make the knowledge meaningful (p. 47). Examples of non-discursive approaches include responding with poetry, becoming the work, creating a soundtrack, drawing details, and transforming paper. To further illustrate, an educator might invite students to come up with a word in immediate response to an abstract painting and then ask them to combine their words to form a poetic reaction. While investigating a series of architectural models, an educator might suggest students to "become" the works by emulating the different buildings using their bodies ("reaching, balancing, bridging, and being physically grounded") (p. 50). When looking at an artwork with a scene that arouses sounds, an educator might encourage students to imagine the sounds they might hear from the scene and collectively create an acoustic response with provided objects (scissors, pencils, a clipboard, and paper). Also,

to encourage students to slow down and focus on the details and nuances of the selected work, a teacher might suggest that students draw the details of an artwork. Lastly, an educator might invite students to transform a piece of paper (tear, bend, fold, crunch, and join) in response to a work like a mandala, which is not only intricately designed with salient shapes and compositions, but also imbued with meanings of Buddhist spirituality (centeredness, simplification and experiencing the transcendental in one's body). Chang (2012) also supports drawing in front of the artworks because hands-on experiences allow, children to not only develop language, visual perception, critical thinking, problem-solving, and eye-hand coordination, but also cultural sensitivity skills.

The above teaching approaches based on constructivist philosophy all focus on gallery teaching in museums. They only look at the ways that educators may engage students to learn through observations, verbal interaction, and brief hands-on activities in the museum gallery space instead of the studio space. The following section will discuss the development of constructivist approaches in art classrooms and specific approaches aligned with constructivism.

Art Education

In this section, I will present a brief historical summary of the development of constructivist approaches in art classrooms as well as describe noted scholars and approaches that relate to constructivism.

Development of Constructivist Approaches in Arts Classrooms

Art education has evolved over time—influenced by societal changes, cultural policies, and key figures that attempted to change people's lives through the arts. In the

earlier decades of the 19th century, art education focused on training artists, refining manners, and morals, and teaching skills necessary for technological development (Stankiewicz, 2001). Similarly, children’s art was widely regarded as a clumsy and immature version of adult art (Chapman, 1978). However, by the early 1920s, scholars and educators started to recognize art as part of a young student’s individual development (Chapman, 1978).

Following the First World War (1914-1918), newer forms of expression were being explored in the arts, and many scholars, artists, and teachers thought that art could no longer be defined exclusively as a form requiring skillful representation (Chapman, 1978). Along with trends in educational theory, concepts of art as self-expression emerged (Chapman, 1978; Efland, 1990). In the early 20th century, Dewey articulated a view of education that was as revolutionary for its time as the innovations that were redefining the nature of art (Chapman, 1978). Dewey argued that children should be treated as active learners whose creative energies center on themselves and their world. Dewey and his followers rejected the “rote learning of ready-made facts, drill, and recitation of text materials, and the imposition of arbitrary rules by adults” (Chapman, 1978, p. 11; Day & Hurwitz, 2012). According to Dewey, active inquiry, sharing of effort, and experience in decision-making were natural and effective means to nurture learning (Chapman, 1978). Educators who supported the principles of John Dewey’s educational philosophy formed the Progressive Education Association in 1920, and Dewey’s ideas were tested and translated into classrooms including teaching of art (Chapman, 1978; Efland, 1990). The concept of art as creative self-expression was radical at the time, but educators (Marion Richardson, Florence Cane, Natalie Cole, and

Victor D'Amico) that shared Dewey's ideas began to recognize that the child's self-expression in art has its own kind of integrity (Chapman, 1978; Efland, 1990).

During Hitler's rise to power in the early 1930s, many refugees from Germany fled to America (Chapman, 1978; Efland, 1990). A number of teachers from Bauhaus, a German school of design that sought to merge the skill of the individual artisan with the requirements of mass production, settled in American universities and influenced American teachers (Chapman, 1978; Efland, 1990). The educational philosophy of Bauhaus also emphasized the exploration of different qualities of materials, as well as experimentation with different forms that might be suited to mass production (Chapman, 1978). The Bauhaus' focus on experimentation resonated with Dewey's emphasis on creative activity. Thus, experimentation became doctrine in art education by the mid-1940s (Efland, 1990). In the 1950s, however, even though children were inspired by opportunities to explore art materials, some art educators lost the meaning of experimentation and often accepted only the superficial manipulation of materials (Chapman, 1978). In the postwar years, the humanizing potentials of art were recognized, and the dominant theme in art education became human development through creative self-expression (Chapman, 1978).

After World War II, art education in American schools began to transform by alternating between two different modes of teaching: "more loosely woven constructivist practices and tightly discipline-based and teacher-determined instructional methods," including the DBAE in the 1980s, which focused on the content of disciplines instead of on learners, as mentioned above (Burnham & Kai-Kee, 2011; Thompson, 2015, p. 118).

Nevertheless, constructivism was frequently practiced, especially in the field of art education (Thompson, 2015).

Facilitation of dialogue. Lowenfeld was a huge influence in the transformation of the art education practice toward a modernist and expressionist mode (Thompson, 2015). Lowenfeld published Creative and Mental Growth (1947/1975), which became a major influence in the field. It emphasized that in order to stimulate their artistic development, children should be introduced to appropriate media and themes (Day & Hurwitz, 2012; Efland, 1990). To a degree, he was against forms of copying, imitation, working from models, or influences from adult art in children's art. Lowenfeld advocated for freedom of the individual child's creative expression, which could lead to emotional, social, and psychological well-being (Leshnoff, 2013). Also, Lowenfeld's theory was more aligned with Vygotsky's argument concerning stressing adult intervention in the process of children's learning (Thompson, 2015). Specifically, he emphasized the role of motivational dialogue, which, through teachers' crafted questions, activates students' passive knowledge and guides them toward the next developmental stage (Burton, 2001; Thompson, 2015). Lowenfeld believed the purpose of art education was to enable creative problem-solving skills and develop creativity that would transfer to other spheres of human activities (Efland, 1990).

Many scholars followed in the footsteps of Lowenfeld. One of the art educators/authors that he influenced was Lois Lord (1958/1996). Lord argued that art teachers should try to avoid giving exact directions to children, but instead encourage every child to explore the art materials by touch and sight so that they could make the most thoughtful selections. In her book, *Collage and Construction in School: Preschool/*

Junior High (1958/1996), she laid out a sequence of collage, construction, and wire sculpture-making directions that art teachers might apply in their classrooms. To be specific, she insisted art teachers initiate class discussion by asking questions, and by organizing materials in a neat and accessible way so that they were readily available for students to use. Instead of giving specific direction during the art-making, teachers should also guide students using discussion and comments on their choices and arrangements. She emphasized that with any material, art teachers should give guidance to children only after children started working on their art, and only if helping them was necessary for encouraging them to use the materials in a vital and individual way.

Moreover, Lord, along with her colleagues, Smith, Fucigna, and Kennedy (1983/1993), emphasized that art education must be focused on the valuable experience of children and help children develop their abilities to create and respond to meaning in visual imagery by using visual materials. Smith, Fucigna, Kennedy, and Lord published a book titled, *Experience and Art: Teaching Children to Paint* (1983/1993). They emphasized the thinking and cognitive processes behind children's paintings and examined their paintings through the lens of phases that arose and built upon the previous phase. They also insisted that dialogue stimulated children's thinking and encouraged teachers to ask questions. To be specific, they insisted that the initiating question should be related to a theme and help the children recall their experiences and associate them with ideas. Then, the teacher should guide the children with questions and help them think about translating their chosen subjects into art. Also, they recommended that art classrooms be clean and organized with accessible materials, and children should have

ample time to explore, gain confidence with the materials, and develop their ideas (Smith, Fucigna, Kennedy, & Lord, 1983/1993).

Judith Burton agreed with the importance of knowledgeable and sensible teacher guidance in personal development, specifically through dialogue (Burton, 2001). Burton argued that children consistently draw upon the self and the world, and the relation between the two. She suggested that learning about the arts would offer children the chance to construct the narratives they needed to make a complex world meaningful to them (Burton, 2000). Thus, she insisted that free and continuous interchange of ideas between teachers and students, and among students, would help pupils explore and act on the materials, while also manipulating materials to shape ideas and create meaning (Burton, 2000, 2001). Also, since young children's ideas and imaginative interpretations are flexible in nature, dialogues would offer students the opportunity to scrutinize, inquire, and investigate (Burton, 2001). Moreover, she argued that teaching art through dialogue would not only nurture and challenge students' learning, but also empower children's sense of agency, "giv[ing] them insights into how knowledge emerges and is constructed and expressed in and through visual images" (Burton, 2001, p. 40).

Furthermore, although he did not talk about motivating dialogue, Barrett (1997) asserted that reflective classroom discussion after art-making would provide opportunities for students to reflect, implement, and revise or improve their works, as well as seriously consider their own artworks and the artworks of their peers. Barrett (1997) emphasized that the discussion about students' artworks should be non-judgmental, positive, interpretive, and respectful.

Studio space and exploration of materials. A student of Lois Lord, Nancy Beal, along with Gloria B. Miller (2001), built onto the conversation, and added that the teacher should help students explore and master the use of materials to express their own life experiences in visual forms. In terms of practice, Beal (2011) suggested teachers create a safe and comfortable space, facilitate open-ended material exploration, respond to students' art making processes with nonjudgmental but specific responses, and ask them questions about the subject or their experience with it to deepen the discussion. To be specific, she emphasized that the art classroom should be a comfortable space for students to navigate and access materials easily, and students should feel ownership of the space. Each material should be kept separate, so students understand them clearly. Work with a single material may also extend as long as possible (weeks, months, or a year) because it will allow students to truly explore each material and produce a rich and personal artwork based on their exploration and acquired skills. During the art-making, the teacher should closely observe children's artworks and ask questions about their subject and their experience with it. She emphasized that the adult should intervene as little as possible, and the adult's comments should only help students review their work and make adjustments if necessary, instead of projecting their ideas onto the children's works. Also, she suggested asking motivating questions that are designed to focus on the children's personal experiences, involving them in the creation of meaning. The motivating question can provide students with strong emotional connections to their work and reach into their expressive centers. Questions might include, "What do you like to do in water?" "What do you like to do when you're wearing sneakers?" or "What do you like to do when it's cold out?" (p. 14).

Hafeli (2014) also emphasized the open-ended exploration of materials that can become expressive media. Students can use these to create different effects that suggest different kinds of meanings. She argued that there is a "fluid relationship with material and idea," that the "expressive ideas and themes emerge in [the] actions" of artists' investigations of materials and in their processes (p. 4). Specifically, she suggested that art teachers experiment on their own to see what the art materials can and cannot do, and to explore how the materials can be used to provide open-ended art experiences for students. This is preferable to designing teacher-centered "recipe-type, formulaic projects" (p. 19). Then the teachers should challenge students to push the studio media in ways that diverge from the teacher's predetermined expectations (subjects and visual appearance) through brainstorming and exploration at the beginning of the lessons. Hafeli (2014) also insisted the brainstorming and exploration of materials should not be daunting but encourage students' curiosity, autonomy, and realization of the materials, all of which can allow them to communicate ideas. To do so, she suggested the group of materials should be presented separately and introduced with historical and technical information, as well as suggestions for experimentation. However, materials should not be presented all together. Instead, starting with a single or a limited material option would provide students with the opportunity to experiment in-depth, and to develop flexible and divergent thinking. In sum, Hafeli (2014) argued that thorough and autonomous material inquiry would stimulate students' thinking and assumptions and further create a meaningful connection with prior learning and personal experiences. Similarly, Day and Hurwitz (2012) pointed out that the art classroom should have plenty of space for students to make art, and materials should be accessible to students. Also, they

emphasized that in order for the room to be appealing to children, it should feature visual aids, creating an environment where students can explore and experiment with art materials.

Students' ownership and choices. Douglas & Jaquith (2009) emphasized a student-directed art curriculum that puts children at the center of decision-making. They have worked to establish and maintain a choice-based art teacher network since the late 1990s (Beghetto & Plucker, 2006; Brooks & Brooks, 1993; Duckworth, 1996; as cited in Douglas & Jaquith, 2009). Within the network, they have supported Teaching for Artistic Behavior (TAB), which is interchangeable with the choice-based art education that describes an art program where children make the most of the decisions regarding their work. TAB educators teach from a three-sentence curriculum: 1) What do artists do? 2) The child is the artist, and 3) The art room is the child's studio. The three-sentence curriculum considers the individual needs, curiosities, personalities, and interests that emerge from students. The teacher becomes the facilitator who demonstrates, models, and provides a safe environment for experimentation, play, and making mistakes, instead of an instructor transmitting huge bodies of knowledge (Douglas & Jaquith, 2009). To be specific, Douglas & Jaquith (2009) suggested that art teachers begin their classes with a brief whole-group instruction, called the five-minute demo. In the five-minute demo, art teachers might demonstrate techniques and introduce information, followed by an exploration of materials (depending on students' needs and interests). Then, through one-to-one interactions, art teachers might encourage students to choose a particular exploration. The carefully managed step-by-step traditional school art experiences leave little in a student's control, but TAB will motivate them to bring their own ideas and

engage in their works without the teacher's assistance. For example, they will set up materials, and put them away when they are finished (Douglas & Jaquith, 2009). In the end, the Douglas and Jaquith (2009) asserted that the ability to make one's own choices is a contributing factor for creativity, and the capacity to make choices and work independently can be learned with practice and support from the teacher.

In sum, the aforementioned art professionals all stressed children's ownership in art-making and their artistic processes (Chapman, 1978; Douglas & Jaquith, 2009; Walker, 2003; Wiggins, 2015). The theorists and practitioners suggested facilitated dialogue (Barrett, 1997; Burton, 2001; Lord, 1958/1996; Lowenfeld, 1947; Smith, Fucigna, Kennedy, & Lord, 1983/1993), and material inquiry (Andrews, 2010; Beal, 2011) to help young children engage with art materials, and to assist them in developing ideas and artworks based on their experiences. All of the concepts support the idea that children should have ample time and space for exploration. However, these arguments are all based in school settings and do not center on museums, which are the focus of my study. The following section will shed light on the literature review that is focused on the art studio experiences within museum education that are relevant to my study.

Studio Learning in Art Museums

Compared to the work done on education in the gallery setting, there is scant scholarship on teaching approaches in museum studios, however, as mentioned in the Development of Constructivist Approaches in Museums section, art museums have developed and provided studio programs for the general public (Ecker & Mostow, 2015; Burnham & Kai-Kee, 2011). To briefly recap, there was increased support for arts in schools with the arts-in-education movement in the late 1960s. Similarly, the aim to

provide an experience of art for children through making and viewing, allowed art classes in museums to become significant, and creative activity became more important than art history (Burnham & Kai-Kee, 2011). For example, the Whitney Museum of American Art began their Independent Study Program, which offered advanced studio art, art history, and museum studies to teenagers and college students, and the Metropolitan Museum of Art offered courses for teenagers and adults focusing on the artistic techniques represented in their collections (Burnham & Kai-Kee, 2011; Whitney Museum of American Art, 2008). Similarly, at the Museum of Modern Art (MoMA), Victor D'Amico developed innovative and expansive education programs dedicated to art while serving as a founding director of the MoMA's Department of education from 1937 to 1969 (Woon, 2010). D'Amico developed many hands-on educational programs inspired by John Dewey. The Children's Art Carnival was one of the most popular and influential educational programs, which featured sophisticated educational toys and a studio where children could create artworks without adult interference (Woon, 2010).

However, the studio programs became less popular with the popularity of dialogue-based gallery tours, and as pointed earlier, the studio programs became quite popular again these days, often paired with a gallery inquiry session. As a response to the increase in studio programs, Hollie Ecker and Sarah Mostow (2015), experienced museum and art educators, argued there is a need for more attention and scholarship on teaching approaches in museums studios. They identified concrete strategies for studio teaching in museums that align with the inquiry method widely used in museums' gallery teaching. Drawing upon scholars and educators such as Viktor Lowenfeld, Nancy R. Smith, Lois Lord, Judith Burton, and Nancy Beal, they insisted studio educators ask a

"motivating question" to introduce an activity, design open-ended activities that connect to a museum's object and children's experiences, and provide individualized instruction accompanied with feedback and information.

To be specific, the motivating question resembles the open-ended question that initiates a gallery conversation. The motivating questions should inspire students' immediate and personal responses and relate to the significant experiences in children's lives, as well as the artworks they saw in the gallery. For example, after viewing a portrait painting, the educator might ask, "Who is an important person in your life? How might you show that person in a painting?" instead of saying, "We'll paint portraits" (p. 2). In art-making open-ended activities, the educator should avoid step-by-step projects, but offer materials that are suited to exploring the questions they ask. For instance, "pen and ink lend itself to showing texture through marks and lines; easily-smudged charcoal is wonderful for drawing from observation" (p. 3). Also, the educator should circulate while students are responding to the motivating question and materials in order to describe students' processes and show relevant reproductions of famous artworks as frames of reference. To their view, this individualized instruction and descriptive feedback and information echo the insertion of pertinent information during the gallery dialogue.

As Hubard (2011) pointed out in her writing on thematic programming in art museums, the well-crafted motivating question might serve as a conceptual focus for the students and tightly link students' art viewing and making, as well as their personal experiences. However, beyond Ecker and Mostow's work, there has not been much published discussing how museums might apply constructivist approaches to their studio

teaching, or what effects the relationships between inquiries students make in the galleries and the ones they make in the studio have within the same program.

Integrating/Combining Art Viewing and Studio in Education

There are scholars and art education professionals beyond the museum setting who have attempted to integrate art viewing and art-making into classrooms or incorporate museum visits to the classroom into art curricula. My interest in the connection between art viewing and art-making in the tour and workshop programs makes their thinking relevant to this discussion.

In their book *Art-Centered Learning Across the Curriculum,* Marshall and Donahue (2014) provide teachers with a framework for implementing the inquiry-based approach and integrating contemporary art across the curriculum. They conceptualized inquiry to the process of the learner raising questions, exploring many avenues, and experimenting with diverse ideas in the search for meaning and understanding systems; the investigation of how things are connected. Since contemporary art problematizes conventional thinking, raises fundamental questions about meaning, and prompts dialogue and connection to diverse worlds outside the classroom, they argued that the integration of contemporary art could support student learning. Accordingly, viewing/interpreting and creating/making the art would serve as a platform for students to explore questions across discipline that lead to understanding.

Further, they suggested two ways to develop curriculum, either through academic content or through art. Given my research topic, I will describe the method connected to art. If the teacher was to develop the curriculum through art, the teacher should 1) identify artwork that addresses pertinent knowledge (topic, concepts, problem), 2)

analyze the artwork for concepts, 3) identify creative strategies the artist uses, 4) relate concepts and strategies in other artwork, 5) identify disciplinary methods practitioners use (mathematicians, natural scientists, social scientists, historians, geographers, and writers) for art inquiry, 6) develop guidelines for inquiry that combines methods and strategies (Marshall & Donahue, 2014). The corresponding example might be as follows: if an educator wanted his/her students to 1) identify Awol Erizku's photographs that depict African American women in the manner of European art history classics such as Vermeer's Girl with a Pearl Earring, 2) students will analyze how the artist explored the African American female identity and canonical notions of beauty throughout Western history, 3) identify how Erizku juxtaposed contemporary faces with familiar Western art historical imagery, 4) look at other artists' artworks that explore the notions of identity, beauty, femininity, masculinity, ethnicity, and power in American society and in global culture, 5) study how Black writers, musicians, and social critics portray African Americans, and 6) students might make images of prominent people such as contemporary celebrities in the mode of traditional folk art. This way, students might look at a problem, issue, or concept differently while "learning techniques, ways of thinking, and how the disciplines fit together as a system" (p. 169). However, Marshall and Donahue's argument relies upon integrating art (viewing or making), mainly in classroom settings.

In another example, as an attempt to integrate cultural learning across the curriculum, as well as to provide varied opportunities for engagement in the arts, School Cultural Visits Coordinator Lisa Hochtritt, public school art teacher Kimberly Lane, and Museum Exhibition Associate Shannon Bell Price developed a 3-week partnership

project between the Heritage School and the Metropolitan Museum of Art (Hochtritt, Lane, & Price, 2004). To be specific, the three professionals agreed that the exhibition *Extreme Beauty,* focusing on the change of fashion and ideals of beauty across cultures and time, would be a nice compliment to the school curricula Ms. Lane was planning for her high school students: a collage experience which incorporated learning about making representations of the body. Their collaborative project involved an initial exploratory segment, pre-visit questionnaire and discussion, a museum associate's visit to class, a museum visit (self-guided with handouts), post-visit discussion and reflection, and the post-visit art project (collage). The pre-visit classroom learning invited students to familiarize themselves with collage materials and techniques while reflecting on the roles that clothing choices and fashion play in their lives. The museum visit engaged students to explore the exhibition. Even though there was no verbal group discussion in the museum, students were provided with a handout that featured open-ended questions and gallery activities to encourage their careful observations and engagements. The post-visit project asked students to construct large cardboard collage figures and design clothes for them. As a result of this partnership, Hochitritt, Lane, and Price (2004) argued that the school and museum partnership compliments each other. The visit to the museum specifically provided "a sensory, visceral experience in which students actively engage in inquiry-based learning and discovery," as well as enriched art classroom curricula (p. 40).

Similarly, Trimis and Savva (2004) insisted the art museums could be important educational resources in providing children with meaningful ways to interact with artworks. The authors implemented the in-depth studio approach as part of their larger study of museum education in Cyprus. In order to introduce ways of implementing

museum education with art activities in classrooms, Trimis and Savva designed a three-phase program that involved an art activity in the classroom, a museum visit, and art-making in the classroom afterward. The study involved four pre-service teachers and 16 students (five and six years old), and the teachers were to guide students' learning and record their responses. The pre-service teachers reported that during the initial activity the students explored the ways in which the materials transformed, and only saw 3-dimensional constructions and paintings they found most interesting during the museum visit. They then noted that most students used techniques similar to those observed in the museum. For example, most of the students joined sculptural parts and made the constructions move, and a few students adopted the subject matter in their paintings. Through this study, Trimis and Savva (2004) concluded that the visit to the art museum served as a stimulus and extended students' firsthand knowledge about materials and ideas.

Eckhoff (2017) also supported the idea of incorporating art viewing (either a visit to the museum or exploration of a museum's online resources), art-making, and art appreciation in early arts education. She insisted that observing artworks carefully and discussing them would offer children opportunities to "interpret, negotiate, and construct meaning from visual images" (p. 18). Making art followed by viewing art, would inspire students and promote a new understanding of oneself as an artist. However, Eckhoff (2017) made it explicit that in order to offer children opportunities to express their thoughts, feelings, and perceptions and develop creativity, imagination, and flexible thinking, the art-making should not be teacher-directed (with specific instructions) or product-oriented. Then she argued that the appreciation of art would grow through ample

opportunities to explore works of art, various art media and materials through viewing and making. Lastly, Arkenberg (2006) suggested several strategies to maximize students' museum visits. This includes research and discussion of the museum exhibition beforehand, engaging students with questions about what they see, providing information based on discovery and questioning during the museum visit, and using post-visit sessions to discuss, write, or make an artwork based on their experiences.

As discussed above, educators have tried to combine art viewing and studio experiences in the classrooms, whether this involves the integration of other curriculums, school partnership/ museum visits, or online resources. However, as mentioned in the previous section, in spite of the prevalence of Tour and Workshop programs in art museums, there is scant research that focuses on integrating art viewing and art-making in the context of museum settings.

Summary

In this chapter, I have explored literature that examines several areas. First, I discussed the brief overview of the constructivism theory and its development by detailing which scholars aligned with constructivism, as well as how the constructivism theory might be applied to classrooms. Second, I discussed art museum education, focusing on the development of constructivist approaches in museums and specific pedagogical approaches aligned with constructivism including, inquiry-based approach, VTS, various dialogic teaching approaches, and gallery activities. Third, I discussed art education, focusing on the development of constructivist approaches in art classrooms and specific approaches aligned with constructivism, including facilitation of dialogue,

studio space, exploration of materials, and students' ownership and choices. Next, I examined studio learning in the museum. Lastly, I discussed several attempts to integrate art viewing and art-making into art and museum education.

In the next chapter, I will describe the methodology used to conduct the research.

III – METHODOLOGY

Introduction

This chapter will discuss the details of my research processes, specifically the methodology and the methods used in data collection and analysis. I conducted a qualitative multi-case study to shed light on the research questions that guided my study:

- How do three art museums conceptualize and implement constructivist approaches in their gallery tours and related studio workshops? Further, what is the relationship between these two learning experiences?

Specifically:

- How do administrators in three museum education departments support tour and workshop school programs in ways that claim to (1) adopt a constructivist approach and (2) promote (or do not promote) connections across the gallery and studio?
- How do educators in the three museums facilitate students' gallery experiences in ways that support (or do not support) a constructivist approach?
    - In what ways do students' responses/actions/comments/etc. in the gallery reflect (or not reflect) the sort of learning processes that constructivist approaches aim for?
- How do educators in the three museums facilitate students' studio experiences in ways that support (or do not support) a constructivist approach?

        - How do students' responses/actions/comments in the studio reflect (or not reflect) the sort of learning processes that constructivism aims for?

    - How do education programs in the three museums promote (or do not promote) connections across the gallery and studio?
        - How do students' responses/actions/comments/etc. in the gallery and studio demonstrate (or do not demonstrate) connections between gallery and studio learning?

Type of Study

I conducted qualitative research as qualitative research focuses on understanding the experience and interpreting phenomena by inductively analyzing social occurrences rather than testing and measuring theories (Merriam, 1998). Specifically, qualitative research is utilized to understand things in their natural settings, often starting from people's expressions, as well as activities in their temporal or local contexts (Flick, 2009; Merriam, 2009). Thus, qualitative researchers often gather data from observations of case(s) and interviews with participants to understand the uniqueness of a certain situation, or how people make sense of their world and experiences (Merriam, 2009). Thus, the product of a qualitative inquiry is richly descriptive (Merriam, 2009).

Since the goal of qualitative research is to understand human situations, the human researcher is the ideal instrument for collecting and analyzing data because the researcher is immediately responsive and adaptive (Merriam, 2009). Furthermore, qualitative researchers can "expand his or her understanding through verbal and nonverbal communication, process information (data) immediately, clarify and

summarize material, check with respondents for the accuracy of interpretation, and explore unusual or unanticipated responses" (Merriam, 2009, p. 15).

As Maxwell (2012) puts it, qualitative research is concerned with understanding a researcher's values and expectations. Accordingly, Maxwell (2012) also emphasizes that qualitative researchers should be aware of threats to validity, including a researcher's bias and selection of data that fit or stand out to the researcher's existing theory or preconceptions (Maxwell, 2012). With this in mind, I am aware of my positionality and background. I worked as a museum educator and art teacher for about 10 years in both Korea and the U.S. This experience has hugely informed and influenced my research from data collection to interpretation. This includes the selection of the sites, formation of questions, and conduct and interpretation of observations, interviews, and documents. Also, I am aware that it is impossible to eliminate the researcher's theories, beliefs, and the perceptual lens formed through years of teaching. However, my background, learning experiences, and awareness of the field and its culture brought depth and perspective to the study.

My research investigated tour and workshop programs in three museums that offered children's educational programs using constructivist approaches. I conducted a case study approach, and a case study is utilized to understand the dynamics present within single settings, programs, social groups, communities, individuals or other 'bounded systems' (Eisenhardt, 1989). Thus, a case study allows researchers "to retain the holistic and meaningful characteristics of real-life events" (Yin, 2009, p. 4). To do so, researchers investigate the phenomenon in depth by analyzing evidence, including documents, artifacts, interviews, and observations (Yin, 2009). For my research that

explores three different art museum programs, a multi-case study was suitable. Each case was investigated over time (three months on average) through detailed and in-depth data collection involving multiple sources. A qualitative multi-case study was necessary to look at a range of similar and contrasting cases (Merriam, 2009).

Design of the Study

Sites

The study examined gallery tour and studio workshop programs in three art museums in the United States that claim to use constructivist approaches in both the gallery and studio portions of the program. In order to study diverse programs that were designed and facilitated differently, I wanted to examine museums that were varying in size and have distinctive types of art collections. Even though I wanted variation, I chose only three sites, as I wanted to collect and examine the data in depth. All of the museums were in the U.S., and I am giving all participating museums and participants involved in the study pseudonyms for the purpose of confidentiality.

The Red Museum is a comparatively large museum (larger than 50,000 square foot). It was included in the top 100 art museum attendance in 2013 worldwide, drawing approximately 1,200,000 visitors (Pes & Sharpe, 2014). The Red Museum shows a range of artworks including Impressionist, post-modernist, modern, and contemporary. The Blue Museum is a relatively small museum (about 27,000 square foot) that mainly shows modern abstract sculptures, architectural models, stage designs, drawings, and furniture made by a single artist. The Yellow Museum is also a relatively small-sized museum (about 10,000 square foot) that shows contemporary art and identifies itself as a

children's museum. I did not have access to the information on the number of visitors to other two museums. I studied at least three iterations of the same tour and workshop program within the three sites.

Program design was similar among the museums. Over time, the Red Museum and the Blue Museum coincidentally shared a few administrators and educators, which resulted in similarities among them. They both offered thematic tours and workshops. Themes included Exploring Issues Through Materials, Places and Spaces, Sense of Self and Art, Materials and Process, and What is Sculpture. The Yellow Museum did not offer thematic tours and workshops, but the special exhibitions served as an overarching focus. Within each site, I studied at least three iterations of the same tour and workshop program. The details of each site and programs will be discussed in the Findings Chapter.

Participants

The study involved a total of four administrative staff members, 15 educators, and approximately 202 students (9 groups of students) who were participating in the programs that I observed. Depending on how the museum designed their programs and how many students booked each program, the number of participants at each site varied. However, I interviewed at least one administrative staff member at each museum who oversees the tour and workshop school programs. I also conducted interviews with all of the educators that I observed, and had casual conversations with a few students who participated in the program. The following table shows participants involved in each museum and session. All the names included in the chart are pseudonyms.

Table 1: The Participants Involved

Museum	**Participants**	
The Red Museum	1. Administrative staff, Laurie 2. Administrative staff, Dana	
	Session 1	3. Gallery Educator, Andy 4. Studio Educator, Judy 5. 60 students, 8th grade/ General Ed/ Public
	Session 2	6. Gallery Educator, Lilly 7. Studio Educator, Amy 8. 40 students, 7th grade/ General Ed/ Public
	Session 3	9. Gallery & Studio Educator, Hannah 10. 17 students, 2-4th grade/ Camp (mixed school)
The Blue Museum	1. Administrative staff, Niki	
	Session 1	1. Gallery Educator, Agnes 2. Studio Educator, Niki 3. 35 students, K/ Special Ed/ Public
	Session 2	4. Gallery Educator, Roy 5. Studio Educator, Janine 6. 28 students, 3rd grade/ General Ed/ Charter
	Session 3	7. Gallery Educator, Lee 8. Studio Educator, Jessica 9. 60 students, 2nd grade/ General Ed/ Public
The Yellow Museum	1. Administrative staff, Sophie	
	Session 1	2. Gallery & Studio Educator, Cindy 3. 30 students, 2nd grade/ ELL/ Public
	Session 2	4. Gallery & Studio Educator, Vincent 5. 13 students, K/ Inclusive/ Public (Partnership)
	Session 3	6. Gallery & Studio Educators, Jenny and Eva 7. 31 students, 4th grade/ General Ed and ELL/ Public (Partnership)

After I decided on the museums, I contacted the administrative staff in charge of tour and workshop programs to secure permission. Then, the administrative staff from each museum that permitted my study gave me the schedule of possible programs that I could observe. These schedules included basic school information and the name of appointed educators' names. The number of educators for each of the museum programs depended on the students registered or the type of workshop. Typically, the Red Museum

and the Blue Museum appointed one or two educators for a group of 30 students or less, and three educators for more than 30 students. For example, if there was a group of 30 students, both museums would appoint two educators: one gallery educator and one studio educator that would take 15 students each to the gallery or the studio, and then the educators would swap the students so that they could experience both the gallery tour and studio workshop. However, half of the students would experience the gallery tour first while the other half would experience the studio workshop first. If there was a group of 60 students, both museums would appoint three educators: two gallery educators taking 15 students to the galleries for tours, and one studio educator taking 30 students for the studio workshop. After the students' tour or workshop experience, the gallery educators and the studio educator would swap their students. This is due to the maximum capacity of students for the gallery (15 students per educator) and the studio space (30 students fit in the studio). In most of my observations, there were more than 30 students that participated in each program, which means that there were usually three educators appointed to each program (two gallery educators and one studio educator). However, the Yellow Museum appointed one educator for a school group that registered for a fine arts-making workshop, and two educators for a media art-making workshop. I observed two sessions of the fine arts-making workshop and one session of the media art-making workshop. Thus, given the option, I purposefully chose to observe programs led by different educators at each museum to avoid observing and interviewing the same educator more than once.

Museum professionals. All the administrative staff that I interviewed were full-time employees, had Master's degrees in art related majors (art history, museum

education, and art education), and had each worked in the museum field for more than five years. The educators were at varying points in their educations—whether currently enrolled in undergraduate or graduate programs, or having graduated from undergraduate or graduate programs in art related majors (fine arts, graphic design, art education, museum education, art history, etc.). Consequently, they had different levels of teaching experience, ranging from a year to more than 10 years, and most of them were freelance (part-time) educators with multiple jobs. The educators' other job titles included visual artist (painter, sculptor, and photographer), playwright, college or graduate student, singer, and freelance museum educator (working in multiple museums). To make it confidential, I am using pseudonyms instead of their names, and the backgrounds of the educators are not specifically listed (See Table 2 Below).

Table 2: Characteristics of the Adult Participants

<table>
<tr><th>Museum</th><th>Participant</th><th>Background</th></tr>
<tr><td rowspan="6">The Red Museum</td><td>Administrative Staff, Laurie and Dana</td><td>○ Worked at the museum for more than 6 years
○ Worked at multiple museums before joining the Red Museum</td></tr>
<tr><td>Gallery Educator, Andy</td><td rowspan="5">○ Artist, photographer, museum educator (multiple museums), or graduate student
○ Worked at the museum between 2 to 8 years</td></tr>
<tr><td>Studio Educator, Judy</td></tr>
<tr><td>Gallery Educator, Lilly</td></tr>
<tr><td>Studio Educator, Amy</td></tr>
<tr><td>Gallery & Studio Educator, Hannah</td></tr>
<tr><td rowspan="7">The Blue Museum</td><td>Administrative Staff, Niki</td><td>○ Worked at the museum for more than 10 years
○ Worked at multiple museums before joining the Blue Museum</td></tr>
<tr><td>Gallery Educator, Agnes</td><td rowspan="6">○ Artist, play writer, museum educator (multiple museums), or singer
○ Worked at the museum between 1.5 to 10 years</td></tr>
<tr><td>Studio Educator, Niki</td></tr>
<tr><td>Gallery Educator, Roy</td></tr>
<tr><td>Studio Educator, Janine</td></tr>
<tr><td>Gallery Educator, Lee</td></tr>
<tr><td>Studio Educator, Jessica</td></tr>
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<table>
<tr><td rowspan="4">The Yellow Museum</td><td>Administrative Staff, Sophie</td><td>Worked at the museum for more than 5 years</td></tr>
<tr><td>Gallery & Studio Educator, Cindy</td><td rowspan="3">Former schoolteacher, museum educator (multiple museums), college student, or graduate student
Worked at the museum between 2 to 5 years</td></tr>
<tr><td>Gallery & Studio Educator, Vincent</td></tr>
<tr><td>Gallery & Studio Educators, Jenny and Eva</td></tr>
</table>

Students. The participating students were diverse in age, type of class, school, and ethnicity. They ranged from kindergarten to 8th grade level. The types of participating schools varied, as well as the number of students in each class. Students were from public schools and charter schools, while one group of students was a camp group. Most of the classes that I observed (six groups) were on one-time school visits, but two groups were part of a long partnership with the museum, and one group was a camp group. For school field trips, schoolteachers booked the museum programs for their students to attend during their school year. In partnership programs, the museum educators visited the partnered schools and classes at least once a week for about eight weeks before students came to participate in the museum program. Lastly, regarding the camp group, the parents voluntarily registered their children for the weeklong museum class, so the group had students of different ages and from various schools. Table 3 shows the student participants' information, including the age, type of classes, number of students, type of school, and whether the group was a camp group or a partnership group (when applicable).

Table 3: Characteristics of the Child Participants

		Students age/ Type of classes	**Number of students**	**School type**	**Note**
The Red Museum	Session 1	8th grade/ General Ed	60	Public	
	Session 2	7th grade/ General Ed	40	Public	
	Session 3	Mixed/ general	17	Mixed	Camp group
The Blue Museum	Session 1	K/ Special Ed	35	Public	
	Session 2	3/ General Ed	28	Charter	
	Session 3	2/ General Ed	60	Public	
The Yellow Museum	Session 1	2/ ELL	30	Public	
	Session 2	K/ Inclusive	13	Public	Partnership
	Session 3	4th grade/ General and ELL	31	Public	Partnership

Data Collection

In order to collect data that captures the detailed description of each program and participants' experiences, I chose observations and interviews as the primary methods for collecting the data. I collected data specific to each site and the programs studied at each site. In addition, I reviewed the websites of each museum to inform myself about the sites. Before observing, I reviewed educators' lesson plans and basic information about the participating students if available. Then, I conducted observations. While observing, I voice-recorded the programs, took photos of students' artworks, and with the museums' permissions, conversed with a few participating students. Lastly, I conducted interviews with the educators and administrative staff that led and oversaw the programs that I observed. A detailed description of each method is written below.

Observations. Observation of the museum programs was my principal method for collecting the data. As Merriam (2009) stated, observation makes it possible for the researcher to see things firsthand and to use their knowledge and expertise in interpreting what is observed, while also using the observation data as reference points for subsequent

interviews. Specifically, the purpose of the observations was to see how the museum programs were structured and facilitated, and also to observe the interactions and responses of the students in the two different learning spaces: gallery and studio. The length of the programs varied among museums, from between one hour and 15 minutes, to two hours and 30 minutes. The length of the tour and workshop were equally divided—half of the time for the tour and half for the workshop. The Red Museum offered tour and workshop programs of two and a half hours, the Blue Museum offered two hours, and the Yellow Museum offered one hour and 15 minutes. I observed a total of nine sessions (three sessions from each museum). However, since eight of the nine total tour and workshop programs that I observed were school field trips[1], some schools came in late due to traffic issues. Thus, the actual program lengths were sometimes shorter (up to 30 minutes less) than expected.

I followed the same Observation Protocol in observing all programs. That is, a few days before the program observation, I emailed the educators as a reminder and asked for their lesson plans. Then, to anticipate for the day, I read the basic information on the school and students (information I got when I was scheduled for the events), educators' lesson plans when available (not all educators wrote lesson plans). During the observations, I tried to stand in the corners of the room or with the schoolteacher and chaperones, where it was less imposing for students. Often schoolteachers and chaperones stood or sat behind their students or children to make sure they stayed in the group and focused on the museum learning, but some schoolteachers and chaperones participated in the conversations and art-making with the children. While observing, I

[1] For school field trips, schools voluntarily register for the program in advance. Trips may be delayed or canceled due to unexpected bus, traffic, weather, and school issues.

voice-recorded and took field notes in both gallery and studio sessions. While taking notes, I focused on the educators' facilitation, students' responses, and both verbal and nonverbal actions and interactions happening during the program. The voice recording was to compliment my field notes. After the observations, I filled in my Observation Checklist and wrote a short reflective note on my impressions of each session. The checklist looked for specific details on educators' and students' actions in each component of the program that might relate to constructivism. For example, in the educator section of the table, each row asked whether the educator encouraged observation, created a comfortable environment, asked open-ended questions, and provided information at a key time. In the student section of the table, each row asked for corresponding actions: whether the students observed carefully, felt comfortable sharing their ideas, responded to open-ended questions, and learned from information.

Interviews. Brookfield (1990) suggested that interviews are appropriate when researchers are trying to discover their subjects' perceptions of their environments, of their own actions, or of the actions of those around them. With this in mind, I conducted interviews with two administrative staff members at the Red Museum, one administrative staff member at the Blue Museum, and one administrative staff member at the Yellow Museum who oversee the tour and workshop programs and all the educators that I observed. The number of interviewed administrators differed among museums because the number of staff involved in the specific programs varied at each museum. All the interviews were one-on-one, and the interviewees had all signed consent forms explaining the interviews purpose before their interviews. With the adult subjects'

consent, I also voice-recorded the interviews, hoping the detail of voice-recorded interviews could help me analyze the conversations with greater accuracy.

First of all, the interviews of the administrative staff from each museum lasted between 40 to 70 minutes, focusing on their goals, objectives, and vision for the museum program. I also inquired as to how they designed the program, how they give support and guidance to their educators, and investigated how their backgrounds inform the design of the programs. This allowed me to understand how museums conceptualize and aim to implement constructivist approaches for their tour and workshop programs. It also enabled me to learn about their goals, objectives, and vision.

I interviewed all the educators that I observed. Specifically, I interviewed five educators from the Red Museum, six educators from the Blue Museum, and four educators from the Yellow Museum. All the educator interviews were conducted within one week of the observed program. Each interview lasted about 45 minutes on average, focusing on their plans, facilitation, teaching approaches, general experiences teaching in the program, and their general thoughts related to my study topic. Also, I inquired about their thoughts related to the structure of the program, specifically as it pertained to the connection between the tour and the workshop, constructivism, and the education or work background that shaped their teaching approaches. A week after the interviews, they all received a follow-up questionnaire via email. The follow-up interview (questionnaire) was less structured than the initial in-person interview. The questions asked about their reflections and comments that might have occurred to them after the initial interview. However, I only received a total of eight responses to the follow-up questionnaire.

Lastly, with the permission of the museums, I had casual conversations with nine groups of students (three groups of students from each museum). I selected a few students from each program on the spot, randomly, and asked them about the art-making processes they used during the studio portions of the program. To be specific, I asked them about their inspirations, ideas, or art-making processes, but I was very cautious not to interfere with their learning experiences in any negative way. The goal of the conversations with the participating students was to learn how students draw upon the ideas from the gallery experiences in the studio, and to give me insight into constructivist learning.

Artworks. Photographs, films, and videos are increasingly used as genuine forms and sources of data (Becker, 1986; Denzin, 2004; Harper, 2004, as cited in Flick, 2009). I collected photographs of artworks students observed in the gallery and artworks they made in the studio. By collecting photos of the artworks students observed, I was able to reference what they were looking at during the conversations and not have rely solely on my memory during data analysis. In this way, I could easily reference student artworks with a particular participant's comments during the casual conversations. Also, I not only took photos of students' finished works of art, but also of their art-making progress. These images helped me consider how aspects of their learning aligned with constructivism and how they drew upon gallery learning in their art-making. However, I will not present the photographs of artworks students observed or made in the findings section to avoid revealing the identities of museums or the students.

Museum documents. Lastly, I collected museum documents, including information from museum websites, educators' lesson plans (when available), and

brochures. By looking at the museums' official websites and brochures, I could learn about the general characteristics and goals of the school programs and what information schoolteachers are required to fill in when they register for the program. By looking at the educators' lesson plans (if they were available), I could learn the museum educators' goals, objectives, anticipated tour and workshop lesson procedures, and aspects of the teaching approaches.

The table below outlines how the collected data informed my research questions.

Table 4: Type of Data

Source of Data	Insights into:
Observation of programs	- Structure of the museum programs - Museum educators' facilitation - Students' responses to the various activities
Interviews (Formal interviews with administrative staff and educators; casual conversations with children.)	- Administrative staff: Goals, objectives, and design of programs - Educators: Goals, objectives, and planning of programs; teaching approaches, and experiences teaching the program - Students (casual conversations): Engagement in the gallery and studio processes, learning experiences
Artworks (artworks students observe in the galleries, students' own artworks)	- How children drew upon their gallery learning in the studio and vice versa.
Museum Documents (Lesson plans, brochures)	- General characteristics of school programs - Goals and vision of education department's school programs

Data Analysis

As I started collecting the data—observations, interviews, photos of the students' artworks, and museum documents (if available)—I simultaneously started organizing and categorizing the data. Voice recordings of each session and interview recordings of 18 participants (administrators and educators) were transcribed word for word for the

purpose of analysis. The observation field notes, lesson plans, and museum documents (if available) were also transcribed into typed documents. To re-create the session and better show the context of the program, I created a table and a summary of each program by site. Every table showed the essential details, including program information (date, length, theme, and motivating questions), educator's information (background and teaching approaches), students' information (number of students, age, and school or group type), and artworks involved during the session (artists' artworks and students' artworks).

After the initial organization, I repeatedly read the interview transcripts of four administrative staff and 15 educators and compared them with lesson plans (if available), observational notes, and photos of the students' artworks (if applicable) across the three cases. Then, I used different colors to code the general patterns, categories, and themes among the participants' responses. While examining all of the sources together, I could identify categories that spoke to my research questions: administrators' and educators' views on the characterization of the museum's pedagogy, evidence of constructivist approaches in the facilitation of the gallery and studio portions, and factors that related to the connections across gallery and studio, which were distinct to each case.

To develop findings addressing my research questions that focused on how administrators supported programs that claimed to adopt constructivist approaches, I considered observation and interview data and museum documents (if available) for each case. I started each case with a brief overview of the program, describing the observed program structure and what generally happens during the program and each portion (gallery and studio). I developed each case with a characterization of the museum's

pedagogy as described by the administrators and educators. The goal of developing the cases with a brief overview of the program and the museum's pedagogy is to help the reader understand the cases with sufficient clarity and better context.

To develop findings addressing my research questions that focused on how educators facilitated students' gallery and studio experiences in ways that support (or do not support) a constructivist approach and how students' responses reflect that goal, I considered the observation field notes, voice recordings of each session, interview transcripts, photos of students' finished artworks, and documents (lesson plans and museum websites) relating to each site. While reviewing, examining, and sorting the data from multiple sources, I could identify and organize the sessions by themes that related to educators' teaching approaches and students' responses, as well as follow the timeline of the event. The themes included planning, prep time, gallery facilitation (opening, number of artworks, dialogue during art viewing, and gallery activities), and studio facilitation (studio set-up, opening, warm-up activity, motivating question, dialogue during art-making, and reflection). For each theme, I compared and contrasted educators' different teaching approaches and facilitation, and highlighted the instances that best described the identified theme. To emphasize the instances, I illuminated narratives in italics and wrote my reflection and summarization afterward. Then I reviewed the interview transcription in order to weave in relevant information the educators mentioned regarding the identified themes and instances. For the sake of the participants' anonymity, photos are not embedded in any of the cases.

To develop findings addressing my research question that focused on how administrators in three museum education departments promoted (or did not promote)

connections across gallery and studio, I further reviewed educators' facilitation in the gallery and studio portions, as well as students' responses. I also reexamined observation and interview data and museum documents (if available). Then I dedicated a section at the end of each case to highlight identified themes that related to connections across gallery and studio. The identified themes differ among the cases, including various educators, tour and workshop sequences, themes and motivating questions, visual references, and discussions about art.

Validity

Marshall and Rossman (2011) insisted qualitative researchers "to be in the setting for a long period of time (prolonged engagement) and gather data from multiple sources and methods (triangulation)" to ensure the study's validity (p. 40). I examined three iterations of each program, collecting detailed data each time. The multiple sources included observations (detailed field notes), interviews (voice recordings), photos of the artworks observed, students' art-making processes, and finished artworks, and museum documents (educators' lesson plans, information on each museum's official website, and brochures) relating to each site.

Furthermore, the conceptual framework of my study is constructivism, which views that reality is socially constructed, and there can be multiple realities or interpretation of a single event in people's minds (Golfshani, 2003; Merriam, 2009). Accordingly, Golfshani (2003) argued that triangulation—engaging multiple methods and sources and involving several investigators or peer researchers' interpretation of the data will "lead to more valid, reliable and diverse construction of realities" and "to

improve the analysis and understanding" of the data (p. 604). I collected data through various methods, and even though I didn't utilize inter-rater reliability, my advisor added a critical pair of eyes on reviewing the study throughout the process to ensure the credibility of the study.

Limits of the Study

While this study might be applicable to similar educational programs that involve art-viewing and art-making, this study was specific to three tour and workshop school programs observed in three different museums in the same city. Therefore, the limits of this study are bound by all aspects of the programs, including the particular education staff and children, the sessions that I observed, the methods of data collection, and myself, as an educator researcher. Thus, the findings are not generalizable nor are they representative of all programs. Furthermore, even though the participating museums are given pseudonyms to minimize any threat to study participants, it was challenging to remove all identifiable description of each museum. I made a concerted effort in balancing between reducing identifiable descriptions of each museum and giving a context of the museums to the readers.

Sites

This study was conducted at three different art museums located in the same city, including one that identifies as a children's art museum. Since all museums are located in the same city, some overlaps were found, including shared education staff and their attendance at some of the same higher education programs. Further, I am affiliated with one of the selected sites where I gained critical experience in the art field. My position

might lead me to give more attention to one of the sites. However, I aimed to minimize my inclination. Thus, the museums were not only selected because of the accessibility and familiarity for the researcher, but also through purposeful sampling (differences between museum-size, mission, and collection). I included the children's museum in order to be open as possible with my bracket. I am also mindful of the geographical limitations; the findings might have been different if I included museums in another city or urban area. Further, this study considered three school programs from each museum, all of which had gallery and studio sessions embedded in their programs. The observed programs were not the representative programs at each museum and also the results of the study cannot be generalized to other museums' programs.

Participants

As I observed only three sessions of the same program from each museum, this research involved only 15 educators and approximately 202 students (nine groups of students) that participated in each program, as well as four administrative staff members. Specifically, this study only considered students between Kindergarten to 8th Grade: seven groups from public schools, and others from a charter school and a camp group, which cannot be representative of all ages and types of school groups. While the participant pool was small, this allowed for an in-depth investigation of each program rather than the breadth of all possible programs.

Data Collection and Instruments

Data collection methods could only capture aspects of the program in the permitted context and time (observations of nine sessions and interviews of four

administrators and 15 educators). Further, my experience as a museum educator inevitably shaped what I was able to capture in the observations, and I could only access to the thoughts that the participants were willing to share at the time of the interviews. Similarly, the study originated from my personal observations, interests, background, assumptions, and experiences. As I am the primary instrument for data collection, I am mindful of my interpretation of observations and interviews. However, as Maxwell (2012) puts it, qualitative research is concerned with understanding a researcher's values and expectations. These influence the conduct and conclusions of the study. Thus, it is impossible to eliminate the researcher's theories, beliefs, and perceptual lens. However, throughout the study, I made a concerted effort to be aware of my biases, including my assumption that the museums are offering strong gallery tours and less strong studio workshops. Methodological triangulation was used involving multiple sources and my advisor reviewed my study throughout (discussed in the Validity section).

IV – FINDINGS

The findings chapter will present three cases, and each case will address the sub questions of the study, which are as follows:

- How do administrators in three museum education departments support tour and workshop school programs in ways that claim to (1) adopt a constructivist approach and (2) promote (or do not promote) connections across the gallery and studio?
- How do educators in the three museums facilitate students' gallery experiences in ways that support (or do not support) a constructivist approach?
  - In what ways do students' responses/actions/comments/etc. in the gallery reflect (or not reflect) the sort of learning processes that constructivist approaches aim for?
- How do educators in the three museums facilitate students' studio experiences in ways that support (or do not support) a constructivist approach?
  - How do students' responses/actions/comments in the studio reflect (or not reflect) the sort of learning processes that constructivism aims for?
- How do education programs in the three museums promote (or do not promote) connections across the gallery and studio?

- How do students' responses/actions/comments/etc. in the gallery and studio demonstrate (or do not demonstrate) connections between gallery and studio learning?

Each case is structured with subheadings: A Brief Overview of the Program, Characterization of the Museum's Pedagogy (Administrators' Views and Educators' Views), and The Sessions—Overview, Planning, Prep Time, Gallery Facilitation, Studio Facilitation, and Connections Across the Gallery and Studio. To be specific, a brief overview of each program and the specific museum education department's support of constructivist approaches sections will describe how each museum designed its tour and workshop programs for students, and how (and whether or not) they support constructivist approaches for their programs and educators. An overview of observed sessions will outline three types of those sessions, such as educators, students, themes (if available), and motivating questions (if available). It will also describe how educators at each museum generally prepared for their scheduled program. The data that informed the findings came from documents, observations, and interviews. I reviewed each museum's official website, documents provided by the museum (if any), and interviewed administrative staff. Then, I observed the programs and interviewed each educator in order to ascertain program structure, individual teaching approaches, and students' responses.

The teaching section will present how educators engage their students in spaces that support (or do not support) a constructivist approach, and promote (or do not promote) connections across the gallery and studio. More specifically, the section discusses the planning process, gallery and studio facilitation, and students' responses in

each space, as well as whether the students' final artworks reflect (or do not reflect) a constructivist approach. Also, as a reminder, I am not including any photos of student's finished artwork because of confidentiality. However, I will describe students' artwork in detail. In the Gallery and Studio Facilitation section, I added subheadings to delineate my analysis of three sessions from each museum. These outline educators' lessons and performance (i.e. opening, number of artworks, dialogue, gallery activities, and other factors). To develop my findings addressing the research question related to how educators' facilitation at each site fosters a constructivist approach, I reviewed, examined, and sorted all of my observations and interview transcriptions for all three iterations in each case. Then, I investigated both variations and shared techniques among educators at each site. In the end, I decided to illuminate a few selected techniques and conversations among all of the iterations, and present them together by comparing and contrasting. However, the purpose of this decision was not to judge each educator, but to develop each case with sufficient clarity without exhausting the readers. Also, the narratives written in italics are constructed from the data, including field notes, interviews, and audio recordings. I made the choice to include the narratives in order to help the reader understand the findings and my reflections with better context.

Lastly, the connection between gallery and studio focuses on how the design of the program, educators' facilitation, and students' responses promoted and demonstrated connections across the gallery and studio. To be specific, the section will highlight the number of educators' per program, communication between educators, and educators' thoughts on the design of the program, as well as the educators' use of motivating

questions and themes (if available). Students' responses (verbal, nonverbal, and artworks) will also be considered as they relate to connections across the gallery and studio.

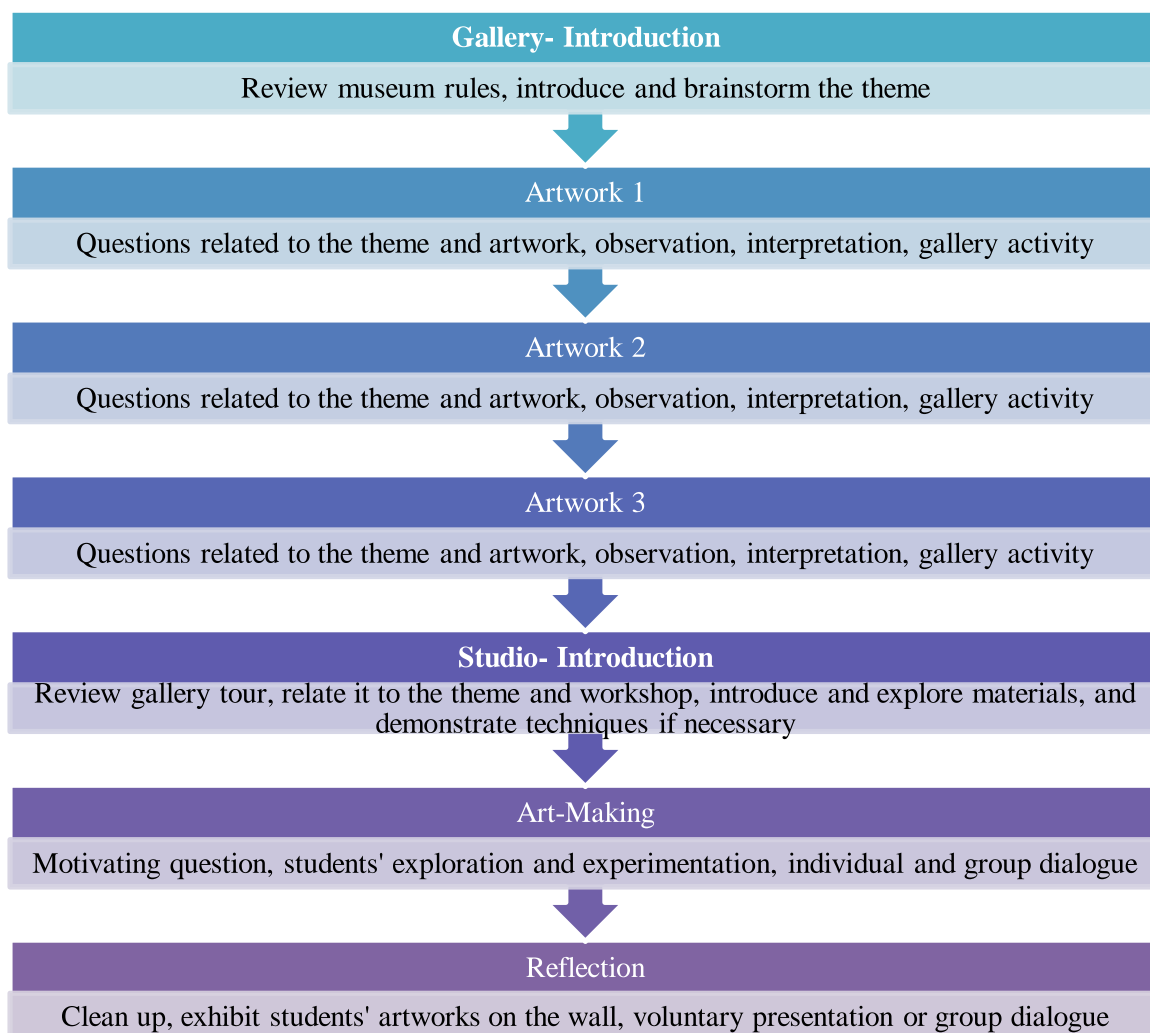
Case 1. The Red Museum

A Brief Overview of the Program

The Red Museum's website states that the museum offers a two and a half hour-long thematic gallery tour and a hands-on workshop for students in grades 2nd through 12th. As mentioned previously, the program is generally led by two or three educators, depending on the number of registered students: one gallery educator and one studio educator work with groups of less than 30; two gallery educators and one studio educator have larger groups. With larger groups, half of the students in a group experience the gallery tour first, while the other half experience the studio workshop first.

The administrators, Laurie and Dana, described the overall design of the programs. There is often, but not always, a theme for the program. If students do the gallery tour first, each program begins with an introduction, followed by a brainstorm about the program's theme and encounters with three to five artworks. Then, students transition to the studio, where the studio educator encourages students to investigate the program theme by creating their own artworks. Students engage in a reflection at the end of the studio time. If students do the workshop first, it will be the reverse. All the programs I observed followed this design.

Table 5: Design of the Tour and Workshop



*Arrows indicate transitions, including review of previous artwork, brief introduction of latter artwork, and physical move from one place to another.

Characterization of the Museum's Pedagogy

Administrators' views. The Red Museum's website states that the programs are designed to foster active learning, adding that trained museum educators engage students in careful observation and foster the development of language and critical thinking skills. However, Laurie and Dana used different language to specify their goals: to have students look at art deeply, delve into selected themes, interpret the art, and make

personal connections. They claimed that the Red Museum's educators use constructivist approaches and inquiry-based methods. Laurie explained that the inquiry-based method involves asking questions, facilitating discussion, paraphrasing, and inserting information during group dialogues about artworks.

Even though Laurie and Dana claimed that the educators use constructivist approaches, they emphasized that they also welcome the educators trying different methods, which may not necessarily align with constructivism. Laurie and Dana insisted that they do not dictate what educators should teach within the proscribed time frame. They added that they do not look at their educators' lesson plans, but they observe their educators and complete evaluations twice a year. In order to support and strengthen the educators' practices, Laurie and Dana offer diverse Professional Development Programs (PD) to help them think about their teaching approaches. They invite experts from beyond the museum to share perspectives, including a recent one related to how illustrative and close-ended projects might be beneficial. Laurie admitted that PD actually changed her negative perspective about close-ended and instruction-based teaching approaches, and encouraged her to think about schoolteachers' motivations and needs.

Educators' views. All of the educators were aware that the Red Museum is an inquiry-based teaching institution. During the individual interviews they stated that they value students' active participation, whether it be verbal input during gallery conversation, or nonverbal contributions during gallery activities or art-making. Educators did not specify their teaching approaches as one single method. The terms they used to describe their teaching approaches included the inquiry-based approach, VTS, as well as a combination of open inquiry, process-based, and dialogue-centered approaches.

Most of the educators shared that they had learned about different teaching methods from various sources, including other institutions where they have worked, graduate schools, and the Red Museum's PD.

Specifically, all of the educators agreed during the individual interviews, that their PD was helpful in informing their teaching. Memorable PD sessions included classes giving information about a particular exhibition, child psychology, education theory, and art history. Some PD sessions also featured guest speakers, including professors from Columbia University and Harvard University, and educators from other museums. Andy, one of the educators, added that reflecting with peer educators after each program or through PD also informed their teaching.

The Sessions

Overview. As mentioned earlier, I observed three sessions: two with school groups and one with a camp group. As noted in the Methodology Chapter, the class structure adopted for the camp group is an exception. Two gallery educators and one studio educator led the two school sessions, while the camp session was led by a single educator, who taught both the gallery and studio portion, while assisted by another educator. The two school group sessions had themes, while the camp group didn't have a specific theme. The three studio portions featured motivating questions that were central in students' art-making.

Table 6: An Overview of Observed Sessions

	Session 1	Session 2	Session 3
Educators	Gallery, Andy	Gallery, Lilly	Gallery and Studio, Hannah
	Studio, Judy	Studio, Amy	
Students	60 students, 8th grade/ Public/ General Ed	40 students, 7th grade/ Public/ General Ed	17 students, Mixed/ general/ camp
Themes	Exploring Issues Through Materials	Places and Spaces	N/A
Motivating Questions	How might you use color and shape to show what you feel?	How can an artist show a place using shape, color, texture?	How might you show a time you did something for the first time in the painting?

Planning. When a school registers for a program, the schoolteacher is asked to provide information about students, including what they are currently studying and goals for the field trip. Schoolteachers also choose a program theme from a menu provided by the museum. Then the museum coordinator allocates museum educators to the field trips so that gallery and studio educators can collaboratively plan for the program. In each program, a studio educator initiates the preparation by sharing his or her workshop plan with gallery educator(s). In response, gallery educator(s) share artwork choice and sequence. Since there is no formal planning requirement at the Red Museum, educators' planning styles significantly differed from each other. Some had simple plans that only included chosen artworks and brief objectives, or notes about the type of artworks students will make in the workshops. However, others had descriptive plans that included objectives, artwork choice and sequence or workshop type, contextual information, questions to ask, and gallery or studio warm-up activities. As mentioned earlier, Laurie and Dana do not look at their educators' lesson plans. So whether the educator had a simple or descriptive lesson plan, they were not obligated to stick with it, and sometimes did. This is due to the unexpected crowds in the gallery space and traffic. For example, if

the space in front of an artwork is already occupied by the general public or another educator’s group, or if the school groups came late due to traffic issues, the educators were flexible in adjusting their lesson plans by cutting, adding, or changing their artwork choice and sequence. For instance, Andy had initially planned to show students five artworks, but he ended up showing only two artworks on his tour.

Prep time. All the educators— Andy, Judy, Lilly, Amy, and Hannah— came about 40 minutes to an hour early to prepare for the program. The studio educators—Judy and Amy— set up the tables, readied materials, put up visual aids, and wrote a motivating question on the whiteboard. The gallery educators—Andy and Lilly— came into the studio, where they stocked their tour bags with photos they might show students and materials for gallery activities. Hannah prepared for both portions of the program with an assisting educator. Educators casually chatted while prepping. The gallery educators discussed their artwork sequence with the studio educators to remind them of the progression and to share any changes. In the case of school fieldtrips, all the educators then went to the gallery spaces about 15 minutes before the scheduled program so they could greet the students, put students’ bags away, and start the program. Thus, the preparation time was important for educators so that they could discuss lesson plans and prepare for the students’ arrival.

Gallery facilitation. As stated before, the highlighted instances and narratives I captured here are not representative of a specific educator's teaching, or of all programs in an individual museum, but they simply represent telling instances that related to my research questions.

Opening and theme. Andy and Lilly's gallery tours started with a welcome, introduction of the museum building, overview of the program, and museum rules. Hannah's camp group had gone through the introduction in days prior to my observation because it was part of a multi-session program. Andy and Lilly created nametags for the students by checking in with each individual, and introduced the program themes, which were Exploring Issues Through Materials, and Places and Spaces, respectively. During the interview, Andy mentioned that individually writing nametags helps him to establish a personal relationship with each student and to quickly create a group dynamic. Both gallery educators expressed that they valued the brief chance to establish a relationship with the students before inviting them to share their ideas. Following the creation of the nametags, both educators asked questions and provided information in order to invite the children to start introducing themselves and to comment on the themes. The below fragment shows how Lilly asked accessible questions, starting with an introduction of the museum building, to gently encourage the children to share their observations and thoughts.

> *Lilly invites the 7th graders to a less crowded spot in the museum, and asks them to sit in a circle. After a brief introduction, Lilly tells students that they will be thinking about places and spaces. Then, she encourages them to look around the museum building and asks gently, "How might you explain this museum space to your family or parents?" Right away, a boy answers, "Length-wise, the museum is very large, and it is circular, spiral, and cylinder." Lilly compliments the description, repeats his words and asks if there is anything else they noticed. Students shout out, "Cool," "Pathways," and "Space." Lilly further asks if there is any key shape they are noticing. Students answer with shapes including "Triangles," "Circles," and "Squares." Then Lilly shares that the architect of the museum was interested in using different shapes in the building. Lilly points to the windows, which are a square shape, and she acknowledges that the shapes are often repeated. Lilly asks if they are noticing any lines, and students answer, "Thin lines" and "Lines forming an X." After the back and forth, Lilly encourages students to lie back and see the lines in the ceiling. After a few seconds, she asks them to sit up and share how it felt to lay down in the museum.*

> *Some children giggle, and some answer, naming more shapes, such as trapezoids, as well as contrasting colors. Lilly asks a student which colors he is referring to, and he says that he is noticing a tint of blue and gray. Then, Lilly explains that the architect liked using natural materials, and further asks if there is any natural thing they are noticing. Students mention that they see "Benches are like rocks" and "Water in the fountain." She explains that the architect tried to bring the earth into the museum building, and tells them the museum is placed right next to a big park.*

Lilly not only asked simple questions, but by complimenting them and/or repeating their comments, she also gave students the idea that their thoughts were welcome. She was also building off of students' ideas by giving contextual information in between their comments.

Even though Andy's theme was not about places and spaces, he introduced the museum building in a similar manner. He invited students to lie down on their backs and look at the museum building, and then he asked students what they noticed. After a few exchanges related to students' observations regarding shapes, lines, and colors, Andy explained that the architect was passionate about nature and symbolism and discussed what each shape meant to the architect. However, Andy focused more on sharing information than on eliciting students' ideas. During the interview, Andy said that explaining was necessary because students were less engaged. He thought that explanations would engage students, and he wanted them to start thinking about shapes.

Number of artworks. Depending on each educator's plans and how much time the students had for the program, there was flexibility in how many artworks gallery educators showed to their students. However, the total number of artworks each educator showed did not exceed three per gallery tour. This means that educators spent at least 15 minutes investigating the chosen artworks. Andy showed two artworks, Lilly showed three artworks, and Hannah only showed one artwork.

Dialogue during art viewing. The gallery tour invited students to vocalize their opinions to the whole group. The gallery educators often asked accessible questions or encouraged students to share their observations, and students answered the questions and responded (observe and think) to the artworks. After a few back and forth question and answer exchanges, most students seemed to get comfortable with the educators, raising their hands, or just shouting out their thoughts without any questions being asked.

At each stop, all the educators first had students look at the artworks for a few seconds to a minute, then they asked questions so the participants could share what they observed, and near the end, they revealed bits of information about the artworks. Even though general ways of engaging students to observe and discuss the artworks were similar, the ways the educators shaped their questions and introduced the information was different. For example, when asking questions, Andy seemed to look for answers and comments related to information he had already prepared, rather than opening up the floor for students' ideas and interpretations.

> *When students sit in front the first painting, Andy eagerly inquires if students noticed symbolism in the architecture on their way in. Students seem hesitant, and one student asks what each shape means again. Andy repeats the information. Then Andy introduces the first painting by saying that the artist talked about his life and not shapes. Andy encourages students to look at the painting. After a few seconds, Andy asks "What do you notice?" and the student responds, "There is a guy in the sky that is flying." Andy repeats the student's response to make sure the other children heard it, and asks, "What else?" Carl answers, "There is a cat with a human face." Andy repeats the response and asks again, "What else?" Andy calls on Eugene, who seems to have been watching carefully, to share his observation. Eugene answers, "There is a guy with two faces, and he looks like maybe he has two different feelings because the way he is presented and the colors of the faces." Andy rephrases by saying, "Carl mentioned he saw a cat with a human face, and Eugene just said he is noticing a man with two faces. Sometimes, colors give us different emotions, and a lot of artists use colors to represent feelings. Maybe the artist had different views or emotions concerning colors. We have two colors, blue and yellow." Andy asks again, "What else?" As Andy keeps asking "What else?" more classmates begin to comment, "There is a*

> *woman in sideways, floating," "An upside down train," and "It looks like a city." As if Andy was waiting for students to talk about the setting (Paris) the whole time, he changes his response tone with the last answer, and passionately asks, "What makes you say that it is like a city?" Then, the student answers, "It looks very French." Andy enthusiastically asks, "Do you know where it might be?" The children are quiet, so Andy further asks, "Do you recognize any buildings in the painting?" A few students shout out, "Eiffel Tower." Andy contently says, "We are in Paris," and reveals the title of the painting which includes "Paris" in it. Students further ask, "Where in Paris?" and assume the two-faced man is the artist of the painting. Andy then shares more information, "What is interesting about the artist is that the artist is from a small city in Russia, and as with many other artists, the artist moved to Paris in 1910 to paint where the artists were more supported. And he painted this painting two years after he moved to Paris." Then, Andy asks students, "How might the move to a new place have influenced the artist?" He encourages classmates to discuss their answers with the person next to them. After a brief partner share, Andy reveals what he had discussed with one of the students, "We were talking about how coming to a new city would bring a person new experiences and possibilities, and two faces might mean moving to a new country and looking forward, versus another face looking back."*

Andy's facilitation seemed typical, as many museum educators use the questioning method to encourage less vocal students. He tried his best to prompt students to participate in the conversation, but since the children were not as active, he kept on asking questions to spark discussion. Some questions were more open ("How might the move to a new place have influenced the artist?"), but many were leading questions ("Do you know where it might be?" and "Do you recognize any buildings in the painting?"), and did not probe any further. He repeatedly asked, "what else" in the hopes of getting a comment connected to the information he had prepared, rather than inviting students to elaborate or deepen. When the children finally mentioned ideas related to the title of the painting (*Paris*) and Andy's prepared information, Andy explained the details as if he was waiting for that answer the whole time. After he gave out his information, Andy seemed satisfied and moved on to the next topic, but it seemed that the students missed the opportunity to share their ideas and interpretations. It also possibly gave students the

idea that when asking questions, he was looking for certain ideas or answers. During the interview, he pointed out that the least successful part of his tour occurred when he felt like he was talking and dictating information more than asking questions.

On the other hand, Hannah spent about 40 minutes on a single painting, and she managed to hear everyone's comments and ideas without asking a lot of questions. Students seemed comfortable sharing their observations and theories with the group, and occasionally referred to the terms they had learned in the previous days. This is possibly due in part to the group being a camp group, which means that they had spent the previous three days looking at, talking about, and making artworks in the museum. During the interview, Hannah agreed that there is more freedom with camp groups, and she emphasized that she could build relationships with students. This allowed the students to get comfortable, and practice looking, thinking, and sharing, which is harder for school groups on one-shot field trips. However, Hannah's facilitation may also account for the students' responses. The narrative below illustrates how Hannah facilitated her gallery learning in front of the same painting Andy had used.

> *When students comfortably settle down in a semi-circle, Hannah encourages them to look at the painting for a minute. After about a minute of observation, Hannah acknowledges that she wants to hear from everyone, and that she will be calling on everyone to share their observations or ideas. Hannah adds that they are welcome to pass if they don't want to talk. Without any questions being asked, the first student shares, "I notice that the cat has a face like a human and the human have a face like the cat, but not really, but he has two faces." Hannah paraphrases instead of repeating what the student said, "So, right away Sonya noticed some things that are a little strange. They are recognizable but also strange. We have a cat with a human face, and a two-headed man on the bottom, and an upside down train." Then, Hannah calls on Patricia, who is next to Sonya. When Patricia comments about the different colors, Hannah reminds Patricia that they have worked with colors for the past few days, and adds that the artist made the window frame almost in rainbow colors, which is right next to the cat. Then, Talia jumps in, "I noticed the people that are side by side in the air." Hannah makes the connection between previous students' observations, "Okay, so we are*

going to add that to something strange. We have an upside-down train, and if you follow that line across, there are two people that are standing upright and sideways, excellent." Then, Hannah calls on Isabella, who shares her thoughts and connects them with what they learned the previous day, "That kind of reminds me of Mary Poppins because of the people in the back, and I noticed that it is like real-imaginary because the colors are used in a very different way." The term, "realaginary" refers to make belief, creative imagination, and real, but magical things. Hannah breaks out composite concepts, "So, Isabella said two ideas, one idea is that there is a sense of magic or dreamlike-ness, almost like Mary Poppins, and there are figures that are not grounded. There are two people head to head, and there is another figure floating up there." Hannah adds that she is glad to see people raising their hands, but she tells them to wait because she is going to get to everyone. When Abigail points out a man holding on to a triangle in the sky, Hannah asks the whole group what that triangle might be. One student answers, "It might be a parachute," Hannah asks, "Who agrees that it is a parachute?" When most students nod as a sign of agreement, Hannah shares information she discovered from reading about the painting, "I was actually reading about this painting, and one thing I read is that three years before the painting was painted, there was a first successful jump with a parachute. I don't know if the painter was referring to the event or not, but it happened." Hannah makes it clear that the information she read might or might not be the artist's intent. Then, Leah adds in agreement with Isabella's comment, "I agree that the painting is realaginary (real-imaginary) because of the setting is actually Paris. You can see the Eiffel Tower, and everything in the back exists, but there are imaginary things that are added to it." Then, Hannah recaps and adds pertinent information, "So, we are coming to a consensus on the setting as Paris because we associate it with a familiar landmark (Eiffel Tower), which was the most modern building at the time the painting was painted." The conversation keeps on going until all the students have talked, and then, after the students question her about the two-faced man, Hannah shares about the artist's move to Paris.

As shown in the two narratives, both groups of students observed the painting, shared their observations and ideas, and learned contextual information, such as the setting of the painting and the artist's move from another city. At the end of their talks, two gallery educators both arrived at predetermined information. They both had the same goal of encouraging the students to be the owners of their own learning, but the way they facilitated students' conversations differed. Andy repeated what the students said verbatim and asked probing questions only to guide them to the "appropriate" information, whereas Hannah paraphrased what her class was contributing, and added

pertinent information in between. The conversation flowed without Hannah asking too many questions, so a variety of interpretive possibilities became conceivable. Another difference was that Hannah's group connected their gallery learning with their previous knowledge ("realaginary" and Mary Poppins), and students were able to link their ideas to those of their classmates. In a similar manner, Lilly encouraged students to observe the artwork, asked accessible questions to elicit students' observations and interpretations, often remembered their comments and connected them with other students' comments, and shared contextual information close to the end.

Gallery activity. As a way to encourage students to respond to the artworks non-verbally, and to prepare them for the studio workshop, Andy and Lilly incorporated gallery activities into their stops at the artworks. Hannah did not provide any gallery activities during her tour. She said the reason was that students would be doing extensive art-making afterwards. Lilly included activities for every piece students saw. In her first stop, she encouraged the 7th graders to observe the painting in silence for a minute, and she used a stopwatch as if it was some sort of a game. During the interview, Lilly said that the silent-seeing activity is a good way to start because it gets students in the looking mode, as they are not usually ready to share at the beginning. While viewing the second painting, which was a landscape with trees on hills, she told students that their schoolteacher had informed her that the class had done many observational drawings. Then she asked for the definition of an observational drawing. Students answered that it consists of looking at things and drawing them. Lilly further asked what makes observational drawing different from imaginative drawing. Students answered that observational drawing is drawing from reality and mentally thinking to draw. Lilly

recapped what the students said and asked if observational drawings done by different people look the same, and students shouted out, “No.” Lilly then passed out pencils, papers, and cardboard bases and asked students to do a quick sketch of the painting and think about the sense of space (the theme). Students seemed very focused while drawing, some of them capturing the details of the small and big trees, and shading the darker parts of the trees and leaves, or the shadows. During the interview, Lilly said she was happy to hear students saying that observational drawings look different because that summarizes what she is trying to teach—that everyone may interpret artworks differently. She added that a drawing activity not only creates the context for students’ art-making later on, but also provides everyone with moments to look at the artwork on their own. The inclusion of gallery activities invited students to tackle different modes of thinking, and kept them active and concentrating on the theme (Places and Spaces), warming them up for the studio workshop.

Similarly, during his last stop (a collage portrait), Andy introduced a quick collage activity. He explained to the 8th graders that they would be doing a collage workshop in the studio, and that the activity would be a warm-up. He provided different colored paper cutouts on trays, and asked two to three classmates to share the materials with one another. For about three minutes, students arranged paper cutouts on the floor, and Andy reflected with the class on what they had created. All the students participated in the activity, including the participants who were distracted by other visitors or artworks, and they all seemed to show interest in browsing the art materials and arranging them. During the interview, Andy said that the collage activity prepared students for the collage workshop, and it also allowed everyone to participate at their own levels. The

gallery activity readied students to do collage art-making in the studio, but at the same time, it seemed a little repetitive because students do the same collage activity, twice following a similar question (gallery activity: Make a collage that represents you, and studio activity: How might you use color and shape to show what you feel?).

Other factors that shaped students' responses. It seemed that the busyness of the museum space, students' overall condition on the day of the program, their previous exposure to art and museums, the number of students per gallery educator, and their comfort level with the museum educator, were all factors that influenced how actively they participated. To begin with, the Red Museum is a relatively big and busy museum, drawing visitors from all over the world, and the museum's open space and high ceiling amplify sound. Thus, when it came time for a group discussion, the museum space seemed to challenge educators and students. When I observed Hannah's group, they were the only visitors in the gallery space because the museum was not yet open to the general public. During her interview, Hannah agreed that it is a rare case, and it makes the visit special when the students are in the museum space all by themselves. However, Andy's and Lilly's groups were with other visitors. So even though most students seemed to stay within the group, I noticed several times that some members of the class were distracted by noise and visitors. Also, Andy's group was caught in traffic and came to the museum an hour late. As a result, at the beginning of the tour, the students seemed very tired and less engaged. Andy agreed that the tour was challenging. That is why he gave out information to get their attention.

In addition, based on my observations and interviews with Lilly and Amy (studio educator), I learned that their groups had extensive experience with art and came to the

museum with a big art vocabulary, as well as an appreciation for art. Thus, Lilly's group seemed comparatively active for a one-shot school group, sharing their observations and ideas, along with asking questions in the gallery. In addition, Lilly had only about 10 students on her tour, while Andy's group numbered about 15. Having fewer students in a group made it easier for Lilly to memorize her students' names, and it also made it easier for students to discuss their ideas and hear other's voices during the tour. Similarly, Hannah's camp group was composed of self-selected students who were fond of art. They had also had art experience with Hannah for days previous to my observation. Due to these reasons, Hannah's students were familiar with each other, the educators, and the museum. They were on the same page, referencing art terms, skills, and focused questions they had learned during the camp.

Studio facilitation. As stated before, the highlighted instances and narratives I captured here are not representative of a specific educator's teaching, or of all programs in an individual museum, but they simply represent telling instances that related to my research questions.

Studio set-up and distribution of materials. Based on my observation and interview data, set up of the studio space seemed to be important in creating an environment where students could easily connect with educators and peers, access materials, and reference visual aids on the walls. Amy and Judy set up two long tables in the center of the room with space in between them, and Hannah prepared five smaller tables with plenty of space in between, as well, so all educators and students could easily move around the studio space. In their collage workshop, Amy and Judy both brought out trays with colored papers cut into different shapes (circle, triangle, rectangle, arch shape,

and trapezoid), or magazine cutouts. They did not introduce all the materials at once, but showed them in sequence. After Judy and Amy facilitated introduction or a warm-up activity (more on this later: Warm-Up Activity section), they passed out background paper, glue sticks, and scissors. For her painting workshop, Hannah set up canvases, pencils, brushes, sponges, and water cups, and after students thought about what they might want to create, she passed out paint.

In addition, Judy, Amy, and Hannah all put up many visual aids on the walls, including prints of abstract paintings created by artists or color wheels, and wrote motivating questions for students to reference. They said during the interview that the visual aids could serve as an introduction for the group that starts with the workshop, and a good reminder for the group that ends with the workshop. Even though I wasn't part of the group that did the studio portion first, I noticed that Amy and Judy prepared images of the museum building for the first group, and images of works from the collection on view for the second group (not necessarily the works students spent time with).

Opening. Upon students' arrival at the studio space, Judy and Amy asked them to reflect about what they saw in the galleries and share those ideas. During the interview both educators confirmed that they were familiar with the collection on view, other educators' plans, and the theme. However, since they were not in the gallery space with the students, Judy and Amy were not totally sure what students had seen or talked about in the galleries. So, in order to connect the class's experience to the theme, motivating question, and the workshop, they had to rely on the students to find out what really happened during the gallery tours. On the other hand, Hannah's group had a 15-minute break after the gallery tour. After the break, Hannah reminded students the artist's name,

the title of the painting, and what they talked about. Then she asked the motivating question (more on this below: Motivating Questions and Art-Making section).

Warm-up activity. To help students familiarize, explore, and experiment with the art materials, Amy facilitated a warm-up activity before the art-making. For example, after ensuring that the students saw and talked about a range of colors and shapes during the gallery tour, Amy told the students (7th grade, general) that they would do a warm-up game to explore lines, colors, shapes, and textures. The below conversation describes Amy's warm-up activity.

> *Amy begins by saying, "Choose five shapes from the tray and put them in front of you." As students excitedly choose their shapes, Amy asks the first question, "How might you arrange your shapes to show balance?" She gives students 30 seconds, and students come up with ideas, including stacking their shapes and putting bigger shapes on the bottom. After 30 seconds, Amy allows students to share with their neighbor. I could hear students quietly share, "It's symmetrical" and "Light color is light weight and darker colors show heaviness." Then Amy grabs their attention and asks, "How did you solve the problem? Anyone would like to share or share for their neighbors?" A student answers, "Symmetry," and Amy rephrases, "Okay, one side is equal to the other. It is an interesting way to show a balance. What's another solution?" Then, another student answers that he put parts together and points to his arrangement. Amy asks all the students to see his arrangements and says that he tried to have all the edges of the shapes meet together, and she adds that he is thinking more like a builder. Amy asks again, "What's another solution to show balance?" Another student says that she put green curved shapes like a seesaw. Amy asks her to further describe what is inside the green curve. Then the student answers, "It's like an anchor, and two equal things are inside." Amy excitedly says, "Fantastic. So, you are thinking about balance in the sense of physics; one weight equals the weight of another. You are thinking about weight in mass, rather than the visual symmetry other students thought about." Then, in a similar manner, Amy engages students in two more warm-up activities that begin with questions: "How might you arrange your shapes to show movement?" and "How might you arrange your shapes to show a place?" The last question directly relates to the theme (Places and Spaces), the motivating question (How can an artist show a place using shape, color, and texture?), and what they talked about in the gallery with Lilly.*

The activity seemed to make students very excited about making their choices and having unique contributions to the project. Students pondered various solutions, tried out

different arrangements using the art materials, and excitedly discussed and compared their solutions with their peers. The activity not only prepared students to work with art materials, but also readied them to think about different solutions (including places like outer space, a house by a river, a mountain with big trees, a playground, a sea and a boat, a bedroom, and a meadow) to show in their final artworks. Amy naturally transitioned from warm-up activity to main activity by reviewing students' arrangements and choices, asking the motivating question, and passing out more materials. Judy and Hannah did not include the warm-up activity, but they asked the motivating question after the introduction.

Motivating questions and art-making. All studio educators used one carefully crafted motivating question in their studio workshops. The administrators described a motivating question as a developmentally appropriate, open-ended question that motivates students, enables them to bring their personal experiences into their exploration of art, and offers many entry points. The inclusion of motivating questions seemed to serve as a thread in connecting the tour and workshop portions, as well as bring students' personal experiences and previous learning into their art-making. The motivating questions also made students' studio experiences very personal. To illustrate, Judy introduced the motivating question—How might you use color and shape to show what you feel? —after reflecting on what the 8th graders saw and talked about in the gallery in connection to the theme (Exploring Issues Through Materials).

> *As students settle down in the studio space, Judy asks what students saw. They answer, "Circles" and "Bright colors." After making sure students have seen many shapes and colors, Judy explains that artists use colors, lines, and shapes to explore many things and adds, "I would like you to think about how we could use colors, lines, and shapes to show what we are thinking about or feeling." To get the students interested, she subsequently asks how they are feeling and thinking.*

> *Students stay quiet and seem less engaged, so Judy encourages them to take a deep breath in and out, and advises them to talk to the person next to them and tell them how they are feeling. Then she introduces art materials, "We are going to use these materials to show what we are thinking about or maybe how we are feeling right now, and now share it with your partner." After a few moment of discussion among partners, Judy asks "Anybody willing to share something that they are thinking or feeling?" Students' answers include, "Tired" and "Feel like death." After a brief back and forth share, Judy asks the students if they saw a work by Picasso or talked about Cubism in the gallery, but students deny this. Judy repeats the motivating question, "How might you use color and shape to show what you feel?" She then reads a Picasso quote that is written on the whiteboard, "Painting is just another way of keeping a diary." Judy tries once again by asking if students talked about the abstract. A student answers, "Yes." Judy asks, "What does abstract mean to you?" When students stay quiet again, Judy explains right away that abstraction isn't something realistic and asks if anyone has different ideas to share. Another student answers, "It's different colors and shapes that show feelings." Judy says she likes the answer and gives another prepared quote by Picasso, "Colors, like features, follow changes of the emotion." Then Judy introduces more materials and let students begin their art-making.*

Similar to gallery educator Andy's facilitation, Judy tried her best to invite students (half of them had followed Andy for the gallery tour) to share their gallery tour experiences, along with answers to the motivating question. However, the students were less vocal and hesitant, so Judy resorted to repeatedly asking the motivating question. When she had the class talk it over with partners, students seemed more comfortable sharing about their thoughts and feelings. One of her students, who said that she was feeling 'deathly tired,' chose a dark brown piece of paper for her background, then cut black and white papers to different rectangular sizes, and placed them in a very orderly way. She organized the rectangles by color, creating a stripe, with larger rectangles on the bottom, smaller rectangles on top, and red triangles on all four corners of the background paper. Not one student seemed to struggle with techniques. As Judy agreed, the collage workshop is very self-explanatory. However, Judy's motivating question seemed too broad, and some of the 8th graders looked to have a little difficulty addressing it. One of

the students made a collage showing female models and women's sandals from the magazine, and while reflecting, she said she loved fashion design. Judy also gave quotes by Picasso that she had prepared, regardless of whether students saw Picasso's work or not (Andy's initial plan included Picasso's work) (more on this below: Motivating Questions and Art-Making section).

In contrast to Judy's approach, Hannah had her students (2nd-4th grade) share the answers to the motivating question with the whole group before beginning to make their art. After a short break between the gallery and studio portions, Hannah asked her students to sit in a circle. She prompted them to pick a situation when they did something for the first time and think about it for a minute in silence. She asked them to visualize that instance, and then to share it out loud. Hannah listened carefully and jotted down students' responses. These included the first time swimming, riding a bike, trying a trapeze, playing violin or piano, losing two teeth, raising a puppy, starting a new school, having new friends, and the first experience with death (attending a funeral). After the share, Hannah instructed the students to begin painting their scenarios about that event, but she told the students that they could choose a different scenario if they preferred. She told them to think carefully about their choices, including color selections, and she added that if they want to use words in their paintings, they should have a reason. During the interview, Hannah emphasized that she values the personal connection between art, children's lives, and materials, so she shapes a focused question that might thread the gallery, studio, and children's lives together. She added that the students' answers were extremely personal, and that they didn't change their answers based on what another child had said.

As a result, the students' paintings were very personal and connected to individual lives and experiences. To be specific, a student who answered, "First death," painted herself in the center of the canvas wearing a pink shirt with two hearts on it. She painted the background in a patchwork of gray, black, light blue, light pink, light yellow, and orange. Then, she wrote, "Letting go of grandma" on the right side. Another student who answered, "Trapeze," carefully drew herself on a trapeze with a pencil, and then she started painting herself wearing a green shirt and blue pants. She painted the background yellow. As soon as the pencil marks got blurry, she started painting her face and arms with a tan color. The trapeze was painted with a black line. Lastly, she added her eyes and mouth with the paintbrush. Other students' paintings included a piece with a big black cat in the center with a sun in the top left hand corner, a big yellow school bus on top of a gray road, a campfire painted with brown logs and a red fire, and a teacher holding her newborn child on her lap as she sat on a bench in the park. Considering the fact that Hannah only provided primary (red, yellow, blue), black, and white paints, it was impressive to see the range of colors students developed in their paintings. However, Hannah said that the students had already explored the medium when they mixed colors in their previous class. Thus, students were comfortable with art materials and referenced the materials with which they had already learned, explored, and experimented to create their visual language. As noted in the previous section, Amy asked the motivating question, (how can an artist show a place using shape, color, and texture?) after the warm-up activity and naturally transitioned to the main activity.

Dialogue during art-making. During the art-making, all the studio educators walked around to engage in one-on-one or small group conversations. They were eager to

talk to the students about their choices and processes, or to help out with technical skills (i.e., mixing colors). For instance, Judy walked around the room and looked at how students were arranging the materials and asked them with them if they were showing any specific feelings or thoughts. During our interview, Judy commented that she tried to check in with individual students concerning their perspectives and their responses to the materials. Students individually shared their stories with Judy, but most of them hesitated to share out loud with the whole group. During the interview, Judy told me that there were students expressing their sadness, confusion, anger, and feelings about violence (war), or racism. She added that they used dark colors and images from the magazine cutouts to portray those themes. Judy remembered one student that showed dimension, diagonal lines, and the movement of a car. He commented that he was trying to depict a car driving through to express the uncertainty of not knowing when to stop. Similarly, Hannah walked around the studio space and had conversations with one or two students at a time. She gave a demo of how to mix colors (such as skin tones), complemented or commented on details of the painting, and answered questions mostly related to use of materials. None of the studio educators mandated or insisted that students should finish their artworks in a certain way.

Furthermore, in some cases individual conversation pushed students to become brave in experimenting with their materials. When Amy's students were expressing places of their choosing, they cut, ripped, or crumpled papers, and used various colored and textured papers. One of Amy's students, who used only relatively flat papers with different shades of blue, added corrugated paper to differentiate the sky and the sea, and layered on different textures after conversing with Amy. Another girl, who cut brown

paper into a spiral line, glued the two ends of the spiral to make her tree pop up. Amy suggested the student fold the papers if she wanted an emphasis. She was courageous to make her collage three-dimensional.

Reflection. At the end of the art-making, Judy and Amy facilitated a reflection. Similar to engaging with artworks during the gallery tour, reflection seemed more meaningful when there was enough time. That is, Judy did not have enough time with her students because due to traffic issues, the students came in very late. Students had a total of roughly 30 minutes in the studio. Consequently, near the end of the workshop when most of the students were still working on their collages, Judy asked if there were any volunteers who wanted to share their artworks. There was only one girl that volunteered to contribute. Judy commented mostly on her choices of arrangements and compared and contrasted the choices with those of some of the girl's classmates. However, it was difficult for students to hear the reflection because most of them were still working. Amy's class, on the other hand, had plenty of time in the studio (about an hour and five minutes), leaving room for unrushed reflection. She set up the studio space for a reflection and then guided students to look and talk about all the finished artworks in the same way that they had viewed and discussed art in the gallery.

> *As Amy turns off the music, she asks students to finish their collages, clean their tables, and hang their collages on the board for reflection. When everyone finishes hanging their artworks on the board, Amy asks students to stand up by the wall on the other side and face their artworks. Amy emphasizes that students will reflect on how artists use shapes, colors, and textures to show a place, and reminds them of vocabulary they used, such as balance, movement, negative space, and overlap. She first invites students to talk about artworks that are not their own. She asks, "What do you notice about another person's artwork? Tell us about choices you notice about shapes, colors, and texture." Anthony points to a collage that has three stem-looking lines made with green grass, with white flower cutouts on top of each stem. "The fifth one, the flower one, it's like the person is using nature to create nature." Amy rephrases, "Oh, so you are saying*

the material choice reflects the subject matter." Then, Amy directs students' attention to the color choices, "Is there anyone else noticing anything about color choice on the same artwork?" Instead of answering, Jill points to another collage that has a sailboat in the center of the ocean and shares, "This one has a gradient background, and a sailboat and then the texture of the background is different. It has sand and a wavy texture in the ocean." Amy paraphrases, "You are pointing out that this artist chose a lot of textures to show the sea, and I like how you use the word gradient. Can you describe a little more about what a gradient is?" Then Jill explains, "It's like when the color goes from light to dark or dark to light." Amy exclaims, "Fantastic!" and adds, "What I notice is if you guys think about the sea outside by the beach, the sky and the sea share the similar color palette, and this gradient makes you imagine that the sky almost continues to the water, that's a real cool effect this artist made." After asking a few more children to contribute, Amy says that some places are specific, but some seem to show stories and she points out several artworks that seem to have characters and symbols. She asks if students want to talk about symbols they notice and what they might mean. Philip points to a collage that has a character in the center, standing on top of a pedestal like a shape, surrounded by long column shapes on the sides, and triangle shapes on top. He says, "The character seems to be dancing like on the top is the disco ball." Amy recaps, "The character seems to be inside somewhere, and I like the way the artist used different textures and patterns on the sides." While reflecting, Amy also asks the students whether they notice any artwork that seems to show a connection with what they saw in the galleries, including the artworks, or the building. After a few more student share moments, Amy finishes by encouraging all students to applaud for what they did.

Amy asked open-ended, probing questions to deepen students' observations and interpretations, and paraphrased what the students' said in order to clarify their interpretations, as well as to reinforce the correct art terminology. The described narrative shows how creating an environment that facilitates reflection made it easier for students to focus on observing and sharing ideas of their own, as well as to appreciate the artworks of their classmates. Even though she has learned different teaching strategies while working at various art museums over time, during the interview, Amy denied that she used a specific teaching approach, especially in her studio workshops. As a visual artist herself, she said she thinks about her own studio practice and focuses on the process of how artists structure their art-making, rather than concentrating on teaching technical

skills and facts that apply to art history. Lastly, I couldn't observe Hannah's reflection facilitation because it happened after the scheduled observation.

Connections Across Gallery and Studio

Different educators. As previously mentioned, there were more than two educators (in cases of larger groups) leading the same school group for the tour and workshop program. Since different educators lead the gallery and studio portions, educators aren't able to physically be a part of the students' other experience—in Lilly's words, "I am never there." Thus, educators were not exactly sure what their students saw, talked about, or created in the other portion of the program. Even though educators shared their plans, objectives, artwork choices, order of discussion, and workshop type in advance, the school's arrival time and the busyness of the museum space forced educators to slightly modify their plans on the spot. For example, Andy (gallery educator) planned to share five artworks with his students, but ended up showing two because they came in an hour late. Judy (studio educator), not aware of Andy's change of lesson plan, had to learn the information from the students, who were not incredibly verbal. Similarly, Lilly (gallery educator) cut out one stop from her initial plan and showed three artworks because another educator was already occupying that spot. This also implies that if two gallery educators split the group, students won't necessarily get to see the same artworks. All studio educators agreed that they are well aware of the collection on view, have a general idea of what students would see in the gallery, and trust the other educators' facilitation. However, I observed that since the gallery educators aren't dictating information or following their plans exactly, students' observations, interests, and responses greatly influenced their gallery learning experience. Thus, it seemed like a

great loss for studio educators to not be able to observe the students' gallery experiences. That is, if the studio educators knew exactly what students focused on, or were intrigued by during the gallery tour—such as the artists' passion (Andy's group), or the drawing activity (Lilly's group)—this could be built into the studio workshop, leading to a greater connection.

Moreover, I noticed that there is not much time for educators to have exchanges about what each group saw, discussed, or made because the teachers have to quickly complete a changeover. Correspondingly, the studio educators had to clean up the space and replenish materials in the middle of the program. Thus, usually the only time educators have to reflect upon their successes and challenges, as well as memorable moments, is when they are cleaning up the space or tour bags after students leave the museum. During their interviews, Judy and Amy added that, considering the fact that there are only a few minutes in between each studio session, the collage workshop was the simplest choice because collage is easy to prepare and clean up without any assistance. Thus, studio educators not only had limited information about the students' gallery experiences, but due to the exchange of teachers in the middle of the program, also had to offer the type of the workshop that is easy to prepare and clean up.

Regarding the various educators being in charge of different portions of the program, Laurie, the administrative staff member, claimed that the Red Museum has about 21 gallery educators, but only three studio educators. Laurie insisted that the studio workshops do not vary as much because only those three studio educators lead the workshop portions, and gallery educators are well aware of the studio educators'

workshops and teaching styles. However, this also implies that the limited studio educators might not be able to fully connect to the range of gallery experiences.

Tour and workshop sequence. Although I only had the chance to observe the order when the tour was first and the workshop second, I was curious to learn what the educators thought about the sequence created by the design of the program, where either the gallery or studio portions can come first. The studio educators, Judy and Amy, said they prefer students to have the gallery visit first because the tour allows the students to move around and keep active in the gallery after the long bus ride, then take those experiences and settle down to make art in the studio. Judy added that students' gallery experiences inform their choices in the workshop portion. Hannah (gallery and studio educator) agreed and said that there is value in having the tour and looking at artwork first. It validates the connection between the featured works and the students' own art. With the reverse order, a valuable linkage is lost unless the educator remembers what each student makes in the studio and is able to choose corresponding artworks to show students in the gallery. She added that, logistically, gallery discussion also requires more focus, and students get tired after making their own art. On the other hand, Lilly, a gallery educator, said she would prefer to offer the workshop first because engaging in the art-making process might urge the children to loosen up and get them ready to talk about what they have done. Also, when educators are posing questions to the students in the galleries, the workshop experience is a direct link to initiating discussion. However, all educators agreed that the main objectives—have students look at art deeply, delve into the themes, interpret art, and make personal connections—remain the same regardless of

the order, even though the experience may differ a little. In the end, they would prefer to accommodate greater numbers of students.

Administrators Laurie and Dana added that either sequence generates both strengths and weaknesses regarding student experiences. For example, if students do the workshop first, they might appreciate the artists' artworks more because they know how difficult it is to produce art. If they do the tour first, they might use the other artists' artworks as inspiration for their own art. However, Laurie and Dana claimed that students would have different fuel and tools to create their art either way. Unfortunately, it was difficult for me to determine my thoughts regarding the sequence without observing the other workshop order, where the workshop was first, and the tour second.

Theme and motivating question. The administrators referred to the use of open-ended themes and motivating questions to unify the tour and workshop portions. Dana said even though the administrative staff didn't require educators to use motivating questions, educators all agreed that the motivating question for each tour and workshop serves to connect the gallery and the studio experience, especially since they have different educators leading the gallery and studio portions of the program. I noticed that the use of tour and workshop themes and motivating questions seemed to serve as an important bridge in linking the tour and workshop portions of the program, sometimes creating content connections. For instance, Lilly (gallery educator) answered that through her tour (with the theme Places and Spaces), she tried to create a context for students' art projects. In fact, Lilly began her tour by showing students the architecture of the building so they could talk about the core shapes (circles and triangles), and absorb the space. After that, she showed the two paintings in order to introduce students to artists who were

interested in pastoral space and the natural world. After that experience came abstract painting, which spurred students to think about abstraction (preparing students for the collage workshop). Amy was sure that Lilly's group talked about the theme, and observed and discussed ideas regarding the artworks. In Amy's workshop (motivating question: how can an artist show a place using shape, color, and texture?), students used various types of shapes, colors, and textures to create places including a bedroom, seashore, and outer space. Some students utilized Amy's workshop to make many tree and landscape collages (a boat, hills, or a house by the sea). Amy also emphasized that the institutional objective is to make connections between students' learning and master's works.

Similarly, Andy (gallery educator) said that he made sure he inserted the questions students will be asked in the studio and informed them that the artists asked the same questions while making their artworks. He said he tried his best to make students familiar with artists who explored their passions, stories, or selves through art materials (his theme was Exploring Issues Through Materials). In response, Judy had her students investigate collage materials to show their feelings (motivating question: how might you use color and shape to show what you feel?). During her interview, Judy said that some of her students expressed their thoughts on anger, sadness, violence (war), and racism, and they were passionate about expressing those views.

Hannah, who led both her tour and workshop portions, agreed that both were well connected because of the linking motivating question (How might you show a time you did something for the first time in the painting?) that drew on artist's inspiration and students' individual experiences. I agree that Hannah's tour and workshop were well-

connected because students investigated a single painting, focusing on not only the artist's techniques, but also on his first move to a new city and what had happened during the time of his move (first successful parachute jump), and then created their own paintings based on the carefully crafted motivating question. As such, students were making very personal and individual paintings that connected to their lives.

Visual reference. It was clear that the students were directly referencing what they saw in the gallery—for example, shapes, colors, and artist's techniques—while they were making their artworks. Hannah's students were borrowing specific visual references and integrating them into their paintings. Even though when asked the motivating question students did not respond with anything related to cats, after looking at a painting that had a human-faced cat in the center, two of Hannah's students painted a big cat in the middle of their canvases. In the studio, they even asked other children and educators to vote on whether they preferred dog or cats. They may have veered off from their initial answers to the motivating question, but they were clearly influenced by the painting they saw and they were influenced by it in their own paintings.

However, the students were not only directly borrowing images they saw, they were also adopting the techniques of the artists. For instance, near the end of gallery tour, Hannah asked her group to pick one technique they observed in the paintings from the galleries that they might apply to their own work. She explained that the techniques might include bright colors, two different feelings, light and dark colors, two faces to express different feelings, and specific details or blurring. One student painted her background using various blurry pastel colors to create a patchwork. This resembled how the artist painted his background, with multiple colors blended like a patchwork.

Similarly, I noticed that students were not only learning from the artworks, but they were absorbing everything that they were noticing in the museum, especially the unique design of the Red Museum's building. During the reflection in Amy's studio workshop, one student mentioned how a classmate's collage of a bedroom looked very distorted, just like the museum building. As Lilly shared during the interview: students' aren't just coming for the art, they are also coming to see the museum building.

Talking about art. I noticed the way that students were looking and talking about the artists' works and their peers' artworks were similar. The educators used their facilitation to guide the students to respond in the same way. For example, in the galleries, Lilly asked her students to observe the chosen artwork carefully, asked them questions and encouraged them to share their observations in detail. She also rephrased what they had said, and asked follow-up questions to deepen their inquiries and to encourage them to build on what other students had contributed. Similarly, in the studio Amy encouraged students to hang their finished artworks on the wall, observe carefully, and then share what they saw. Amy asked open-ended questions, paraphrased students' comments, and encouraged them to describe their choices when reflecting on their arrangements. When students were sharing, they observed all of their classmates' works with respect, used detailed words to describe other students' artworks, and when appropriate to the conversation, added their thoughts of agreement or new ideas.

Summary of the Red Museum

According to the interview data, the administrative staff claimed that the educators use constructivist approaches in their programs, and even though they did not specify their teaching approaches as adhering to one single method, all of the educators

agreed that they value students' active participation. They all stated that the institutional objective is to have students look at art deeply, delve into the themes, interpret art, and make personal connections. However, my observation and interview data also revealed different nuances in their teaching approaches and components that influence the connection between the gallery and studio portions.

Based on my observation data, the Red Museum's 2.5 hour long programs started with a welcome, introduction of the museum building, overview of the program, and museum rules. The gallery educators showed three artworks or less and spent between 10 minutes and an hour with each artwork. All the educators first had students look at the artworks closely, then asked accessible questions to elicit their observations, ideas, and interpretations, often remembered students' comments and connected them with other students' comments, and, near the end, revealed bits of information about the artworks. Sometimes, the gallery educators asked guiding questions to lead the class to the predetermined information. The educators also incorporated gallery activities (drawing, collage, silent looking, and partner talk), and the activities seemed to serve as a warm-up for the studio workshop or were used to regain students' attention. When the group transitioned to the studio, the studio educators generally reviewed the gallery tours so that the students could help the teachers to learn what they actually looked at and talked about. The studio educators then facilitated a warm-up activity or asked the motivating question. The motivating questions seemed to serve as a thread in connecting the tour and workshop portions, bringing students' personal experiences and previous learning into their art-making, and sometimes creating the content connections. During the art-making, none of the studio educators mandated students to finish their artworks in a certain way,

instead they engaged in individual or group dialogue to talk about the children's choices and processes, or to help out with technical skills. Generally, the studio educators facilitated a reflection of students' finished artworks at the end of the workshop. The way they did this resembled the way the gallery educators' facilitated dialogue around the works of the professional artists. As a result, I realized that students were looking and talking about their peers' artworks with respect, using detailed words to describe them, in the same way that the looked at and discussed the artist's works.

Case 2. The Blue Museum

A Brief Overview of the Program

The Blue Museum's official website affirms that the museum offers two hour-long thematic tour and workshop programs to students in grades Pre-K to 12. Similar to the Red Museum, the number of educators appointed to each tour and workshop program depends on the number of registered students. Two educators (a gallery educator and studio educator) are appointed for groups of less than 30, and three educators (a lead gallery educator, gallery educator, and studio educator) are appointed for larger groups. This is due to the maximum capacity of people allowed in the gallery or studio space (15 and 30 respectively). Based on my interviews with the educators, I learned that, in the past, the Blue Museum had only allowed a maximum of 30 students per program. Two educators (the lead educator and educator) split the group in half and taught the gallery portion. Then when the groups all came down to the studio after the gallery tours, the lead educator led the studio workshop while the other educator assisted. The recent change was made to accommodate more students, even though the change also altered the

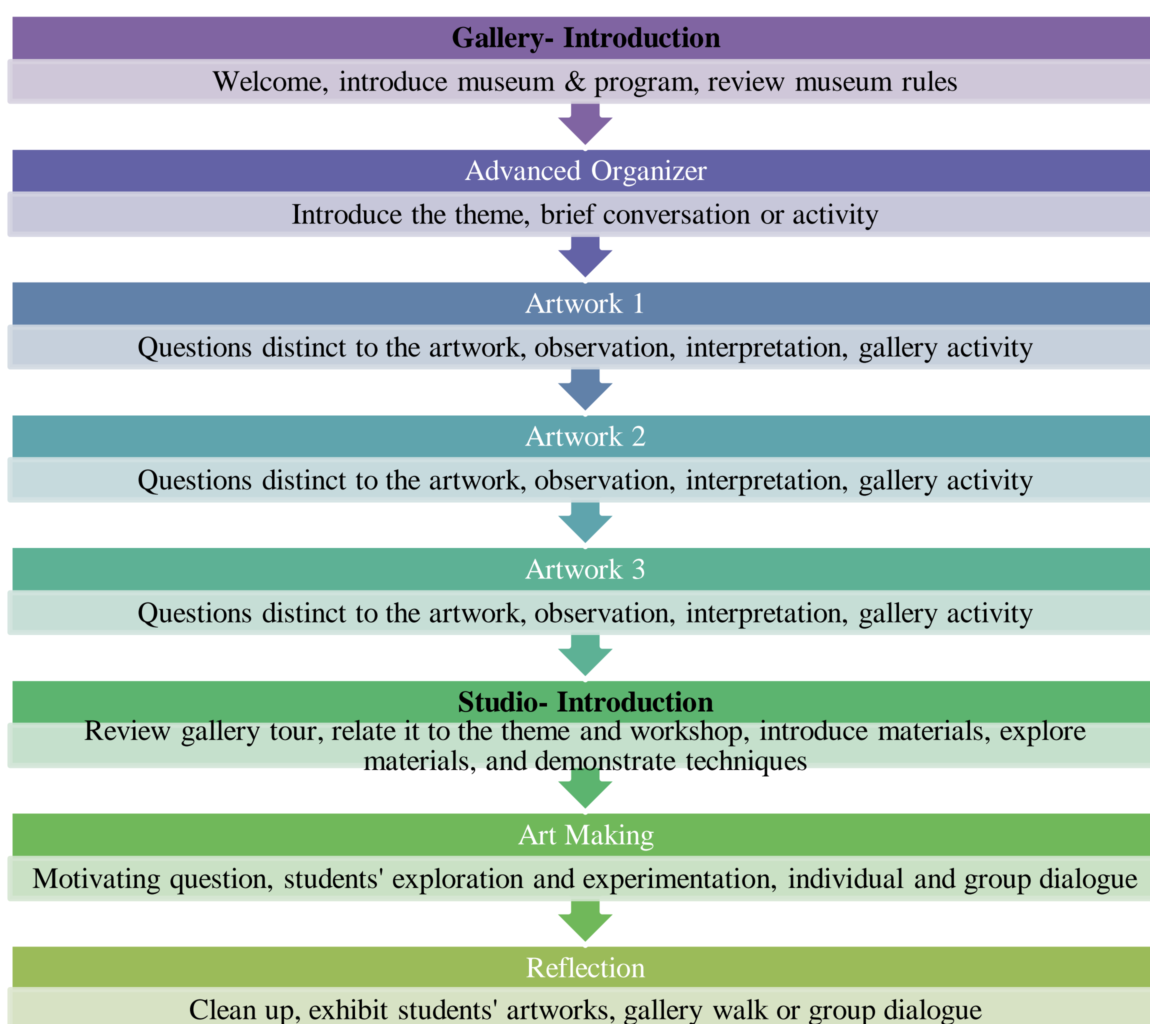
sequence; half of the students experience the gallery tour first, while the other half experience the studio workshop first. Also, it is worth noting that the educators at the Blue Museum, unlike those at the Red Museum, are trained to lead both tour or workshop portions. Thus, depending on their schedules, the educators are able to teach both portions of the program (either tour or workshop).

The administrator, Niki, stated that the structure of the program would be fairly consistent in each tour and workshop program. If students do the gallery tour first, the program begins with a welcome, introduction to the museum and program, and a review of museum rules. Then, the gallery educator(s) introduce a theme and an advanced organizer, visit three to five artworks, and reflect upon what the group has discovered, while preparing students for art-making. During her interview, Niki, the administrative staff member, explained that the advanced organizer could be a brief activity that set the tone of the program and narrowed down students' thoughts about the program. During the tour, the gallery educator(s) might also introduce gallery activities—for example, touching the material samples or artist's tools, sketching, or moving the body to make shapes or sculptures—in order to engage students and encourage them to look at art in different ways.

After that, the students transition to the studio. The studio educator reviews the gallery tour and connects it to the theme and to art-making. The studio educator might demonstrate or encourage material exploration and ask a motivating question. The definition and use of the motivating question at the Blue Museum resembled that of the Red Museum's, and Niki added that the studio educator should craft the question based on the tour plan and materials for the workshop. During students' art-making, the

educator will point out what students are doing and acknowledge their choices. At the end, the studio educator facilitates a reflection in the form of a gallery walk or discussion. If students do the workshop first, the sections will run in reverse. Indeed, Niki's description was generally consistent with my observations. The table below shows the design of the Blue Museum's tour and workshop program.

Table 7: Design of the Tour and Workshop



*Arrows indicate transitions, including review of previous artwork, brief introduction of latter artwork and physical move from one place to another.

Characterization of the Museum's Pedagogy

Administrators' views. The Blue Museum's website declares that their programs are inquiry-based and exploratory in nature, as well as designed to promote careful observation and critical thinking skills through focusing on a few artworks during an hour tour and a related hour hands-on workshop. Niki, the administrator, explained during the interview that she supports educators' use of the inquiry-based approach that is based on constructivism. She described that, when using this approach, educators engage students in conversation that is often prompted by questions, drop in information, even deeper questions, and then reflection. This occurs after each stop in front of an artwork in order to build on their previous conversations. I confirmed through my observation and interviews that all the educators incorporated the inquiry approach as Niki described.

In order to support constructivist approaches, including the inquiry-based approach, the administrators train newly hired educators, become involved in educators' planning process, provide a Professional Development Program (PD) once a month, and observe educators twice a year. When educator(s) are hired, the new teacher will write a detailed lesson plan that includes the targeted age group, theme, objectives, three artworks to discuss, and possible questions, and also lead mock tours to practice teaching in the gallery setting. Niki invites art and museum professionals (curator, artists, educators) to PD sessions to give a tour or talk and provide articles (exhibition and museum education related) to the educators. As part of PD, educators conduct peer observation and give feedback. However, Niki added during the interview that even though all the Blue Museum's educators are trained to teach inquiry-based approaches,

she values all the different energy the educators bring and the different ways they choose to facilitate their classes.

It is worth noting that the former and current administrative staff at the Blue Museum who trained many current Blue Museum educators used to work at the Red Museum, and a few current Blue Museum educators have worked at the Red Museum. Accordingly, I could observe many similarities between the Red and the Blue Museum in terms of the design of the programs, teaching approaches, and facilitation of the programs.

Educators' views. Interestingly, not all of the Blue Museum's educators knew the term "inquiry-based approach" or specified their teaching as centering on one single method. The terms they used to describe their teaching approaches resembled those of the educators at the Red Museum. These methods included the constructivist approach, inquiry-based approach, VTS, and activity-based methods. Whether they knew the terms or not, during their individual interviews, the educators all agreed that they incorporate open-ended questions and prioritized students' personal connection with art through close looking, verbal exploration, and autonomous speculation. However, a few educators added that, depending on the group, they might ask closed-ended questions and incorporate multimodal gallery activities. For example, I noticed that Niki, who is an educator as well as an administrator, sometimes asked accessible closed-ended questions to special education students, such as, "Raise your hand if you saw a sculpture made with rocks." She added that she often incorporates different teaching strategies to meet the needs of diverse students and to offer the best possible experiences. The Blue Museum educators told me that they learned about different teaching approaches from various

sources, including other institutions where they have worked, graduate schools, the Blue Museum's PD and training, and reflection with peer educators.

The Sessions

Overview. I observed three sessions, and all the groups came to the museum as part of school field trips. Three educators led the three sessions: (two gallery educators who split the group, and one studio educator who taught the entire group). I observed one gallery educator because the two gallery educators showed different artworks to their students during the same allotted gallery time. All the programs had themes and studio educators incorporated motivating questions similar to those used at the Red Museum.

Table 8: An Overview of Observed Sessions

	Session 1	**Session 2**	**Session 3**
Educators	Gallery, Agnes	Gallery, Roy	Gallery, Lee
	Studio, Niki	Studio, Janine	Studio, Jessica
Students	35 students, K/ Public/ Special Ed	28 students, 3rd grade/ Charter/ General Ed	60 students, 2nd grade/ Public/ General
Themes	Materials and Process	Sense of Self and Art	What is sculpture?
Motivating Questions	How might you arrange materials to create a cool sculpture?	How might you create a paper sculpture that tells us something about yourself?	How might you make an abstract sculpture that has interesting shapes?

Planning. The Blue Museum's planning process was comparatively more formal than the Red Museum's planning process because of the administrative staff's involvement. Typically, when a school books the program online, the schoolteacher is asked to provide information about students and choose a theme for the program from a menu the museum offers. The program coordinator then schedules possible educators based on their availability and emails them with the specifics (school and class information and theme) about a week before the program date. In response, the lead

gallery educator initiates the planning by sharing his/her tour objectives, artworks in sequence, and possible gallery activities. Accordingly, the other gallery educator (if available) shares his/her plan, and then the studio educator shares his/her workshop objectives, motivating question, materials, and a brief workshop description. Niki and Agnes (administrative staff) are included in the email exchange, and they sometimes give advice to educators. The back and forth exchange of emails involving the administrative staff seemed to make educators think carefully about their own plans and become more aware of others' plans. However, this planning process didn't mean that the educators strictly followed their lesson plans. The educators occasionally modified their plans depending on the arrival time of the group, students' responses, or the weather. For example, Roy included a sculpture that sits outdoors in his initial plan, but he showed an indoor sculpture instead. During his interview, he said he changed his plan due to the chilly weather. Similarly, Agnes showed two artworks even though she initially planned for three artworks. She changed her mind so that the students could spend extended time with a single artwork (more on this in the Number of Artworks section).

Prep time. All of the educators (from the different sessions I observed)—Niki, Agnes, Roy, Lee, Janine, and Jessica—came to the museum at least 45 minutes before the program start time in order to prepare. The studio and gallery educators met at the museum's studio. Studio educators—Niki, Janine, and Jessica—prepared materials and visual aids. Gallery educators—Agnes, Roy, and Lee—packed their tour bags with images of the artist and artworks, material samples, or artist's tools relevant to the tour theme, and then they helped the studio educator to set up the tables with workshop materials. While prepping, gallery and studio educators casually chatted to remind each

other of their object order, possible gallery activities, and workshop description, and to ask for last minute advice. About 15 minutes before the scheduled program, all the educators went to the entrance to greet the students.

Gallery facilitation. As stated before, the highlighted instances and narratives I captured here are not representative of a specific educator's teaching, or of all programs in an individual museum, but they simply represent telling instances that related to my research questions.

Opening, advanced organizer, and theme. Upon students' arrival to the museum, one of the educators (either from the studio or gallery) briefly introduced the museum and museum rules, and guided students to the studio. In the studio, the educators split the group into three smaller sections (two groups for gallery tours and one group for studio workshop) and set a time when they should switch. After the group was divided, the gallery educators—Agnes, Roy, and Lee—guided students to the gallery space to greet them once again and facilitate the Advanced Organizer. Agnes, Roy, and Lee showed photos of the artist and shared sample art materials or tools to introduce the artist, museum, and the themes of the program (Materials and Process, Sense of Self and Art, and What is Sculpture?) While facilitating the Advanced Organizer, the educators asked questions and provided information in between the answers. This seemed to prepare students to vocalize their comments with the whole group. The below fragment shows how Agnes facilitated the Advanced Organizer to help students (kindergarten, special) think about the theme (Materials and Process).

> *Agnes guides students to make a circle and sit near the first artwork. Students excitedly exclaim and comment on sculptures they notice around them. Agnes welcomes students and introduces herself, the artist, and the museum, "Welcome boys and girls, my name is Agnes. Welcome to the Blue Museum. One artist made*

all the artworks in the Blue Museum." Then, Agnes introduces the name of the artist who designed the museum space and made all the artworks on view in the museum. Agnes pulls out a photo of the artist from her tour bag and shows it to the students. As students look closely at the photo, Agnes asks, "What is he doing in this picture?" A boy answers, "There's a statue!" Agnes asks him, "Can you point to the statue? Can you show me?" The boy points, and Agnes compliments and explains, "Good. Yes, this is the statue, or we call them sculptures. The artist is in his studio where he makes these sculptures. He has different kinds of tools to make his sculptures." Most of the students focus very well, but one student keeps on making a sound. So, the schoolteacher firmly stops him, so other students can listen and Agnes can talk. Agnes continues, "He probably had different kinds of materials in his studio." Then, she asks, "I want to ask you guys, have you ever made any work of art?" The schoolteacher repeats right away, "Have we ever made any art?" Agnes pulls out some sample materials from her tour bag and asks again, "Have you made any art with any of these materials?" Students excitedly browse the materials, and the schoolteacher helps by saying, "Wow! What is that?" As Agnes slowly points to one material at a time, students shout out, "Wood," "Crayons," "Paintbrush," "Paper," and "Clay." The schoolteacher reminds students, "Remember when we used clay and water to sculpt?" Agnes adds and confirms, "Excellent, so everybody made a sculpture with clay?" Students remember and share words they used when making their clay sculptures, including "Flatten," "Pinch," and "Make a hole." Agnes summarizes students' comments and connects them to the theme (Materials and Process). "So, you all made a sculpture with clay, some of you used different tools and materials. So, we are going to explore some of the different materials and tools the artist used when making sculptures."

As shown above, Agnes incorporated accessible questions while showing the photos and art materials. Agnes not only prepared students to share their observations, but also connected students' previous experiences working with art materials to the theme. I could observe students getting excited to share their experiences and comments with Agnes. Similarly, after showing a photo of the artist and the artist's tools, Lee introduced the museum and the artist and naturally connected those concepts to the theme (What is Sculpture?).

Lee guides students (2nd grade) to a quiet place near the first artwork and asks them to sit where she can see them well. As students sit down, Lee welcomes the class, "Welcome to the Blue Museum, I am so glad you are all here today. Raise your hand if you have ever been to a museum before." After confirming that most of the students have been to a museum, Lee begins to introduce the museum and

the artist, "Excellent, hands down. So, you guys have been to a museum before. Guess what, our museum is completely different from any other museum. You know why? When you go to a museum, there is a painting made by one artist, you walk a little bit, and you will see another work made by another artist. This museum is completely different because all the artworks you will see are made by one artist." After hearing Lee's information, students gasp and exclaim, "What?" and "No way!" A boy asks if the artist is still alive. Lee answers that the artist is no longer alive and tells him the artist's name. Students repeat his name. Lee explains that the artist not only made all the artworks in the museum, but he chose where he wanted to put each piece.

Lee pulls out a photo of the artist from her tour bag and shows it to the students by slowly walking in front of them. She asks, "Raise your hand if you could describe what he is doing." A boy excitedly answers, "He's carving a sculpture." Lee further asks, "What makes you say that he is carving a sculpture?" The boy points to the photo, pretends as if he is holding the sculpting tools and explains, "He has like a curve here." Lee confirms, "So, you are noticing the artist's tools." Lee then points to another student who has her hand up, "What are you noticing?" The girl answers, "The artist is digging into rocks." Lee repeats and adds, "Good, the artist is digging into rocks, and you are noticing the tools." Lee asks again, "What else are you noticing?" Another student answers, "I notice the holes from carving, it should be curvy, but now it is flat." Lee compliments and paraphrases, "Wow, you have good eyes. You are noticing that the artist is really digging the sculpture and making a hole." Then, a girl shouts out and asks, "But, why?" Lee answers her, "We'll get to the why, but I am showing you this picture because he makes sculptures, and he uses tools to make the sculptures."

Then Lee pulls out the sculpture tools from her bag and explains, "This is a mallet, which is a double-sided hammer. This is a chisel." Lee adds, "I've shown this picture for five years, and there was one kid who said he or she noticed that the artist is hitting the chisel so hard that the stone piece is flying up in the air." Right away students look at the photo again and exclaims, "Let me see!" and "Wow!" Then, Lee encourages students to imagine that they are holding the mallet in their hands and show her how it would be like to carve a sculpture. Students excitedly pretend as if they are carving a sculpture and make the hitting sounds. After a few moments of carving the imaginary sculptures, a girl raises her hand and shares, "I saw someone using these tools to fix a machine." Lee compliments the girl for associating and explains, "Great that you remember, and it is a great point. The artist had specific tools for making sculptures and those tools are similar to tools that fix machines." After a few back and forth commentaries about the photo, a girl speaks out, "Sculptures can be anything." Lee proudly links it to the theme (What is sculpture). "You know what, you said the best thing. She said these sculptures could look like anything. That is what we are going to talk about today." Then, Lee guides students to look at the first sculpture, which is right next to where they are sitting.

As described above, Lee facilitated the Advanced Organizer by explaining about the museum and artist, showing visual aids, and involving students by prompting them to share their observations and ideas. Further, Lee spurred students' excitement by having them pretend to sculpt. By doing so, Lee gently set the tone of the program as well as guided students to think about the theme. Similarly, Roy did a brief introduction about the museum and asked students where they would like to travel. In order to link students' answers to the theme, he then explained that the artist traveled to different parts of the world for inspiration and to make art (Sense of Self and Art). The facilitation of the Advanced Organizer seemed to set the tone for the program and helped educators quickly build a relationship with the students.

Number of artworks. All three gallery educators included three artworks in their initial plans. Roy and Lee followed their plans, but Agnes cut off one artwork. During the individual interviews, they all agreed that they are flexible and would eliminate tour stop(s) if necessary. Interestingly, Agnes chose to show two artworks to students even with the schoolteacher's on-the-spot request that she would like her students (kindergarten, special) to look at as many sculptures as possible, spending about two minutes at each stop, because she worried about her students' short attention spans. During her interview, Agnes explained that even though she respects the teacher's opinion, she was responsive to the students. Based on the students' body language and contributions—they were able to sit, look carefully, and synthesize their observations in extended conversation—Agnes decided to spend extensive time with a single artwork and cut off one artwork. She reflected during the interview that she felt comfortable with her decision. Thus, all the gallery educators spent about 10 to 20 minutes on each artwork.

Dialogue during art viewing. The gallery tour encouraged students to share their observations and ideas out loud to the whole group. At each stop, Agnes, Roy, and Lee encouraged their classes to observe the artwork carefully, asked open-ended questions to initiate conversation, provided pertinent information in-between students' comments, defined art terms, and, near the end of the session, paraphrased student comments. Most students seemed comfortable sharing, but several times I noticed when students were having a challenging time describing what they observed, or with listening and then building on others' comments. The children were inclined to mention all the different things they associated with the abstract sculptures, so educators had different strategies to guide their dialogue. For example, Agnes was responsive to her students (kindergarten, special), and she managed to keep students focused on observations (shape, color, and material) by pointing to the specific parts they were discussing and encouraging them to describe what they saw.

> *After students carefully follow Agnes in a straight line to see the sculpture from all sides, Agnes urges them to sit in front of the sculpture. Agnes asks Megan who had her hand raised, "What were you going to say?" Megan shares, "I think it's like a car, and I notice this sculpture has many holes." Agnes asks for detail, "So, you noticed a lot while walking around the sculpture. Megan notices there are many holes. Megan, can you come up and point to the holes without touching the sculpture?" Megan carefully points to the sculpture, and Agnes compliments her. Agnes then compares the sculptures, "Something about these holes, the holes in the first sculpture were already part of the stone. They are natural. And these holes are actually made with a machine or tools." A boy comments, "This looks like a dinosaur." Agnes holds his comment, "Can you hold that thought that it looks like a dinosaur, we will come back later because I remember Megan saying that this reminds her of a car."*
>
> *Agnes attentively listens to the students and asks the girl who whispered, "Did you say something about a stripe or scratch? What word did you use?" As she answers "Stripes," Agnes asks her to point to the stripes she's noticing. Agnes clarifies that the artist creates the stripe-like lines. Then, Jonathan shouts out, "I see a cylinder." Agnes asks, "Excellent, where is the cylinder?" He points to the large hole created by a quarrying machine. Then, he adds, "It looks like a*

tunnel." Agnes nods in agreement, and Jonathan shares again, "That's a crack." Agnes agrees and clarifies, "It is actually a crack. Jonathan is carefully looking, and he's noticing the sculpture on a wooden base that has a crack. He's noticing a hole that is like a tunnel on the bottom, and the cylinder shape that was made by the tools when the artist was getting the stone. What else do you notice?" Another boy comments, "It's white." Agnes adds, "You are right, this stone is a different type of stone from the first one, and the color is all white. We call it the marble stone." As one of the students asks what a marble stone is, Agnes pulls out the sample marble stone from her bag and encourages students to observe, touch, and describe in order to compare it with the sculpture.

As promised, after making sure all students shared at least one thing, Agnes brings up their previous comments and ideas, "You mentioned that the sculpture reminds you of a dinosaur, right?" The child points to the sculpture, "Yes, that's like a mouth." Agnes asks her to point to the part where she thinks there is a mouth, and then asks, "What kind of sound would come out of that mouth?" The girl answers, "It would be very loud." Agnes paraphrases, "So, Isabelle is suggesting that this looks like a dinosaur, and that would be its mouth." Then she opens it up to the group to make the sound of the dinosaur, "What would that sound like? Make the sound!" Students excitedly make the roaring sounds. Agnes asks Megan, "You said that this reminds you of a car, what makes you say that it is like a car?" Then, Megan describes how the sculpture is like a car, and Agnes clarifies and asks her to deepen her imagining, "So, this is the front of the car, this is the back of the car, and this is the TV screen that you might watch? What would you watch if you were in there?" The student carefully thinks and shares her favorite TV show. Agnes asks the girl's classmates if the sculpture reminds them of anything else. After a few more share, Agnes summarizes what students have noticed, "Here's a fun little fact. The artist put up a big stone, he cut it up here and there, he made different marks with different tools, and thanks to Jonathan who noticed the crack; the artist put his sculpture on top of the wood that has a crack. But, the other cool thing is that the sculpture looks like a dinosaur." Then, Agnes shares that the artist thought about a story when making the sculptures and shares the title of the sculpture, which resembles a loud sound made by an animal. After revealing the title, she reminds students what they have discovered about the artist and his two artworks (materials, colors, and shapes). She tells them that in the studio they will be making sculptures using different materials, while also thinking about different textures and colors.

As shown above, Agnes asked open-ended questions, clarified what the students said, pointed to the places they were discussing, introduced sample rocks and shared the title of the artwork when relevant. She also often nodded in agreement and reminded them of previous comments. Remembering what they had said seemed to show that she

was listening attentively and valuing their answers. Consequently, the children were excited to share their observations and ideas, and they seemed comfortable speaking.

The narrative below shows how Roy facilitated his gallery learning in front of the same sculpture Agnes had used. Roy's group spent almost the same amount of time as Agnes' group looking at the sculpture. As will become evident, Roy introduced and defined the term "abstract" and provided visual and tactile resources to help students (3rd grade, general) focus on describing various aspects of the sculpture and the theme (Sense of Self and Art).

> *After discussing that the artist went all over the world to make artworks, and then asking students to share the places they want to visit (an Advanced Organizer), Roy guides students to turn their bodies to face the first sculpture. Roy gently asks, "What do you notice?" Immediately, a girl raises her hand and shares, "It is white, and it seems like there is glitter on it." Roy repeats, "Yes, it is white and sparkly." Another student shares, "It looks like a motorcycle." Roy further asks, "What makes you say that?" The student describes as he points to the sculpture, "It goes up and down." Roy agrees, "It goes up, there's a flat surface, and it goes down like a ramp." Roy calls on Claire, who has her hand up, "It looks old." Roy asks, "What makes you say that?" Claire describes, "On the top, it's like a circle where a person can sit on a horse." Roy rephrases, "Nice, so the top part reminds you of a saddle where you could sit." Another boy excitedly shares, "This looks like a shoe where you could put your foot in." Roy agrees and confirms his name, "Ken, nice. Because of these big forms." Another student, full of imagination, eagerly shares, "This looks like a horse's head, that part is like the eyes, and that part is like the nose and mouth." Roy clarifies, "So, it has to do with the shapes you notice and the drill holes that add to your thought." Helen shares, "There's a smooth surface too." Roy confirms and adds, "So, the artist polished that part. You were talking about the bumpy parts before and there are also smooth, polished, and sparkly parts that go under and on top." Roy directs the conversation to textures, "Any other textures that you are noticing?" However, students keep commenting on the things the sculpture makes them think of. Roy tries to redirect the conversation by saying, "The sculpture reminds us of all these different things, and you know, when something reminds us of all different things, that is called 'abstract.' Have you guys heard of that word before? Abstract art is when everyone looks at this, and there are a million things that it reminds us of. So, the artist made mostly abstract art in this museum." Then, to redirect students' conversation, Roy remembers one of the students' comments concerning the material and shares the rock sample so the children can examine the sculpture's material. After the material examination, Roy shares the*

photo of the artist in a quarry in Italy to teach them that the artist traveled to find his material. Then he shows the artist's carving tools to guide students to talk about how the artist carved his sculptures. Roy concludes the investigation of the artwork by summarizing students' comments, "So, maybe the artist went to Italy to look for a rock in specific size and type, as well as to get inspired." Then, he guides students to the next sculpture.

As described above, Roy prompted conversations by asking accessible questions in order to elicit students' observations. However, students were too excited to share only what was in their imaginations. It distracted them from listening or adding commentary to the observations of their classmates to build a collective interpretation of the sculpture. Thus, Roy defined the term "abstract," passed out sample materials, and showed a photo of the artist and the artist's tools to help students talk about the quality of the material, the artist's travel in quest of the material, and the artist's tools.

Ironically, introducing the resources seemed to distract students from investigating the sculpture in front of them. In a similar manner, Lee's students (2nd grade, general) got excited to share what they thought about the sculpture instead of what they saw in the sculpture. To encourage students to investigate various aspects of the sculpture (shape, color, texture, and the material), as well as to link it to the theme (What is sculpture?), Lee added her comments and repeated questions.

After careful observation, Lee asks what students are noticing. A girl answers, "I notice two different colors." Lee repeats her comment and adds, "So, you are noticing two different colors, when you look at the sculpture at the first sight you might think it is a one big thing, but you will discover details if you look carefully." Lee asks again, "What else are you noticing?" A boy comments on the size of the sculpture, "The sculpture looks like four feet tall." Lee agrees, "4 feet tall and 4 feet wide, yes, maybe a little bigger, but nice observation." Another student adds, "When the artist made the sculpture, he left some cracks." Lee explains, "Thank you for carefully looking, so she is noticing the cracks. Sometimes, when we make things, things may crack. But, stone sometimes has cracks in it. So, maybe the artist liked the cracks in the stones, and he wanted them to be part of his sculpture." Lee notices another student with her hand up, "What else are you noticing?" The student replies, "It looks like a giant eyeball."

Lee connects it to what another student said in the previous artwork, "This goes back to what you were saying, the artist's sculpture can look like anything. It can look like many things. It can look like an eye ball, and what was the thing you said?" Another student excitedly shares, "A basketball hoop!" Then the students all shout out what the sculpture reminded them of, so the schoolteacher stops them and tells them to calm down. Lee explains and asks, "I love what we just said that the sculpture looks like a few different things. That gets us to the important part of a sculpture. That is shape, because a hula-hoop is what shape?" Students answer, "Circle." Lee further explains and asks, "If we look at the sculpture, the shape is a circle. What else do we notice in this sculpture?" A boy raises his hand and shares, "I notice that the sculpture has holes." Lee asks him to point to the holes without touching the sculpture. He stands up, looks closely at the sculpture, and learns that the holes are actually shadows of the cracks on the sculpture. Another girl shares, "I notice that the sculpture is not even." Lee repeats and adds, "Right, so some of the pieces are smaller and some are bigger. Nice, I love your careful looking." A boy shouts out, "It looks like a giant wedding ring." Lee clarifies, "Yes, because of the round shape!" Students chat excitedly, and Lee catches their attention, "So, we were noticing the shape, and we talked about different colors, and there is one more thing. Texture. Anybody know what a texture is?" A girl answers, "How it feels?" Lee repeats and encourages students to describe the texture. Then, Lee guides students to talk about material. After a few back and forth conversation, Lee tells students the title of the artwork (which includes the word "sun"), and students exclaim in agreement and shout out, "I know why." Lee asks, "Why might have the artist named it like it?" Students associate the shape and color with the title and excitedly share their ideas and imaginings. Lee reminds students what they said at the beginning, "The artist's artworks can look like anything. His artworks make us think of many things, do you know what it is called?" Students are unsure, and Lee further explains, "It's called abstract art. Has anyone heard about a word abstract?" Many students nod in agreement, and a girl shouts out, "Yes, it means you have no idea what you are doing." Lee explains, "That's interesting, but let's hold onto that thought." Then, she asks students to take an imaginary photo of the sculpture so they can compare it with the next sculpture.

As described above, when students only shared their imaginative thoughts instead of listening to each other, Lee repeated and clarified students' comments and guided them to think about shape, color, texture, and the material of the sculpture, urging them to link it to the theme (What is sculpture?). In addition, Lee often repeated the questions "What do you notice?" and "What makes you say that?" She also revealed the title of the work near the end of the session even if none of the students asked for it. As a result, the

conversation seemed more like a back and forth question and answer exchange, and the title seemed like the ultimate answer of the artist's original intention, which seemed to limit students' further imagination. Lee agreed during the interview that the group was challenging because they were not listening to each other.

However, it was interesting to observe how the dialogue progressed and got richer as the classes moved onto second and third sculptures. That is, as they became more familiar with the abstract sculptures, students started to compare artworks, describe in detail, and focus on how the sculptures might have been made. The children also started to listen to each other, build on each other's comments, and add imaginative thoughts. For instance, when Roy brought the third graders to the second sculpture, he started off with a question, asking the class to describe the similarities and differences between the current and the previous sculptures. Students compared them by their shapes, colors, and marks, and then created a collective imaginative story based on their observations.

> *After a few comments about the comparison between the previous sculpture and the sculpture in front of them, Pricilla points to the sculpture and describes, "The stone part, and maybe the artist added that part. That part is like the opening of a tower." Joey adds in agreement, "Like how Priscilla said, this is like a broken tower. Also, from where I see, that part is like a slide." Roy asks to confirm, "So, the black part looks slippery to you? And there are interior spaces inside." Joey answers, "This one is different because it seems broken, and in the back, it looks like steps. The holes are also bigger." Roy confirms that the holes are different between the two sculptures. Eric adds, "This sculpture is different because it is in many pieces." Roy rephrases, "This one is different from the first sculpture because it is broken into many pieces and you can see inside." Eric nods to agree. Iris adds onto the idea that the sculpture looks like a tower, "This one is like a tower, it is like broken down because Ivan (the character from the movie he has watched) is not living in there anymore." Roy asks, "What makes you say that?" Iris answers, "Because you could see like holes here and in the movie, Ivan breaks the stone to get in, so maybe that's the cracks." Roy agrees and tells the students information, "Yes, so the artist broke the stone and made these holes. Also, when he made these holes, he put the bamboo inside and wet it, and then the bamboo expanded and broke the stone. So, the artist made all the cracks." Then, Roy explains the material of the sculpture, and tells the students*

> *that the artist got the stone from overseas. Roy asks the children to whisper to the person next to them, giving a reason why might the artist have traveled to get the stone. After a few minutes of sharing, Roy points to a couple of groups and asks what they said. Students answer, "Inspiration" and "To get the specific rock." Roy pulls out a photo of the artist getting the specific stone from a quarry and shows it to the children.*

Students were pointing out details in the sculpture and sharing their imagination-based observations. They also listened to each other and built onto the story inspired by the artwork. One student even associated the story with a movie she saw. Roy asked questions in between to clarify why students were associating elements of the sculpture with certain ideas and offered pertinent information in between their comments. Agnes and Lee's students also started to share more detailed observations and imaginative associations as they moved onto the second or third sculptures.

Gallery activity. To encourage students to look at the artworks in detail and on their own, all of the gallery educators—Agnes, Lee, and Roy—incorporated gallery activities into at least one of their stops. As have been mentioned, they all showed a photo of the artist carving the sculpture, or in the quarry searching for his materials, and shared material samples or carving tools students could touch. Looking at the photo of the artist seemed to create a better context for the participants, especially when they seemed puzzled by the abstract sculpture. Touching the materials looked to help students better understand the quality of the material, observe the sculptures in detail, and to keep their hands off of sculptures that the classmates might be yearning to touch.

In addition, Lee and Roy included a drawing or sculpture-making activity at one of the stops. To be specific, when one of Lee's students commented on the texture of the metal sculpture they were discussing, Lee explained to the 2nd grade students that the sculpture was made from folded metal, which is smooth. Then she provided students with

a piece of metal-colored paper and encouraged them to explore that material. She gave them a one-minute challenge: make the sculpture that can stand up by itself. The students excitedly folded, rolled, and crumpled the material to create a quick paper sculpture.

Roy even dedicated one stop (about 15 minutes) to a gallery activity. He brought the group (3rd grade, general) to the gallery space that is filled with the artist's small-scale sculptures (from pieces the size of a head to those the size of a torso). Once in the space, Roy provided a paper and pencils and asked students to think about a word that describes them, and then to write it down on the corner of the paper. Students thought carefully and wrote a word or sentences such as, "I am very unperfect," "Myself-love to eat, I love to cook with my grandma," "I am funny," "My name mean moon," and "Calming." After confirming all students wrote down a word or a sentence, Roy asked them to carefully explore the gallery space, finding a sculpture that matched the words that they wrote. They would then draw that piece of art. After students drew the sculptures, Roy gathered them to sit in a circle and guided them to look at the last sculpture. He asked the question, "What does this sculpture tell you about the artist?" Students discussed that the artist might have had both sides in his personality (shiny smooth side and rough side) because the artwork they saw had both smooth and rough textures on it. In my view, the activity allowed students to reflect on themselves, look closely at a sculpture that attracted them, and think about the sculpture in connection to the artist and the theme (Sense of Self and Art). During his interview, Roy agreed that the activity inspired students to look and think about each artwork for an extended period of time. He added that he incorporates activities to accommodate children who learn best from touching or moving, rather than talking and listening.

Other factors that shaped students' responses. The Blue Museum is relatively small and less busy compared to the Red Museum. Accordingly, most of the times when students were having the gallery tours, they were the only visitors or made up the majority of visitors in the gallery space. Students had the opportunity to enjoy the whole gallery space, better focus on the artworks, and feel the ownership of that area (i.e. Roy decided on doing a drawing activity in one of the gallery spaces dedicated to the artist's smaller scaled). It was much easier for the gallery educator and students to talk and listen to each other while they focused on the chosen artworks than it would have been in a busy gallery space (e.g. Agnes' kindergarteners with special needs were able to concentrate in spite of the teacher's concern).

However, having to discuss collections mainly filled with abstract sculptures, gallery educators had to define the terms "abstract" or "abstract art." Before they understood the definitions, students couldn't stop shouting out their associations with the sculpture without listening to each other. Students seemed to get much more comfortable sharing their observations and ideas after the educators defined the terms, or after the young children saw and discussed more abstract sculptures. Similarly, the abstract sculptures made of different types of rocks were often displayed on the floor without any safety fence (like a familiar garden). The sculptures with different textures tempted young students to touch, so educators had to remind them of the museum rules. During the individual interviews, educators said sharing material samples is a strategy to satisfy children's need to touch.

Studio facilitation. As stated before, the highlighted instances and narratives I captured here are not representative of a specific educator's teaching, or of all programs

in an individual museum, but they simply represent telling instances that related to my research questions.

Studio set-up and distribution of materials. The set-up of the space seemed to allow students to easily communicate with the educator and peers, access art materials, and see the motivating question and visual aid. The studio setup was similar among educators. All the studio educators set up tables in a U-shape facing one side of the room, where they put up visual aids and posters with motivating questions written on them. They also placed baskets of materials for the sculpture making workshops on the ledge by the wall the class was facing. Niki prepared baskets full of small wooden objects, Popsicle sticks, black and red ribbon, plastic mesh-cutouts, glue with brushes and cups, and black cardboard bases. Jessica prepared colored construction paper (in strips), tissue paper, pipe cleaners in different colors, wooden blocks, pebbles, scissors, and glue. Lastly, Janine prepared colored construction paper (in strips), cellophane tape, scissors, and cardboard bases. However, the educators did not introduce all the materials at once, but introduced one or two materials for exploration before the main activity (more will be discussed below). After the warm-up activity (material exploration), all the studio educators introduced the rest of the materials in sequence.

Interestingly, educators did not limit the number of materials students could use, which allowed freedom for material selection. Jessica shared during the interview that she used to limit the number of materials students to choose from. However, limiting the number of materials required a lot of management because she had to tell and remind students to make a thoughtful selection, not to use more materials. She added that there might be participants who would like to work with less than or more than the allowed

materials, and a single material exploration at the beginning makes students mindful of their selections.

Opening. Upon the children's arrival in the studio, the studio educators—Niki, Janine, and Jessica—assisted them in reflecting upon the gallery tours. Not knowing exactly what students saw or talked about made it necessary for the educators to have the students discuss their learning and what stood out for them. The brief review also seemed necessary for quickly building rapport between the studio educators and the students. Interestingly, even though the studio educators weren't part of students' gallery tours, they seemed very comfortable talking about what the class might have discussed, including the artist's bio, inspiration, choice of materials and processes. All the educators agreed during their individual interviews that this is due to the museum being a single artist institution—nearly half of the collection is permanent (the display rarely changes), and all the educators teach both gallery and studio portions, depending on their schedules.

Warm-up activity. All studio educators facilitated a warm-up activity to assist students in familiarizing themselves with the art materials and to prepare for the art-making. For example, after confirming students (kindergarten, special) saw sculptures during the gallery tour, Niki introduced one material at a time and encouraged students to carefully observe, verbally describe, and explore ways to arrange them. The below conversation shows Niki's facilitation of the warm-up activity (her theme was: Materials and Process).

> *As students sit and settle in their seats, Niki welcomes them and confirms that they saw sculptures in the gallery space. Then, Niki explains that students will make their own sculptures and adds, "Before we make art, I am going to introduce you to two materials. First is the piece of wood. Can everyone touch the piece of wood when you receive it?" Then, she passes out the wooden pieces. When everyone gets their pieces, Niki asks, "How does it feel?" Students answer,*

> *"Smooth," "Rough," and "Mine has holes." Niki compliments their good words and asks, "What about the shape of our woods? What shapes do we see?" A student shouts out, "Circle." Niki repeats and adds, "We have a circle that goes round. Can we see our circles?" They nod in agreement, and Niki explains, "Artists love to use many different materials." Niki then passes out other material: small rocks. Students immediately shout out, "It's rough" and "It's smooth." Niki asks them to compare the two materials they have. Then, students compare the two, "They can both stand" and "This can roll." Niki repeats and clarifies, "Right, this wooden piece can roll, but the rock just slides." Niki further asks if they are the same color or shape. After a few back and forth conversations about the differences between the two materials, Niki shows how she could arrange those two materials differently, either side by side or with one on the top of the other. Then, Niki introduces more materials (a red ribbon, popsicle sticks, different shaped wooden objects), glue, brush for glue, and base for the sculptures for students to make their artworks.*

The activity seemed to make students comfortable and interested in observing and describing their materials and readied students to think about different arrangements for their art-making. However, it is worth noting that they had already learned to observe and describe their observations during Agnes' gallery tour when they described and compared their rock samples with the artist's artworks.

Similar to Niki, Jessica (whose theme was: What is Sculpture?) reviewed the gallery tour with students, and then provided each child with a wooden object that was different in shape. She asked students to pair up and describe their shapes to each other, and then had them share with the whole group. Students' answers included a bottle, eyeball, and rock. After a brief share, she asked the motivating question (How might you make an abstract sculpture that has interesting shapes?), and transitioned to the main activity.

Lastly, Janine (whose theme was: Sense of Self and Art) provided a paper strip to each student (3rd grade, general) and gave them a challenge: how can you change the paper without using scissors or tape? Students began to rip, fold, and roll. She then

demonstrated and reviewed the different shapes the children could make by changing the paper. Students seemed excited to find different ways they could manipulate the paper strips. Janine said during the interview that she was happy to see how students explored and challenged themselves to change the material (paper strips) without using manipulative tools. After the warm-up activity, all the studio educators reviewed the classmates' choices and arrangements, passed out more materials, asked the motivating question, and transitioned to the main activity.

Motivating questions and art-making. All studio educators incorporated a motivating question tailored to the program's theme, which resembled the technique used at the Red Museum. The motivating questions seemed to connect students' gallery learning and studio learning and prepared students to think about what they would like to make in the workshop. For instance, Jessica asked her motivating question (How might you make an abstract sculpture that has interesting shapes?) after reviewing the gallery tour (theme: What is Sculpture?), defining the term "abstract," and facilitating a warm-up activity (students explored and described wooden objects). The way Jessica introduced the motivating question seemed to allow students to come up with diverse artworks. To illustrate, one of the students put his horn-shaped wooden object upside down, inserted pebbles around the round bottom, wrapped the narrow part of the wooden object with a black pipe cleaner, and put the end of the pipe cleaner into the hole in the wooden object. Another student placed the wooden object in one of the corners on the base, inserted pebbles into the bottom of the wooden object, placed an arch made of an orange paper strip in the center, and a gray cloud on top of the arch.

Similarly, after confirming that the students talked about the artist's biography, his tools, and his travels, as well as where he got his materials and inspirations, Janine connected students' learning to the theme (Sense of Self and Art), and the motivating question (How might you create a paper sculpture that tells something about yourself?).

> *After making sure students saw sculptures made of different rocks, Janine asks her students, "What else did you learn about the artist?" The children remember the artist's biography (where he was born and his ethnicity), where he got his materials, and some of his sculpting tools. Janine compliments them, and then introduces the workshop and motivating question, "Great, so a lot of times, there is a connection between the artist (self) and the artwork that he makes. Today we are going to think of ourselves as artists and the works that we make. We are going to use materials like paper, scissors, tape, and cardboard for bases." She then opens the folded paper on the wall that has the motivating question written on it and asks, "Can anyone read this for me?" A girl reads, "How might you create a paper sculpture that tells us something about yourself?" After confirming all students understood the question, Janine asks all of them to quickly share their names and something about themselves. Janine begins, "My name is Janine, and I like to sing. So, it could be a hobby, favorite place, color, or anything about yourself that you want to share." Students begin to share, "My name is Kim and I love crafts," "My name is Scott, I love to draw," "Helen, I love to play with iPad," "My name is Angelina, and I love God," "Sunny, I love to play with my sister," and "My name is Will, I love to swim." After everyone shares, Janine gives out instructions, "Thank you for sharing, so we are going to make a sculpture with a paper and it can be the thing you said or something related to it." Janine then invites students to line up to pick up the materials. Students freely choose their materials and go back to their seats.*

As described above, Janine invited the third grade students to share answers to the motivating question. Her motivating question seemed to create connections between the theme, art, and personal experiences. Accordingly, Janine's students came up with many differing sculptures featuring a rainbow, house, arch, and gateway with roof (described by the students). As an example of how these sculptures relate to personal experiences, one of the students who made two structures shared that he focused on creating two houses because his father and mother live in different houses and he's staying with his brothers.

On the other hand, Niki did not read or say the motivating question (How might you arrange materials to create a cool sculpture?) out loud, but she had it written on a big paper up on the wall. During the individual interviews, Niki and Jessica both agreed that the motivating questions provide inspiration and entry points for students to connect art with their lives, and give them autonomy in choosing what they would like to make. Jessica added that the timing of introducing the motivating question is important. In order to make the students' learning as meaningful as possible, she said that she is exploring the point in the session when she should pose the question.

Dialogue during art-making. The studio educators occasionally walked around the room and engaged in individual or small group conversations during the students' art-making. When they went around the tables, they pointed out processes or specific features on students' sculptures, assisted students with technical issues, or handed out more materials. During the interview, Niki said that she personally does not favor asking questions while students are creating their art because it might disturb their creative flow. Instead, she shared that she went to students and pointed out how they arranged the materials by saying, "I see you put the rock on top of your wooden piece, and you put this wood stick on the other side," or "I see that you layered materials on top of each other. Wood and another wood." Similarly, Janine rarely asked questions to her students (3rd grade, general) while they were working. Instead, she put on light music while the class worked, and students occasionally asked Janine for more materials. The children casually chatted with other classmates; giving advice, commenting on how their art resembled artworks in the gallery space, and explaining what they were trying to make. Jessica's students (2nd grade, general) also shared their ideas, shapes, and processes with their

peers. They shared it loudly, so Jessica could sometimes join the conversation as she walked by. The schoolteachers and chaperones (parents or caregivers that joined the field trips) also often walked around to see how students were doing, encouraged students' choices and processes, and sometimes asked what they were making. In general, educators did not ask a lot of questions and they certainly did not mandate students to create artworks in certain way.

Reflection. Towards the end of studio workshop, the studio educators facilitated a reflection if time allowed. Niki shortened her reflection to a gallery walk because the schoolteacher requested that Niki end the workshop earlier than the allotted program time because she worried she'd miss the school bus and the lunch period. Accordingly, Niki asked her students to put their artworks on the clean table near her, form a straight line, and look carefully at the sculptures as they passed along the row. Jessica didn't facilitate any reflection because the group had no time left for reflection, and students were too excited to go out for lunch. Near the end, the schoolteacher had to constantly help Jessica, so students could listen and follow the instructions. On the other hand, Janine was able to facilitate a full reflection, which encouraged students to see what others had made and to talk about their art-making processes and choices.

> *Janine asks students to clean up their tables and leave only the finished artworks. When Janine confirms that all the students put their artworks on the table, she asks them to line up behind her. Janine tells the students that they will be observing all the students' finished artworks like they closely looked at the artist's artworks in the gallery and reminds them to be respectful and not to touch others' artworks. Janine also reminds students that they had the same question and materials but came up with very different artworks, and compliments students' efforts. As students walk behind Janine, Janine makes sure all students can see everybody's work, and students observe all the artworks with curiosity in their eyes. Janine asks, "Let's talk about our process. Raise your hand if you want to share what was difficult about this process? What was hard?" A girl answers, "Mine was hard because I had different ideas, but I didn't know how to*

make it. So, I decided to make it like a play set." Janine remembers the conversation with her and adds, "Hmm, you were thinking about a playground and now it's transformed to this way." She asks again, "Does anybody else want to share their difficulties?" Another boy shares, "It was kind of hard because building a window on the wall, it kept on falling. So, I added the roof, so it won't fall." Janine remembers the conversation with him and connects it to the motivating question, "Okay, so we can go back to the motivating question, we were trying to make a sculpture that tells something about us. He loves to build models and structures." Then, another student shares, "I first wanted to make a tree and little squirrel elevator, but since I knew it would take long time, I thought of different one, maybe I can make into a graveyard." Janine holds her sculpture up high and adds, "So, you thought about a squirrel elevator but the material limitation guided you to make other decisions." Then, Janine asks if anyone has a similar experience of having an idea and changing their initial plan based on material or a time limitation. Students stay quiet, so Janine changes the question, "So, what catches your eyes?" When students begin to get distracted, Janine holds up a sculpture and asks, "What do you notice here?" A boy immediately answers, "It's like a junkyard." Janine asks, "What makes you think it looks like a junkyard?" He describes, "It's messy with tapes and papers." Janine kindly rephrases, "Yes, Carol used generous amount of papers and generous amount of tape. What else do you notice?" Another student adds, "It makes me think of monster." Students giggle, Janine asks, "What makes you think of a monster?" The student describes, "The sculpture is creepy because that part is like the mouth and that part is teeth." Janine rephrases and adds, "So, you are noticing some parts that remind you of a monster, but what I notice is that Carol did some ripping. Do you notice any ripping in other sculptures?" When students deny this, Janine points to several artworks that have ripping. After about 10 minutes of sharing, Janine wraps up the conversation by saying that the process is more important than the product, and students did a great job during the 30 minutes, which is a very short period.

Even though Janine didn't know the term inquiry-based approach when asked about it during the interview, or how she could define her teaching approach, she was facilitating a dialogue with students in the way that other gallery educators would facilitate their gallery tours. Janine encouraged students to carefully observe the artworks, asked open-ended questions to encourage them to describe their observations and making-processes, and connected the lesson to previous conversations and the motivating question. When reflecting, she focused on students' processes (challenges and intentions). Interestingly, students couldn't resist sharing what the abstract sculptures

reminded them of, and the explicit question Janine posed about what they noticed resembled gallery tour facilitation.

Other factors that shaped students' responses. A challenge that I noticed during the gallery tours was that the concept of "abstract art" seemed difficult for students, especially if they didn't have a lot of experience with art. In order to understand the idea of abstract art, the participants were continuously making connections between the artworks and the objects they knew from their previous experiences and knowledge. Niki, Janine, and Jessica implied during their interviews that they found it a success when students didn't make anything too obvious or unrelated to the theme or the motivating question (i.e. building blocks, a snowman with clay, or a heart or star shapes). For example, Janine said she was happy because students didn't make anything too literal and created various sculptures with simple materials (cardboard base, strips of color papers, and clear tapes). Similarly, Jessica said that the students got a general understanding of the concept of abstract art, and that they focused on shapes in their art-making. She said that both groups got the idea of not making a representational thing that they had in mind, such as a house or a person.

Connections Across Gallery and Studio

Different educators. As previously stated, three educators (two gallery educators and one studio educator) split the group of students. Accordingly, even though they shared their plans with each other beforehand, educators were not exactly sure what students saw, talked about, or made in the other portions of the program. For instance, Agnes (gallery educator) cut out one artwork from her original plan, and Niki (studio educator) learned from the students that they did not see the sculpture made of metal.

While Agnes, who led the tour before the workshop, never got to see students' finished artworks. However, the Blue Museum educators seemed well aware of what students' might have seen, discussed, and made because the permanent collections rarely change, the educators have cooperative and detailed planning processes, and the fact that, depending on their schedules, the Blue Museum educators teach both portions of the tour and workshop. In fact, all the Blue Museum educators were knowledgeable about the artist who designed the museum, as well as his artworks. During his interview, Roy (gallery educator) agreed that it is easy to make connections at the Blue Museum because it is a single artist institution and he has a general idea of what happens in the studio portion because he has experiences leading similar workshops.

In addition, I learned through observation and interview, that the educators seemed to favor a few specific artworks that make it easy for the group to talk about the artist's tool marks, 3-dimensional sculpture, or arrangement of the materials. Also, they prefer specific gallery spaces where it is easy for them to facilitate gallery activities including the drawing activity. During the interview, Lee agreed that even though she wants to show a range of artworks to students, she said some artworks are better to sit near than others. This implies that a connection could be easily built between the gallery and studio portions even with the different educators.

Tour and workshop sequence. As noted, in the past the Blue Museum used to have two educators lead the tour and workshop programs regardless of the group size. To recap, the educators split the group of students in half and led gallery tours first. Then, they met at the studio after the gallery tour to have the studio experience together. One of the gallery educators would lead the studio workshop, and the other would assist. Thus, I

was curious to know how the educators thought about the new sequence (having the tour or the workshop first).

During their initial interviews, Roy, Lee, Janine, and Jessica shared that they prefer to have the tour portion first, especially when younger children are involved. Roy (gallery educator) and Janine (studio educator) said looking at artworks first inspires the class, and they bring direct inspiration or apply information they learned from the gallery tours to the art-making. Roy said that if students came right in from school to the studio, he would expect to see less eye-catching artworks. However, he also quickly added that both groups of students created interesting sculptures, so he is not sure. Similarly, Janine said she is not saying one is better than the other, but it would be more difficult for younger students to make art at the beginning of the experience, especially if they had no exposure to viewing, talking about, and creating abstract sculptures. Lee (gallery educator) and Jessica (studio educator) added that the gallery tours require more attention, and students will have better attention spans in the first portion.

On the contrary, Niki (administrator and studio educator) thought that the students might have benefited more if they had done the studio portion first so that they could engage with the materials. She said she believes students' art and experiences should come first, and then they should view what other artists have done. However, Niki and Agnes (administrator and gallery educator) both emphasized that they honor the schoolteachers' requests and students' needs. For instance, if the students are not stimulated, they might benefit from having a hands-on experience first. During her interview, Agnes also added that the museum educators need to allow flexibility and make quick changes in order to meet the needs of the participants and teachers. However,

similar to my experience at the Red Museum, it was difficult for me to determine my thoughts without observing the other program order, where the workshop came first.

Planning. During the interview, Lee (gallery educator) shared that she thought her tour was well connected to Jessica's workshop because she learned from her second tour group that they came up with ideas about abstract art. In addition, she said that the educators not only shared their lesson plans, but also they worked with the same ideas. Lee commented that she likes the planning process at the Blue Museum because once she shared her lesson plan other educators added their ideas.

On the other hand, Janine (studio educator) was not sure if there was a strong connection between tour and workshop because the plan and what actually happens on the spot is always different. Janine added that she didn't ask the students how their artworks reminded them of or connected with the artworks they saw at the end, which might make the tour and workshop portion more connected. Similarly, Jessica (studio educator) was not sure if the tour and workshop were well connected. Jessica said she learned about other educators' stops and objectives, and then she planned accordingly. However, she said that though the elements are connected in terms of plan and theory, she was not sure that the students' experiences were linked between both portions. This is because even if one educator talks about a theme, students might be interested in a different subject, and the thread of the talk can be lost. She added that the most important thing for students to gain in the galleries is a deep and personal connection, so they may reflect on their gallery experiences in the studio.

Cooperation in set up and clean up. The Blue Museum educators prepared studio set-up together before students' arrival, occasionally giving each other advice as

they cleaned up together, often reflecting on their lessons as they worked. For instance, Niki (studio educator) initially planned natural (wooden objects and popsicle sticks) and synthetic materials (plastic mesh cutouts and black sequin trim) to create the contradiction between materials for her students (kindergarten, special). However, after discussing with Agnes (gallery educator) during the prep-time, Niki decided to include strips of red ribbon in order to add colors for the material selection.

Similarly, at the end of the sessions, the educators quickly reflected on their teaching as a group while cleaning up their bags and studio space. This cooperation seemed to give shared responsibility for the whole program, regardless of which portions they led, and they were thinking about that whole program together, which seemed to create a connection between the two portions. In her interview, Lee (gallery educator) added that reflecting afterwards with the peer educator is helpful in emotional and practical levels. That is, getting to share the successes of a good group, or commiserating after a difficult one, learning new approaches and modifications for activities, discussion, and receiving other educators' feedback maintains camaraderie and boosts morale overall.

Theme and motivating question. The themes and motivating questions seemed to narrow down the concentration for each program and connect the both portions of the program. For example, Agnes (gallery educator) and Niki's (studio educator) theme was Materials and Process. Agnes facilitated dialogue around the shapes, texture, and colors of the sculptures and introduced and compared different types of stone (material) and marks (process/tools) in the sculptures. In response, Niki focused on exploring the quality of art materials (wood and stone), and then the arrangement of those materials, which

came together to create the sculpture. Similarly, as the theme was "What is Sculpture?", Lee (gallery educator) facilitated dialogue around describing the sculptures' shapes, colors, textures, and materials. She also introduced the term "abstract art." Jessica (studio educator) reflected on the gallery tour and the term abstract art. She also had students make abstract sculptures.

In addition to the themes and motivating questions tailored for the specific group, the artist himself seemed to serve as an overarching theme because the museum is designed by a single artist and filled with his abstract artworks. For instance, the theme for Roy (gallery educator) and Janine's (studio educator) school group (3rd grade, general) was Sense of Self and Art. Roy's gallery tour focused on how the artworks might reflect the artist's interests (travels), inspiration, or personality, as well as his choice of materials. In efforts to connect the theme to students' personal experiences, as well as the artist's artworks, he asked students where they might want to travel, and provided a drawing activity that gave them more individual time to connect to art and to themselves. As a reminder, he asked students to write one word that described them, find the sculpture that matched the word, draw the sculpture, and reflect again about what the sculptures might have told them about the artist. In Janine's workshop, she reflected on the gallery tour with the students. She naturally brought up the idea that there is a connection between the artist-self and the artwork. Then she invited students to share their names and one thing that they liked. After that, Janine asked the motivating question (How might you create a paper sculpture that tells us something about yourself?) Students manipulated paper strips in different colors and lengths to create their sculptures. Students made various sculptures, including a building (he loves to build

models), playground (she loves to play with friends), swimming pool (she loves to swim), and two houses (parents are separated).

Visual reference. The visual connections were easily observed. For example, Agnes's group saw two sculptures (one sculpture resembled the number 6 or the letter C and another sculpture reminded them of a dinosaur or a car). When I walked around the studio space during Niki's workshop, a student pointed to his sculpture and shared that his arrangement looked like the letter C in the alphabet like the sculpture he saw in the gallery. Similarly, another student mentioned that the other student's artwork looked like a car, and the other students agreed and added that the sculpture looked like a dinosaur with two legs. Also, some students pointed out the holes in some of their materials (wooden objects and plastic cutouts) that resembled the tool marks from the sculptures they saw in the gallery.

Talking about art. It was clear to me that during their art-making and the reflection, the students were comparing their own art with that of their peers, as well as to the artworks they saw in the gallery space. They also learned to observe others' artworks with respect and to discuss them using vocabulary they learned during the gallery tours. In detail, students used words they had said during the tour, such as sculpture, shapes (circle, round, and rectangle), and textures (bumpy or smooth), to describe the sculptures they made. Interestingly, I noticed that most of the children kept their hands to themselves when they were looking and talking about other students' artworks.

Summary of the Blue Museum

The educators are encouraged to use an inquiry-based approach based on constructivism. Not all the educators knew the term inquiry-based approach or restricted

their approaches to one single method, but they all mentioned that they prioritize students' personal connection with art through close looking, verbal exploration, and autonomous speculation. I learned of commonalities and differences in teaching approaches among the educators, as well as discovering findings regarding the connection between the two portions of the program.

The Blue Museum's two-hour tour and workshop program started with a welcome, review of museum rules, and an Advanced Organizer (an extended introduction about the museum, artist, and theme). The gallery educators showed two or three artworks and spent between 10 to 20 minutes with each piece. The artist who made all the artworks on view served as an overarching theme for the programs, and tailoring the themes to school groups narrowed down the focus. The gallery educators encouraged close looking, asked accessible questions and provided pertinent information in between the answers, and summarized their comments near the end. The educators had different ways of guiding the dialogue and defined the term "abstract" when students shouted out their associations with the art. All the gallery educators shared photos of the artist and tactile materials (art materials and tools), as well as facilitated gallery activities (drawing, folding, partner share, or pretending to sculpt). The activities seemed to provide better context of the museum, artist, art materials and tools, and students could spend individual time during a gallery tour, which largely focused on group learning.

When students transitioned to the studio, the studio educators all reflected on their gallery tours, facilitated a warm-up activity, and asked the motivating question. The motivating questions and themes seemed to connect the dots between gallery tour, studio workshop, the artist, and the children. During the studio workshop, the studio educators

rarely asked questions (except for the motivating questions), neither did they instruct students to make artworks in a certain way, but they occasionally engaged in individual or small group conversation focusing on students' processes or technical skills. The studio educators facilitated a reflection if they had time, and the facilitation of the reflection resembled that of gallery tours,' encouraging students to observe, describe, and input ideas. The students sometimes made artworks that show visual connection to the artist's artworks, but most of them came up with diverse outcomes inspired by explorations with material and motivating questions.

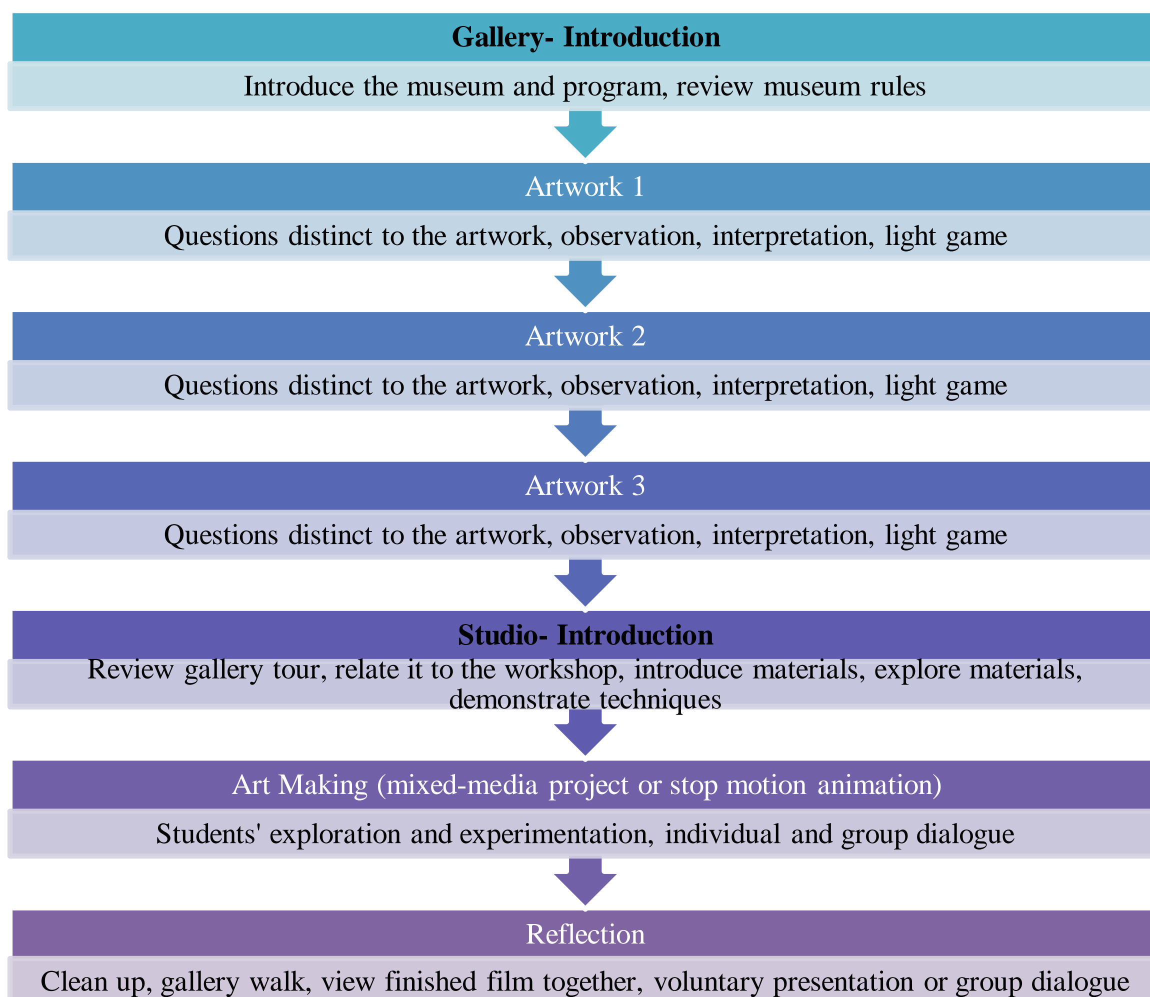
Case 3. The Yellow Museum

A Brief Overview of the Program

The Yellow Museum is a children's museum. The Yellow Museum's website states that their tour and workshop school programs are one hour and 15 minutes long and are offered to students in grades Pre-K to 12th. There are mainly two types of workshop options (fine arts or media art) led by teaching artists. Sophie, an administrative staff member, stated that, depending on the type of workshop, the structure of the program is slightly different. Typically, all programs start with a welcome and introduction of the museum and program, and review of museum rules. The educator leads an inquiry-based tour in the gallery and shows two to three artworks that would inspire students to make art in the studio. Educators might introduce games (multisensory, tactile, and kinesthetic activities) such as a movement activity, making a soundtrack, or exploring objects with different textures while observing the artworks. Then students transition to the studio to make a mixed-media project or stop motion

animation. In the fine arts-making workshop, instead of telling the class what to make, the educators review the gallery tour that might inspire art-making, and brainstorm ideas through individual or group discussion. The discussion focuses on students' processes, inspiration, different techniques, and ideas. In the media art making workshop, however, educators make clear instructions and check for understanding because this workshop requires the use of specific techniques to successfully create the video clips. Even though the media art making workshop requires instructional teaching, Sophie emphasized that educators brainstorm about the gallery tours with the students in order to link them to the studio portion. Sophie added that the media art (stop motion animation) making workshop requires a collaborative process because four to five students work together to create one clip. One person becomes the photographer, one person animates, another person might check time, and all of the students take turns making the clips. At the end of all the art-making, the class will share their artworks.

Table 9: Design of the Tour and Workshop (Fine arts or media art)



Characterization of the Museum's Pedagogy

Administrators' views. Sophie mentioned that the overarching pedagogy of all of the museum's programs is "look, make, and share," and all the tour and workshop programs provide multisensory experiences that encourage observation, exploration, and creative thinking. Sophie claimed that all the teaching artists guide inquiry-based dialogue in the gallery and encourage project-based workshops that develop students' creative problem-solving skills and social skills. Specifically, educators are trained in inquiry-based methods, VTS, motor and sensory activities, and implementing universal

design thinking. Further, all the educators are trained to teach in student-centered and process-based ways, while also making interdisciplinary connections to core subjects. In order to train educators and support the teaching approaches, Sophie provides Professional Development Programs (PD), conducts formal evaluations, and gives feedback for positive reinforcement. All of the educators then work together as a team on areas of improvement. She added that the Yellow Museum is using PD to actively exchange ideas with other children's museums nearby, and currently working on diversifying its audience.

Educators' views. As Sophie claimed, all the Yellow Museum educators were aware that the museum encourages the inquiry-based approach. During individual interviews, they agreed that the inquiry-based approach involves using open-ended questions, repeating students' comments, and facilitating conversation. When describing their teaching approaches, the terms they used not only included inquiry-based approach, but also VTS, the conversation-driven method, question-driven conversation, process-based method, and the exploratory method. During his interview, Vincent (fine arts educator) added that his teaching gets instruction-based during the workshop, and the amount of instruction depends on the school groups (groups that require more instruction). Cindy (fine arts educator) agreed that depending on the children she has in class; she uses a combination of different teaching approaches. Similar to the Red and Blue Museum educators, the Yellow Museum educators had learned about their teaching approaches from multiple sources, including graduate school, other institutions where they have worked, and the Yellow Museum's PD.

The Sessions

Overview. I observed two programs that featured a fine arts-making workshop and one with a media art (stop motion animation) making workshop. The fine arts-making tour and workshop was led by a single educator, and the media art making tour and workshop was led by two educators. As noted in the methodology section, Vincent's and Jenny's and Eva's groups came to the museum as part of their school partnerships, which involve the museum educators to visit the partnered schools to give weekly lessons for about eight weeks (including the museum visit). There was no theme or specific motivating question in any of the workshop portions, but Sophie (administrative staff member) and all the educators agreed that the Yellow Museum's special exhibition (related to weather) served as an overarching theme.

Table 10: An Overview of Observed Sessions

	Session 1	**Session 2**	**Session 3**
Educators	Fine Arts (Gallery and Studio), Cindy	Fine Arts (Gallery and Studio), Vincent	Media Art (Gallery and Studio), Jenny and Eva
Students age/ Type of school and classes	30 students, 2nd grade/ Public/ ELL	13 students, K/ Public/ Inclusive/ partnership	31 students, 4th grade/ Public/ General and ELL/ partnership
Theme & Motivating Questions	N/A		

Planning. There were no formal guidelines or administrative staff involvement in the planning process. Typically, when a school books a program online, the schoolteacher is asked to provide information about their school and students. When the program coordinator receives the information, the staff will appoint educators and email them the information. Even though there is no formal planning requirement, Sophie

(administrative staff member) confirmed during her interview that before the opening of new exhibitions, the Yellow Museum's educators and administrative staff select several artworks to look at, and generate several project ideas (e.g. creating an imaginary landscape) for different age groups. Sophie added that she encourages each educator to modify their facilitations of the projects. For instance, educators might switch up materials and concepts, so the plans may evolve over time. Thus, she said it is important for educators to share and communicate with each other. During the interviews I confirmed that the educators didn't write lessons for each program, but they knew that Sophie was aware of their studio projects. Also, since my observation came near the end of the school year, educators seemed at ease with the exhibition on view and said that they were comfortable facilitating their projects because they had been doing it for the whole semester.

Prep time. All the educators—Cindy, Vincent, Jenny, and Eva— came in about 40 minutes before the scheduled program to prepare materials for the workshops and check the computer equipment. Cindy and Vincent (fine arts educators) carefully set up the tables and prepared materials for the workshop, so they could start the studio portion right after they finished the gallery tours. Jenny and Eva (media art educators) set up the computer stations, checked if the camera, screen, sound, and software were working, and prepared necessary materials. The school programs coordinator came in early as well to check in with educators, and occasionally helped them to prepare. All the educators went to the entrance 10 minutes before the scheduled program to welcome their students and start their programs.

Gallery facilitation. As stated before, the highlighted instances and narratives I captured here are not representative of a specific educator's teaching, or of all programs in an individual museum, but they simply represent telling instances that related to my research questions.

Opening. All the educators—Cindy, Vincent, Jenny, and Eva—did a quick introduction and review of the museum rules at the entrance, and guided their classes to the first artwork for a better introduction. When students settled down into their seats in front of the artwork, Cindy (fine arts educator) introduced herself and the museum, telling them that they would be looking and talking about art in the gallery, and then creating art in the studio. Vincent (fine arts educator), Jenny, and Eva (media art educators) briefly introduced themselves and quickly transitioned to pointing out the artwork in front of the class. The educators seemed to hurry their introduction and urged students to look at the artworks right away because the entrance of the museum was very crowded with different school groups that started their programs simultaneously, and they had less than 30 minutes allotted for the gallery tour.

Number of artworks. Educators had the freedom to choose how many artworks they would like to show to their students. The number of artworks depended on each educator’s plan, the students’ interests, and how much time the class had for the program. Cindy and Vincent (fine arts educators) both spent extended time with two artworks and made a quick stop (less than two minutes) at artworks for which students showed interest. Jenny and Eva only showed one artwork to their students. The time spent at each stop did not exceed nine minutes for all the educators. This is because, compared to the other two

museums, the total length of the tour and workshop was shorter at the Yellow Museum (one hour and 15 minutes).

Dialogue during art viewing. Similar to the educators at the other two museums, the teachers at the Yellow Museum encouraged students to speak up and share their opinions with the whole group. All of the educators—Cindy, Vincent, Jenny, and Eva—asked accessible questions, such as, "What do you notice?", "what more can we find?", "what makes you say that?", and "say more about what you said," to encourage students to look at the artworks closely and share their observations and interpretations. They often repeated students' comments, tried to connect them to the information they knew about the artworks, and revealed the information near the end. Even though general ways of engaging students to observe and talk about the artwork were similar, the tactics the educators used to reveal the information were different. For example, when Cindy's students (2nd grade, ELL) became curious about the material used in the artwork while sharing their observations, Cindy listened attentively and explained the material in the artwork and the process the artist used to make it.

> *When the students arrive at the first artwork, Cindy invites them to look at it carefully. Students observe the 4-framed images and a miniature tree sculpture. A few seconds later, Cindy initiates the conversation by asking, "What do you notice?" Students answer, "Foggy" and "dark" to describe the photos. Cindy further asks, "What more can we find?" Another student answers, "It's weather." Cindy probes the student's answer by asking, "Is the weather the same or different?" Then, students start to debate what kind of weather is shown in the images and if the trees in the photos are real trees or not. Cindy attentively listens to their comments and further asks, "Why or why don't you think it is a real tree?" Students closely observe all the photos, but they can't come to a conclusion. Cindy tells the students, "I will reveal the secret and share the information with you. The artist took photos of the fake tree you see here and created weather for the backgrounds. Also, the artist even used fur to create the fake tree." After hearing the information, some students seem satisfied that they were right about the tree being fake, and some seem a little disappointed that they*

didn't get it right. Regardless, students attentively view the artwork in front of them and seem very excited to know the 'secret.'

As described, Cindy asked open-ended questions to encourage students' careful looking. While observing the artwork, the group became curious about the material and questioned whether the artwork (the fake tree model) was real or not. Cindy listened to the students carefully and provided information when they asked questions. However, the revelations about the art near the end let some students down, since they didn't get the right answer. The participants' reactions were similar when Jenny and Eva (media art educators) showed the same artwork to her students (4th grade, general and ELL). However, the conversation was more geared toward the information she knew about the artwork and not as open-ended, leaving less room for students' responses.

As students sit in front of the artwork, Jenny explains to them that they will be talking about the artwork for approximately 10 minutes, and then they will work on their animation in the studio. Jenny asks right away, "Raise your hand if you want to talk about this, what do you see?" When a student raises his hand, Jenny repeats the question, "Yes, what do you see here?" The student answers, "There is a tree and a storm." Jenny repeats and asks for clarification, "So, you see a tree and a light on the ground. Are you specifically talking about this photo here?" When he agrees, Jenny asks for more, "So, what else do you notice?" Another student adds, "I see rain." Jenny asks, "Where do you see rain?" The student points to the same photo. As students quietly whisper about whether the photos are real or not, Jenny asks, "So, all the photos look realistic, do you know what realistic is?" When students all say, "Yes," Jenny asks, "Do you think these are photos or paintings?" Students all shout out different answers. Jenny asks students to vote whether the 4-framed artworks are photos or paintings. After a few seconds, Jenny tells them, "I will tell you, these are all photographs." Some students show disappointment that they were wrong. Jenny explains, "It is hard to tell, but what is realistic about the photograph?" A student answers, "The tree looks real." Jenny repeats the question, and another student answers, "All the trees in the photos look the same." Jenny further asks, "Yes, but what's different about them?" A boy answers, "Different weather." Jenny agrees and asks what kind of weather they notice. Students answer "Rain," "foggy," "sunny," and "stormy." Jenny further asks, "What do you think is fantastical and magical about these photos? What made you think they aren't real?" A student answers with a question, "Trees, but how can you capture that moment?" Jenny gives information about the artwork, "I don't know if you noticed, but the artist who

made this tree model photographed this tree in all those photographs. This tree is in all the photos." With curiosity, a student asks, "How did he do that?" Jenny answers, "That is a good question. So the artist, with the lightning photo, he actually electrocuted the tree to make lightning, and took a photo of it. So, the photo of the windy and foggy day, he created that weather. It's pretty cool, right? Does anybody have any after-thoughts? Any surprises?" A student asks, "How could he survive?" and Jenny answers, "I know, he could survive. So, that tree is made of wire. It's a sculpture. It is similar to animated films that use props. It is not a real tree." When students look at the tree model and photos behind it, Jenny wraps up by saying, "I think that is pretty much it."

As shown above, Jenny's questions seemed to guide the class to what she knew about the artwork, rather than asking for students' interpretations. Also, her questions were often guiding and closed-ended (e.g., "Do you know what realistic is?" or "Do you think these are photos or paintings?"), so some students seemed disappointed when they guessed the wrong answer. Further, after the revelation of the information, she didn't probe more or welcome further interpretation. It seemed that how the artist made the work (the fake miniature tree and photos of it in different weather) wasn't the only contextual information students could talk about, but Jenny encouraged students to discuss that particular topic. On the other hand, Vincent revealed the information at the end when the students (kindergarten, inclusive) weren't mentioning anything related to it.

As students excitedly come to the crowded gallery space, Vincent guides them to the first installation artwork. He tells students, "First, I want you to look at the art behind me." Right away, a student notices colors, "I see black and yellow." Vincent asks, "Yes, and what else do we notice?" Another student answers, "It's like floating." Vincent repeats, "Oh, it looks like it's floating. What else?" Another student excitedly asks, "What is the artist's name?" and Vincent asks him to wait, "I will tell you that in a second, but yes, an artist made it. So, what else do we notice?" The student can't resist and asks again, "What's his name?" Vincent repeats the answer, "I will tell you in a minute. What else do we notice?" The student asks again, "Is he a boy or a girl?" Vincent quickly says, "It's a boy. So, tell me friends, what do we notice about this?" A girl finally answers, "It's big." Vincent repeats, "It's a pretty big thing!" Another student adds, "It's huge!" Vincent repeats, "Yes, it's huge!" As students become interested in observing the artwork, a child mentions, "It's about to fall!" Vincent excitedly

repeats, "Yes, it's about to fall! Now, tell me friends, you are not allowed to climb this, but if you were allowed to climb this, would you?" Some students giggle, and some shake their heads and say "No." Vincent adds, "Some say no, why wouldn't we want to climb it?" A boy answers as if it's obvious, "It's dangerous." Vincent further asks, "Why do you think it is dangerous?" Students answer, "It's too big," "It's too high," and "It's too tall." Vincent repeats all the comments and asks again, "What else?" Students keep talking about why it might be dangerous, and Vincent speaks over them, "Oh, so it's like about to fall down and unsteady." As students are discussing this, a student notices wooden sticks protruding from the structure and says, "There is sticks everywhere." Vincent then asks students, "So, does this remind you of anything?" Most of the students shake their heads and deny it, "No." Vincent asks students to look at the top and tell him what they notice about that. The class answers, "Sticks." Vincent asks again, "What else do we notice?" A student answers, "Those things are standing up!" Then, another student excitedly shares, "It' like a cookie monster." Vincent asks, "what about a cookie monster?" Students look at the sculpture with excitement and Vincent imitates the sound of Cookie Monster eating a cookie. Then, students follow and make similar cookie eating sounds and laugh. Vincent repeats all the things the class mentioned, "So, we noticed sticks. We noticed it's black and brown, and it's like floating." He then asks, "Has anybody heard the word 'swamp' before?" Vincent asks students who said yes to describe what a swamp is. A student answers, "A swamp is a dirty thing, raindrops, alligators, and garbage." Vincent agrees and adds, "Yes, a swamp is a dirty place that kind of looks dirty because it is muddy and it's full of alligators and frogs. This is supposed to look like a swamp."

Vincent's students seemed comfortable sharing their opinions, but Vincent was repeating students' comments and the same questions, "what do you notice" and "what else," when he could have paraphrased their comments and ask deepening questions to encourage them to further describe the artwork. Also, when students were curious to know more about the artist, Vincent said he'd come back, but he never got to reveal more about the artist. Thus, the way Vincent facilitated the dialogue seemed to give the group the idea that he was looking for a specific answer rather than welcoming the class's interpretations.

As shown in the three narratives, even though all three educators claimed that they use inquiry-based approaches with open-ended questions, not all the questions were

guiding to a range of diverse answers and interpretations. Repeated questions about observations, guiding questions, or questions that looked for specific information didn't get students to think or interpret the artwork deeply. Instead, the dialogue seemed more like a back and forth exchange of question and answer, which led to the educators' ending with predetermined information and conclusions.

Gallery activity. Only one educator incorporated gallery activities at the Yellow Museum. Vincent incorporated a gallery activity in all his stops—in Vincent's words—to engage students in different modes of inquiry. When he was discussing the first artwork that was inspired by a swamp, he encouraged students (kindergarten, inclusive) to make a lot of sounds. To be specific, when a child commented that the artwork reminded him of the Cookie Monster, he mimicked the sound of the Cookie Monster eating a cookie, and asked all of them to do the same. Similarly, right after Vincent shared that the artwork is supposed to look like a swamp, he asked students to think about animals that might live in a swamp. Students suggested a frog, an alligator, and a stray cat might populate a swamp. After each comment, Vincent asked what kinds of sounds each animal made, and helped the class make those sounds. Students got very excited while mimicking the alligator's mouth with their arms in a wide-open gesture. Then students seemed to shout out the names of animals they thought of, such as tigers and a dog. Vincent made the sounds with them and then he asked students to close their eyes and imagine rain, and began tapping his lap to make a rain sound. All the students mimicked him. During the interview, Vincent said he incorporates a lot of sound making or movement activities when working with kindergarten students in order to keep them engaged. Also, since his students were part of an inclusive class, he thought they would benefit from moving

around. However, I thought the activity got the students over-stimulated and off track from the artwork.

On the other hand, Cindy shared with me that she was planning to offer a drawing or writing activity in order to help the class think about a solution for a painting that features an environment with unstable structures and houses. However, she cut off the activity out because the group came in late, and the schoolteacher wanted a little more time for the class to make art. Jenny and Eva also didn't include any gallery activity.

Other factors that shaped students' responses. The busyness of the museum space, the length of the program, the number of students per gallery educator, and the students' comfort level with the educators, all seemed to influence how actively children responded to artworks. First of all, compared to the other two museums, the Yellow Museum's gallery space is very small. One big room is dedicated as a gallery space, so I could see most of the collection from one view. I also learned through my observation and educator interviews that there are five programs (four fine arts programs and one media art program) happening every day. In the case of the fine arts programs, two programs (groups) start at 10:15 a.m. and finish at 11:30 a.m. The other two programs start at 11:15 a.m. until 12:30 p.m., making a 15-minute overlap. This is to make sure students get back on the bus by 12:30 p.m. and accommodate more student groups. Accordingly, many school groups started the program simultaneously, making the gallery space even busier. The students often became distracted by other artworks or by people in the same room. Moreover, it was difficult for students to hear what their classmates were saying, so they kept sharing their ideas simultaneously instead of adding on to what others said or listening to each other.

Secondly, the Yellow Museum's programs were very short. The short duration of the program (75 minutes) felt very rushed, considering the fact that students were both looking at the art and making their own artworks. There is also no guarantee that students will always arrive on time. If the groups came in late, the length of the programs got even shorter, which led to less time for the gallery or the studio experiences. Jenny and Eva's group came in 15 minutes late, so Jenny was only able to show one artwork to students. While observing the artwork, Jenny seemed to rush the conversation because students had to make a stop motion animation, have photos taken for the class video, and review their animation. During the interview, Jenny agreed that she would have showed one more artwork if she had a little more time with the students.

Lastly, it seemed challenging for educators and students to discuss the artworks when there are many students in one group. Cindy's and Jenny's and Eva's groups had about 30 students, so one educator had to facilitate the dialogue with the 30 students in the busy gallery space. Thus, it seemed hard for both the educator and the class to listen to each other, share comments, or build onto others' comments. On the contrary, Vincent had only 13 students, who had already built a relationship through the partnership. Thus, his students seemed more comfortable sharing thoughts and asking questions out loud.

Studio facilitation. As stated before, the highlighted instances and narratives I captured here are not representative of a specific educator's teaching, or of all programs in an individual museum, but they simply represent telling instances that related to my research questions.

Studio set-up and distribution of materials. The studio set-up was different for all three classes, but all the educators seemed to carefully design the studio space for

students to easily access the materials and communicate with the educator or peers. Before students' arrival, Vincent (fine arts educator) prepared a long table in the center so there was plenty of room for the children. Cindy (fine arts educator) set up four small tables with space in between them, so she could walk around each table to check with individual or small groups of students while they were making the artworks. However, I noticed that the tables got very packed because each table consisted of about six to seven kids and a few chaperones (parents that joined the field trip), as well as schoolteachers. Jenny and Eva's (media art educators) workshop required a special room that had equipment including computers, an iPad, screens, cameras, and tables where students could work with art materials. However, Jenny and Eva also made sure students could access their tools easily and communicate well with the co-creators and educators.

As noted, one or two educators stayed with the same group of students for both portions of the program. Even though they had set up the studio space for their students, Vincent and Cindy (fine arts educators) did not put all the materials on the tables or introduce all the materials at once. For example, Vincent had prepared pre-cut cloud shapes made of colored paper (green, red, yellow, blue, and white) and put them on top of the table. After giving out further instructions, he passed out additional materials, including colored paper straws, feathers, pompoms, mesh paper cutouts, and colored tape. Similarly, Cindy put two colored rolls of tape on each table for students to share. Then, she introduced more materials—cone-shaped paper water cups, straws and popsicle sticks in various colors, scissors, paper soup containers, toilet rolls, scraps of paper and cardboard, and small paper boxes—after giving out more instructions. In contrast, Jenny and Eva (media art educators) prepared each station with a camera (linked to the

computer screen) set up to shoot the colored paper (background) attached to the desk. There were also additional materials, including crayons, colored paper cutouts, scissors, and tape.

Opening, demonstrations, and art-making. Instead of reviewing the gallery tours, all the educators started the studio workshop by introducing the materials, brainstorming what artworks to make, and demonstrating some techniques. Specifically, as they exhibited the methods, the educators incorporated accessible questions to encourage students to think about what to make. For example, after looking at the final artwork (three panels of surrealistic paintings) that showed unstable places in dark and somewhat disorganized settings, Cindy told students (2nd grade, ELL) in the studio that they would be making a safe place. While introducing the materials and brainstorming with students, Cindy also asked open-ended questions.

> *Right after looking at the final artwork, Cindy guides students to the studio space for art-making. At the beginning, Cindy explains to the students that they will be building a safe place with art materials. She asks, "How can someone make a safe place that is strong and stable?" A student answers, "We can use bricks." Cindy agrees and adds, "Ah, yes, but we don't have bricks in the studio. But, you were thinking about strong materials, what else?" Another student answers, "Building things together?" Cindy comments, "Yes, by putting things together." Then, Cindy introduces materials, "All right, so I will show you what we have. You can work in teams or you can work by yourself." She pulls out a paper container and explains, "Most of us might think this is a container for soup, but maybe this is part of our shelter or home." She pulls out a small paper box and explains, "Most of us might say this is a box, but take a look. It can become part of our special safe place." She shows how students might fold the box. She introduces straws and says, "Most people might think these are straws, but maybe these are things that help my safe place stand up." She demonstrates by making a safe place with the materials as she explains. Then she brings out a paper cup and asks, "Most people might think these are cups, but what can they be in my building?" Students excitedly share, "A crown" and "Ice cream." Cindy redirects students by saying, "Ice cream, yes, but we are making a safe place. What else?" She introduces more materials and tells students, "So, your challenge for today is to make a safe place with these materials that can stand by*

itself." Cindy encourages students to share their ideas with people next to them and passes out the materials she introduced to the students.

Even though Cindy was asking questions that seemed to require students' ideas, Cindy's questions (her suggestions and demonstrations followed right after) seemed to limit what the class could do with their materials. In fact, I could see that the students were clearly starting with and following what Cindy had shown them in the demonstration, and coming up with similar structures at the end. Many of them placed the paper boxes in the middle, put Popsicle sticks under their boxes to make the boxes stand, and then placed the paper cone cup on the top as if it was a hat. Similarly, Vincent asked questions to encourage the students (kindergarten, inclusive) to think about what to make, but the way he gave out the instructions and demonstrations seemed to limit possible ways students could manipulate the art materials.

After spending about 20 minutes in the gallery talking about a large installation piece and framed photo collage of different types of skies, Vincent guides students to the studio, where it is much quieter. The studio tables are already set up with pre-cut cloud shapes with four holes on the edges (green, red, yellow, blue, and white). Students excitedly find a spot at the table in front of each cloud shape and ask Vincent what they are. Vincent replies, "What do you notice?" The children answer with excitement, "Clouds!" Vincent confirms and explains, "Yes, they look like clouds, and you will be making your own special clouds today!" A girl comments, "They are all different colors." Vincent repeats his comment and adds, "They are all different colors, and they are like the clouds we were looking at. Now, we are going to use our imaginations. If that cloud could rain anything in the world, what would you wish?" Students answer, "Money," "Marshmallow," "Ice cream," and "Butterflies." They become too enthusiastic about sharing their ideas, so Vincent stops them and gives them the instructions. "All right, friends. First step, you are going to write your name on one side of the cloud. Second step, you'll flip your cloud and start decorating your cloud." After the instructions, Vincent passes out oil pastels. Students start to draw inside the clouds. After a few minutes, Vincent stops them to give the next instruction and introduce more materials. "You might recognize these materials because we always used them together in class. This is a tape." Vincent then shows pipe cleaners and says, "You can put these inside the holes in your clouds." Vincent brings out feathers and says, "You may tape these feathers to

the pipe cleaners." Students listen to Vincent and exclaim, "Wow!" Vincent introduces straws, pompoms, and mesh paper cutouts in a similar manner.

As shown above, even though he incorporated a few questions, Vincent gave the class step-by-step instructions and explicitly urged them to "decorate" their templates (a pre-cut cloud shape with four holes). During his interview, Vincent mentioned that his studio workshop focuses on the process rather than the product. However, at the end, the artworks seemed extremely similar to each other and had very little individual input of ideas. The variation included the things students drew inside the clouds (human figures, hearts, rainbows, suns, raindrops, or butterflies), the materials they decorated on the clouds (pompoms, mesh paper cutouts, and colored tape), and the materials they put inside the holes on the clouds (pipe cleaners and straws in different colors).

On the other hand, the animation workshop required the educators' clear instruction and demonstration in order for the students to make the animation in time. After showing a sample clip and during the demonstration, Jenny and Eva incorporated questions from their students (4th grade, general and ELL).

Jenny tells the students that they will watch a famous stop motion film as a sample and asks them to think about what each object in the film represents. Students watch the film attentively. It features a spaghetti-cooking scene, but with everyday objects used as cooking materials. For example, aluminum foil is used to show oil in a frying pan, a Rubik's Cube represents an onion, a red pin cushion is used as a tomato, a dollar represents basil, dice are supposed to be cheese, etc. As the animation ends, Eva asks, "What kind of materials do you guys notice?" Students answer, "Rubik's cube" and "String." Jenny further asks, "What do you think the string was supposed to be? And what do you think the Rubik's Cube was supposed to be?" A student guesses, "Ice cube?" Jenny says, "Maybe." A girl answers, "Money." Jenny asks, "What do you think the money was? Do you think it was supposed to be food or if they were craving money?" The girl answers right away, "They were craving money," and other students laugh. A boy bravely shares, "I think the Rubik's Cube was for tomatoes." Jenny corrects him, "Maybe, but I would say the Rubik's cube was like onions, and money I think was like a basil plant." Jenny asks for one more share, and a boy answers, "Dice, I think it was to make more flavor." Jenny asks, "What kind of food do you think it

was?" Students seem not to remember the specific items and what they represented.

After the back and forth exchange, Jenny gives them the instruction, "What we are going to do is quickly show you how you guys how you are going to use our animation program." The students already seemed familiar with making animations because of the partnership. Jenny explains, "We have seven stations, and we'll split you into groups." As the schoolteacher helps by splitting the group, Jenny asks, "Can you guys remind me how many pictures are in a second?" A boy answers, "15." Jenny compliments him and adds instruction, "Bingo, as you guys go to your stations, decide who's going to take the picture, you are going to press the space bar to take the picture." Then, Jenny and Eva demonstrate together, "I am going to be the animator and Eva's going to be the picture taker and we'll switch later." They ask students to count to 15 as Jenny moves a paper cutout and Eva takes a picture of it. Jenny reminds students, "I want you to think about the artwork we saw in the gallery, as well as photographs and different types of weather. Weather might indicate the mood, and if you see a movie and in the first scene it is pouring rain and very gray and dreary, do you think really happy or exciting things are going to happen, or do you think the character is having a bad day?" Students stay quiet, so Jenny asks again, "Stormy weather, what kind of mood would it indicate?" A girl answers, "Maybe a bad mood?" Jenny agrees, "Yes, maybe something sad or bad might happen. So, we want you to think about that when you are making your film. I want you to start by deciding the weather. Then, the narrative can go into some kind of direction you figure out with your group." Jenny demonstrates by showing a sunny day, and then a cloud coming in to the picture, which partially covers the sun. She demonstrates how to take pictures of objects arranged on the background paper, how to erase certain pictures, and how to review the whole animation. Jenny asks, "What would you suggest happens next?" A student interjects, "Thunderstorm?" Jenny agrees and asks, "Yes, maybe lightening, and there can be a tree. What about a character or animal?" A girl suggests, "Maybe rabbits? They can come in and jump away, sad." Jenny further asks, "After the sad rabbits hopping around, what can happen next?" A boy adds, "Lightening comes in." Jenny repeats, adding, "Yes, the lightening comes but just misses the rabbits." Then Jenny reminds students to discuss with collaborate on their stories, as well as to take turns taking the photos and directing. After giving out the instruction and demonstrating the task, Jenny acknowledges that each group would be called away to make another animation.

As shown above, the questions regarding the sample clip seemed like a memory test rather than a springboard for discussion. It seemed to me that the educators were asking the questions for the sake of asking questions instead of seeking students' opinions or ideas. On the other hand, the questions posed during the demonstration

seemed to get students involved and make them think about their own animations. However, all of the children's final artworks related to weather, with very little variation in the narratives. For example, one clip had a yellow sun on the top, and the cloud came into the picture, and then a human character walked inside. After that, it started to rain. After the rain came a rainbow. Another group's animation featured two animals (a bunny and a puppy) on grass, running away from the rain. Then, when the sun reappeared they came back to the center. Other clips included rain with thunder, black clouds, or snow. The educators' demonstrations seemed to set a particular tone for the students' artworks in all three classes.

Dialogue during art-making. All the educators walked around the room during the students' art-making to encourage their processes. Most of the time, they assisted students with skills or passing out more materials. For example, Cindy went around the studio, and while at each table, she mostly helped the children tape the materials together and to make the structure stand. Similarly, Vincent walked around the space to see if anyone needed more supplies. He assisted students who required extra hands to tape materials to their clouds. While Jenny was taking one group to the gallery space to snap pictures, Eva walked around to assist students. For example, when one group started talking about what they wanted to make, Eva asked them what kind of weather they wanted to illustrate. They answered that they wanted to create a sunny day. Eva asked them what comes after the sunny day. Students answered that the clouds will come out. Eva asked what happens after that, and students answered that first the sun comes up. She told them that they had plenty of time to do more than that, and encouraged them to talk to each other for ideas.

Reflection. As noted, the museum's overarching pedagogy involves looking, making, and sharing. All the educators—Cindy, Vincent, and Jenny and Eva—facilitated a brief sharing moment at the end of their workshop. Cindy had less than seven minutes left, so she had one student share and encouraged others to discuss among themselves at the tables.

> *Cindy claps rhythmically to catch students' attention. Confirming that the class is looking at her, she encourages students to give a round of applause for the works they have completed, and says, "I am so excited to see the great things you did. Sometimes the artists share their art with other people. So, because we don't have time for everybody at each table, we'll go around and everyone is going to say how their building is a safe place, how they made their building a safe place." Students hesitate, but one girl raises her hand. Cindy asks, "Tell me about your structure!" The girl shares, "My structure is a building that floats." Cindy further asks, "A building that can float. That's so cool, why would you build a building that floats?" The student answers, "If the tsunami comes, the building can move." Cindy exclaims and points to the structure, "Tell me about these parts." The student seems shy to share more, so Cindy says, "That's okay." Then, Cindy encourages students to turn to the person next to them and share why their structure is a safe place. Students quietly share with their peers at their tables.*

As described, Cindy asked deepening questions to have the student describe her artwork. However, due to the limited time they had left, only one child got to share her artwork to the whole group. On the other hand, Vincent had plenty of time (15 minutes) for reflection. As a result, Vincent decided to have his students have a parade in the gallery space. The students got a chance to proudly show off their artworks while they were walking around the space and then to share their clouds once they got back to the studio.

> *When Vincent confirms that all students are finished with making their clouds, he instructs them to clean up the materials. Then he tells the students that they will do a quick parade in the gallery. He guides students to hold their clouds high and follow him in a straight line. Vincent also asks students to sing a class song as they walk around the gallery space. Students excitedly sing their class song as they proudly show off their clouds. Following a parade in the gallery space,*

> *Vincent brings his students to the studio. After checking that the group still has about 10 minutes left until time is up, Vincent asks if they would like to share their clouds. Students nod in agreement, so Vincent asks who'd like to share first and then encourages her to come up to the front. Another girl speaks up, "It's raining, and then the thunderstorm." Vincent repeats and asks if anyone has questions or comments. A boy answers, "It looks like the cloud is crying." Vincent repeats the comment and thanks the students. Another boy comes up and shares, "Mine is a wave." Other boy comments, "It's really big." Vincent agrees and asks, "Yes, it is very big. Michael, how did you make it so big?" Michael answers, "I wanted to make a big wave." Vincent thanks him for sharing and asks if anyone else wants to share. A shy girl responds, "Mine is raining bows." Vincent reacts, "Wow, great. It's raining bows. Does anyone have any questions or comments for Luna?" Confirming that there are no questions, Vincent checks the time and notices that he still has some left. Eventually, all students share their clouds. Vincent applauds to end the workshop and gives a concluding comment, "Not only did you guys make art, but also we did a gallery visit, we got to see some art, and did a parade! Now friends, we have had so much fun for the past few months. I have tickets for you to come to the museum with your family." Students seem very excited to get the free family tickets.*

The parade seemed to give students ownership of the museum space and allowed them to feel very proud of their artworks. The children were shouting out in excitement while they were marching, and the gallery space got extremely loud. This was acceptable because the Yellow Museum is a children's museum. After the parade, Vincent ended up having the whole class share their artworks, and gave students a chance to ask each other questions or comments. All the students had the chance to share their artworks to the whole group, but the reflection seemed to fill the remaining time and did not allow the class to reflect about their processes.

On the other hand, Jenny and Eva had their students watch all their finished artworks together for reflection. To be specific, they asked their class to sit in the center of the studio after they were finished with animation-making. Jenny turned on a clip made by a previous school group. While students were watching, Jenny saved all the students' clips together and made it into a long continuous clip. She also made a clip

using photos of the students (she called out one group at a time to the gallery space and took photos of them). When students finished watching the animation, Jenny played two clips—students' animations and her animation. Students seemed very excited to see what they had all created, along with Jenny's work.

Connections Across Gallery and Studio

Same educator. Unlike the other two museums, one or two educators led both portions of the program. Thus, all the educators were well aware of what their students saw in the gallery space, including the additional artworks, which weren't included in the initial plan but still caught the children's attention. However, the educators did not reflect with the students on their gallery tours or on what caught their attention at the beginning of the studio workshop. Also, the educators seemed to strictly stick to their initial workshop plans and not account for works that caught students' attention, which in turn caused them to miss the opportunity for greater connection between the gallery and studio experiences.

School and student information. Cindy said she received limited information about the group, and she did not have much time to learn about the students because they came in very late. She added that because the class was quiet most of the time, she assumed that the students were well behaved or that they had less exposure to art and the museum. However, during her tour she learned that the students were English Language Learners (ELL), which might have made them uncomfortable speaking in front of others. If she had known that the students were ELL, then she would have prepared a visual vocabulary for them. She said she tries to get in touch with the schoolteachers before the program date, but it is still very challenging. Thus, Cindy implied that knowing the

students' information beforehand would have helped her in creating a greater connection between what the class learned in the museum, and their process in the workshop. On the contrary, Vincent and Eva knew their students well through the recurring visit (partnership), including what students are currently learning at school and various art projects they did together. Unfortunately, it was difficult for me to determine my thoughts regarding that connection without observing or having information about what students did during the partnership.

Exhibition theme and visual reference. The theme of the exhibition (weather) served as an overarching premise for the tour and workshop portions. In fact, the educators chose art projects related to weather or the last artwork students saw in the gallery. Accordingly, the students seemed to make explicit visual connections between the artworks they saw in the gallery and their own artwork. For instance, as their last artwork on the tour, Vincent's group saw a photo collage of different skies, and then created their own clouds. It seemed to be an obvious connection (making clouds after looking at clouds), and Vincent agreed that he chose the final artwork (strips of sky photos collaged together) because it directly connected to the cloud projects. However, he added that he could have made a better connection by talking about how the students' finished artworks reminded him of the artworks they saw together. Similarly, Cindy's group made "safe places" after looking at the surrealistic three-panel painting that featured unstable structures in a flooded neighborhood. As noted, Cindy's students created structures that resembled Cindy's demonstrated work, and one of the structures in the last painting, though they looked more stable than the one at the painting. Lastly, Jenny and Eva's group saw the piece that featured a miniature tree and photos of the tree

in different weather. Then Jenny and Eva asked the class to choose a type of weather and create a narrative. As mentioned, students made weather related clips, often featuring a tree in the center. Compared to the other two museums, the visual connections between tour and workshop in all three classes seemed more obvious. The students' artworks at the Yellow Museum also seemed to be lacking their own original ideas.

Summary of the Yellow Museum

The administrative staff stated that the Yellow Museum's overarching pedagogy is "look, make, and share", and the educators are trained to lead inquiry-based and process-based tour and workshop programs for the students. Indeed, the educators were aware that the museum encourages an inquiry-based approach, and they invited students to look closely at the artworks, describe their observations, and add comments.

The Yellow Museum offer two types of workshop (fine arts and media art making workshops) within their one hour and 15-minute program. According to the observation and interview data, their programs weren't thematic, but the special exhibition served as an overarching theme. My observation and interview data revealed the similarities and differences among educators' teaching approaches and components that influenced the connection between the gallery and studio portions. Specifically, all of the programs started with a brief introduction and review of museum rules. Then, the educators showed one to two artworks (spending nine minutes or less) and occasionally made a quick stop at art in which children showed interest. The gallery tour facilitation was similar among educators even though some were more open while others were more direction-based. All of them incorporated questions to elicit students' observations, repeated students' comments, and shared information about the artworks near the end. When students

transitioned to the studio, the educators invited them to describe the art materials and gave them instructions and demonstrations on how they might make the artworks. During the art-making, the previous relationship with the educator and experience with the art materials through the partnership seemed to make students more comfortable sharing their comments and immediately work with art materials. However, the demonstration and the educators' choice of art projects in both type of workshops seemed to limit the variations of students' finished artworks. In the end, all the educators facilitated a reflection in forms of a parade, watching together, or sharing out loud with the group. In general, the program seemed very short, resulting in less time for students to look, make, and share.

V – CROSS-CASE ANALYSIS AND DISCUSSION

This chapter will discuss the key concepts identified regarding research questions across the three cases, and consider them in relation to the literature review presented in Chapter II. In the first part, I will discuss the findings focused on how the museum education departments supported and how educators facilitated their tour and workshop programs in ways that adopt constructivist approaches, and how the students' responses reflected what constructivist approaches aimed for. In the second part, I will examine the findings concerning how the educators' facilitations fostered, and how the students' responses reflected the connections across gallery and studio.

Part 1, Constructivist Approaches

I identified five ways the museum education departments and museum educators supported and facilitated their tour and workshop programs that adopted constructivist approaches (or did not): 1) by providing student-centered learning, 2) by creating an inviting environment, 3) by considering students' prior knowledge and experience, 4) by being responsive to circumstances, and 5) promoting social interaction.

1. Student-Centered Learning

After considering the three cases together, the first theme I identified was an emphasis on student-centered learning. According to Fosnot (2005), the goal of constructivist classrooms is autonomy, mutual reciprocity of social relations, and empowerment. Constructivist teaching rejects that learning happens through the teacher's

transmission of information, but contends that the focus tends to shift from the teacher to students. Accordingly, the teachers should become facilitators that encourage learners to take on more ownership of their ideas (von Glasersfeld, 2005). Among the nine observed sessions, I identified three ways that educators encouraged students to take more ownership in their learning: honoring students' responses, facilitation of material exploration, and individual or small group conversations. I will elaborate on each in what follows.

Honoring students' responses and types of questions in the gallery. As mentioned above, in a constructivist classroom, teachers become facilitators who encourage students to take more ownership of their learning. Specifically, museum educators should provide learners with opportunities to raise questions, search for patterns, build on their ideas, and interpret (von Glasersfeld, 2005). In response, learners become active inquirers who look carefully, raise questions, develop opinions, express them, consider multiple viewpoints, speculate together, argue, and build on each other's ideas, and possibly revise conclusions and back up interpretations with evidence (Shulman-Herz, 2010; Yenawine, 1998). The administrative staff members from all cases said that their gallery educators use constructivist approaches, including VTS and other inquiry-based methods, which involves asking open-ended questions, facilitating discussion, paraphrasing, and inserting information during group dialogues about artworks instead of dictating information. Their descriptions were generally consistent with my observations. Across the cases, all nine gallery educators generally adopted dialogic teaching with a variation—educators facilitate dialogue to allow visitors to voice their views (observations, ideas, and interpretation) of the artworks (Burnham & Kai-

Kee, 2011; Terrassa, Hubard, Holtrop, & Higgins-Linder, 2016). None of the educators in either the gallery or the studio dictated information to students. As a way to encourage students to become active inquirers rather than passive learners, the gallery educators from all three museums honored students' ideas and perspectives to some extent during the gallery tours.

While watching the educators facilitate gallery tours through dialogue, I witnessed that the students became more involved in interpreting artworks when their educators were more responsive to their comments and ideas. At the Red Museum, Hannah honored students' ideas by paraphrasing their comments, connecting their contributions with similar or contrasting ideas, and sharing information when relevant (i.e. Hannah told the students about the artist's move to Paris when they came to a consensus on the setting of the painting as Paris because of the recognizable landmark [Eiffel Tower]). In the open conversation where ideas are flowing, and questions are raised primarily by the students (Burnham, 2011), the class named things they observed from the painting and connected their ideas with their peers' comments.

Similarly, at the Blue Museum, Roy's (gallery educator) 3rd graders were excited to share things the abstract sculpture brought to mind, including a motorcycle, saddle, shoe, and a horse's head. After each comment, he repeated what the student had said and asked them to describe what made them think of their associations, or he confirmed with the students by describing shapes, colors, and textures in the sculpture that might have made them think of the things they had mentioned. Near the end, Roy defined the term abstract, a concept that invites multiple viewer interpretations. These two instances corresponded with the constructivist dialogic teaching described by Shulman-Herz (2010)

and Korn & Associates, Inc. (2018), where the dialogue evolves primarily through students' comments and questions, rather than educators' transmission of information.

On the other hand, students seemed to become less involved in the interpretation process when the educators asked leading questions or less open-ended questions. When asking questions, Andy (gallery educator, Red Museum) seemed to look for answers and comments related to information he had already prepared, rather than opening up the floor for students' ideas and interpretations. He asked leading questions (e.g., "Do you know where it might be?" and "Do you recognize any buildings in the painting?") and repeatedly asked, "what else?". When the children (8th grade, general) finally mentioned ideas related to the title of the painting (*Paris*), Andy satisfyingly shared the artist's move to Paris and moved onto the next topic. Revealing new information right after students' answers to the leading questions seemed to give them the idea that Andy was looking for certain ideas or answers in response to his questions. The students also missed the opportunity to share their ideas and unique interpretations. Similarly, at the Yellow Museum, in the hopes of connecting to his previously prepared information, Vincent repeated the questions, "what do you notice?" and "what else?" When students (kindergarten, inclusive) didn't mention anything related, he just shared the information that the artist who made the artwork was inspired by a swamp. The dialogue seemed more like a back and forth exchange of question and answer that was the educators' way of covering predetermined information. Hubard (2010) pointed to this issue and said that if the educator guides the students to understand the pre-identified knowledge, only the students' "right" or related answers to the educators' prepared information will be validated through the dialogue. That is, if the educator prepares a specific piece of

information about the artwork and asks the class questions that might guide them to his or her prepared information, only the related answers would be validated during the gallery dialogue. Burnham and Kai-Kee (2011) also critiqued the use of questions in gallery teaching because guiding questions might disengage visitors from experiencing the artworks. Instead, Hubard (2010) and Burnham & Kai Kee (2011) emphasized that dialogue about artworks should include both teacher and student contributions of observations, questions, information, and insight from various sources, which will help all participants discover the meaning of the artworks.

Material exploration versus step-by-step demonstration in the studio. In the studio, the way materials and processes were introduced was more or less conducive to promoting autonomy. I witnessed how the facilitation of warm-up activities at the Red and Blue Museum, instead of requiring students to finish their artworks in a certain, actually helped them familiarize, explore, and experiment with the art materials on their own, making them excited about their choices and for having unique contributions to their projects. In the warm-up activities, the studio educators provided one or two materials and gave a quick challenge that asked for students' exploration with and manipulation of the materials. For instance, Amy (the Red Museum) asked students (7th grade, general) to arrange the paper cutouts to show a balance, and Janine (the Blue Museum) asked students (3rd grade, general) to manipulate a paper strip without using manipulative tools (scissors, cutting knife, or glue). In response, students seemed to become more comfortable with the art materials, and were excited to find different ways to manipulate their materials. The activities also readied them to think about different arrangements for their art-making. This finding resonates with Hafeli's (2014) argument

that brainstorming with and exploring materials (starting with a single or a limited material option), as well as suggestions for experimentation, would encourage students' curiosity, autonomy, and realization of the materials.

On the contrary, I witnessed the educator's performing step-by-step demonstrations that encouraged students to generate artworks that were similar to the educators' models and, correspondingly, to the artworks of their peers. All of the educators at the Yellow Museum started the art-making with a demonstration. While introducing each art material, educators brainstormed about what students might do with them or the artworks they might make. Even though educators incorporated open-ended questions to ask for students' ideas, they often suggested and demonstrated one way to manipulate the materials. This seemed to limit the children's possibilities, and only served to model the educators' preferred methods. In fact, many students started with and followed the educators' models, and came up with similar artworks at the end. For example, most of Vincent's kindergartners decorated their cloud-shaped paper cutouts with crayons and put straws and pipe cleaners through the pre-cut holes.

Encouraging students' choices through individual or small group conversations in the studio. As emphasized above, a constructivist view of teaching rejects that learning happens through transmission or exact copies of the teachers' instruction (Fosnot, 2005). Fittingly, in her writing about studio art teaching and learning, Lord (1958/1996) specified that art teachers should facilitate discussion focusing on students' choices and try to avoid giving exact directions during art-making. Beal (2011) built on the conversation and emphasized that the adult should intervene as little as possible, not projecting their ideas onto the children's works. In line with Lord and Beal,

the studio educators in all museums and programs engaged students in one-on-one or small group conversations focusing on the children's choices and processes, helping out with technical skills when needed. Some educators asked questions to acknowledge students' choices and the others commented on methods and processes without any questions. For example, Niki, administrative staff and studio educator at the Blue Museum, said she prefers not to ask many questions during students' art-making because she does not want to interrupt their creative flow. Instead, she pointed out to what students were doing by saying, "I see you put the rock on top of your wood piece, and you put this wood and stick on the other side," and "I see that you layered materials on top of each other." Niki's comments shed light on a teachers' role in a constructivist classroom and supported Lord's claims (1958/1996), which state that in order to encourage students to make the most thoughtful selections during art-making the teachers should guide them by commenting on their choices and arrangements, rather than giving exact directions.

Moreover, in some cases, the individual conversation with the educators seemed to push students to become brave in experimenting with their materials. At the Red Museum, studio educator Amy's group made collages showing different places of their choosing with various colored and textured paper. After conversing with Amy and finding out that she could fold the papers to make an emphasis, one of her students was courageous enough to make her collage three-dimensional.

2. Inviting Environment

The second theme I identified was the relevance of an inviting environment. Hein (1998) acknowledged that the first connection visitors make is with the museum building,

which is generally and traditionally not a place desirable for learning and enjoyment. That is, since the early nineteenth century museum buildings have transitioned from palaces to monumental public buildings. These architecturally imposing buildings—like a bank or courthouse—do not present the most accessible image to visitors, but rather, are places that are only entered when necessary (Hein, 1998). Accordingly, he insisted that educators consider making internal modifications by creating an accessible and comfortable learning environment and helping learners orient themselves before they participate in the educational programs. During my observations, I identified two factors that helped to create an inviting learning environment for students: the set-up of the physical space (gallery and studio) and the number of students per educator.

Set-up of the physical space. Hein (1998, 2006) proposed that educators in a constructivist museum should consider a range of aspects related to visitor experience, including how a museum's physical surroundings might influence their interpretations. Falk and Dierking (2000)—in tandem with Hein—argued that museum learning is situated within a series of contexts, including the physical context, which refers to the way learning is bound to the environment in which it occurs. Across the three museums, I witnessed the importance of having a physical environment where students could easily view and discuss the chosen art, work with materials, and connect with educators and peers. Educators had less control over shaping the physical learning space in the gallery than in the studio because the gallery space was shared with the general public, whereas the studio space was not a common space, and tables and materials could be set up the way the educators wanted.

Unfortunately, educators had much less control over the set-up of the gallery space. Crowded galleries and areas that amplified sound were distracting to students, which made the group discussion challenging. In contrast, quiet galleries with good acoustics made it easier for the educator and students to listen to each other and communicate. For instance, several times I noticed students becoming distracted by the noise and other visitors at the Red Museum, which is a relatively big and busy museum with a high gallery ceiling. In contrast, I noticed that most of the time students had the whole Blue Museum gallery space to themselves, which made it easier for the group to view and discuss the artworks.

Although educators were not able to set up the ideal gallery space for students' learning, the educators had choices of how to more productively use the existing space. For example, Lee (gallery educator, Blue Museum) said some artworks are better to sit near than others because there are sculptures that have plenty of room in front of them for students and educators to sit and talk for a while without blocking other visitors' passage through the museum. In agreement with Lee, the Blue Museum's educators mentioned that a few artworks are better suited for discussing the artist's tool marks, abstract sculpture, or arrangement of materials than others, and there are a few spaces that are convenient for the facilitation of gallery activities. In fact, scholars in the field of museum education have further remarked upon the fundamental role of the environment on museum learning and asserted that the spatial factors (physical and contextual characteristics of the space) might both pose challenges or foster positive responses, specifically aiding visitors' concentration and conversation (Tishman et al., 2007 as cited in Terrassa, Hubard, Holtrop, & Higgins-Linder, 2016, p. 16).

On the other hand, educators had more control over the set-up of the studio space. Smith, Fucigna, Kennedy, and Lord (1983/1993) proposed that clean, organized art classrooms that have plenty of space and accessible materials help children explore, experiment, and gain confidence with art materials, and thus develop their ideas. In all three cases, I witnessed educators carefully setting up the studio space where students could easily access materials, visual aids, educators and peers. In the nine programs that I observed, two studio educators also put on light music when students started to make art; creating an inviting environment. In line with Smith et al., six out of nine student groups seemed comfortable walking around the studio space to access additional materials and occasionally see their peers' artworks near the end of the session. Students casually chatted with each other, commenting about their artworks and how they resembled the ones they had seen at the gallery space. They also conversed with the educator. The students who had the background music even rhythmically nodded their heads, following the rhythm while making their artworks.

The set-up was such a priority that two studio educators said that one factor in their selection of materials for the workshop includes the feasibility of making a quick change over. That is, the studio educators at the Red and Blue Museum had to complete a fast transition between students who did the studio workshop first and students who did the gallery tour first. Both educators agreed that that the collage workshop was suitable not only for students' gallery experience and theme, but also for the art teachers to quickly clean up and prepare for the next group without any assistance.

Number of students per educator. Along with the set-up of the space, the number of students per each educator seemed to affect how educators and students

communicated with each other. The museums generally limited the number of students per educator in each space or program. The Red and Blue Museum limited up to 15 students per educator in the gallery and 30 students per educator in the studio. The Yellow Museum allowed 30 students per each educator. In fact, sometimes the classes were even smaller. At the Red Museum, Lilly (gallery educator) had only about ten students on her tour, while Andy's (gallery educator) group numbered about 15. At the Blue Museum, Agnes (gallery educator) had seven students while other gallery educators had about 15 students in their groups. At the Yellow Museum, Vincent only had 13 students, while the other two educators had 30 students. I witnessed that having a smaller number of students in the gallery space made it easier for the educators to memorize their names, and for the children to easily listen to and participate in the group discussion, especially in the comparatively big and busy museum's gallery space. Whereas, it seemed challenging for both the educator and students in the larger groups to listen to each other, share comments, or build onto others' comments. In fact, Randi Korn & Associates' (2018) national study of the effects of facilitated single-visit art museum programs on students in grades 4-6 revealed that the prevalent (86% of the 101 observed museums) student-to-facilitator ratio was 20:1 or less. This is considered necessary criteria for facilitating inquiry-based teaching.

Similarly, having a smaller number of students in the studio space made it easier for the students to communicate with the educator and peers, while having plenty of working space per person. At the Red Museum, Judy (studio educator) had about 30 students, Amy (studio educator) had 20 students, and Hannah had 17 students. At the Blue Museum, Niki (studio educator) had seven students, Janine (studio educator) had 14

students, and Jessica (studio educator) had 30 students. At the Yellow Museum, Vincent had 13 students, and the other two educators had 30 students. Although important, the number of children in the studio space seemed less critical compared to the number of children on the gallery tours because every class was occupying the studio by themselves, not competing with other visitors for space. The students were also often quietly working on their own, and the educators occasionally engaged them in small group or individual discussions, while in the gallery space the instructors were speaking to the whole group.

3. Considering Prior Knowledge and Experience

While investigating the three cases, the third theme I identified was the importance of considering students' prior knowledge and experience. To be specific, constructivism insists that learning originates from inside the child, which means that students build new ideas onto their previous knowledge to construct new knowledge (Fosnot & Perry, 2005; von Glasersfeld, 2005). Specifically, Hein (1991, 1998, 2012) argued that museum learning takes place when visitors connect what they see, do, and feel about the context of the museum with what they already know and understand. Thus, he insisted educators should consider all aspects of the diverse experiences individuals bring with them, as well as how the museum's surroundings influence visitors' interpretations (Hein, 2012). While investigating the three cases, I witnessed that the educators considered the information about the class that they were given by the schoolteachers and tried to discover more about the group's previous knowledge and experience that could be built into the museum learning, while also attempting to establish a relationship with the students.

Students' information. In order to consider students' prior knowledge and experiences in the lesson planning, including their school curriculum, interests and needs, all three museums asked schoolteachers to provide information about the students, including what they are currently studying and goals for the field trip, upon registration for the programs. All of the nine observed educators were indeed aware of basic information, such as the ages of the students, which allowed the educators to create age-appropriate lessons. However, in two of the nine sessions I witnessed, knowing students' previous information was particularly helpful in engaging students in the gallery learning. For example, Lilly (gallery educator, Red Museum) included a drawing activity at her second stop, and she told her group that their schoolteacher had informed her that they'd done many observational drawings. Lilly added another drawing activity at the last stop because, as she expected, the class enjoyed the drawing activity. Knowing the information in advance allowed Lilly to include an activity that students found interesting and also enabled her to acknowledge that she was interested in what they were learning or doing at school.

On the other hand, I witnessed some cases when the educators had limited information about the students, which in turn challenged the instructors to accommodate the students and find ways to increase their participation. For example, Cindy at the Yellow Museum said that she had received limited information about her group in advance. She described trying to learn about the students on the spot, but the class was reticent to talk to her. Cindy assumed the students were well behaved or had less exposure to art, but during the tour she discovered that they were English Language Learners (ELL). She said if she had known that the students were ELL, she would have

prepared visual aids for those who might feel uncomfortable speaking English in front of others.

However, as Lilly (gallery educator, Red Museum) mentioned during her interview, it is challenging to obtain information about students attending shot museum programs. As an alternative, educators tried to quickly learn about the students at the beginning of the tour and during the workshop in order to establish a relationship.

Establishing a relationship with students. Whether the group was comparatively big or small, in the beginning, the brief chance to establish a relationship between the educator and students seemed to help the educators break the ice with the group and to learn about its members. As mentioned above, Hein (1998) insisted that museum learning takes place when students connect their previous knowledge with what they see, do, and feel about the context of the museum. In concert with Hein, the educators implemented different strategies for quickly establishing relationships with the students, while also rapidly assessing their readiness for participation. They also attempted to learn something about the children's interests and their previous exposure to the arts, museums, and programs. At the beginning of the gallery tours, Andy and Lilly—the Red Museum gallery educators—connected individually with students while creating their nametags. While asking students' names and distributing the tags, both educators quickly memorized students' names and individually welcomed them. Then both educators called on the children by name while facilitating the group dialogue, often connecting different students' observations and ideas. At the Blue Museum, Agnes (gallery educator) showed a photo of the artist carving a sculpture. When students commented on the tools and materials in the photo, Agnes asked students if they had ever

made any art. When many nodded in agreement, Agnes shared sample art materials and asked students to volunteer their previous experience with any of the materials. This brief share allowed Agnes to learn about students' previous experience with art materials and to get to know them a little better.

Similarly, establishing a relationship with the students at the beginning of the studio portion seemed to help the studio educators learn about their groups as well as the gallery experience that needed to be built into the studio experience. To be specific, upon students' arrival in the studios, the Red and Blue Museum's studio educators all facilitated an introduction with a brief gallery tour reflection. At the Blue Museum, Janine (studio educator) asked students to share their names and something about themselves. This opportunity allowed Janine and students to break the ice and learn about each other, as well as connect to the program theme (Sense of Self and Art) and the motivating question (How might you create a paper sculpture that tells something about yourself?). In fact, positive teacher-student relationships have long been considered a primary condition of students' positive learning experience. These connections also "help develop students' emotional connection and sense of safety to enhance engagement in academic pursuit" (Cook, Coco, Zhang, Fiat, Duong, & Renshaw, 2018, p. 227).

Three of the nine observed school groups participated in the tour and workshop programs as part of their school partnership or a camp program. In these cases, both the educator and the students were clearly more comfortable interacting with each other. Unfortunately, I wasn't able to learn or observe the previous sessions attended by those involved in the school partnerships or camp group, but it was evident that the students seemed more comfortable sharing thoughts, asking questions out loud, and work with art

materials or media. To be specific, Hannah's (the Red Museum's gallery and studio educator) camp group referenced the compound word they created while they were collectively interpreting the painting in previous lessons (more on this in the Students' Peer Social Interaction Section below). Also, Jenny and Eva's group was already familiar with making an animation because they had learned and tried it at their schools beforehand.

4. Responsiveness to Circumstances

The fourth theme I identified was the educators' responsiveness to circumstances. As the teacher's role is important in facilitating student-centered learning in a constructivist classroom (Fosnot, 2005), educators need to adapt to circumstances and be attentive to students' needs and interests. Accordingly, after examining the three cases together, I witnessed the importance of educators' responsiveness to circumstances. Specifically, the educators were flexible in different ways: they cut out or added tour stop(s) as well as activities based on students' interests, responses and other relevant circumstances.

Number of artworks and time per artwork and activity. Generally, depending on the time they had with the students, the children's responses and interests, or logistical reasons, the educators were flexible about adding or cutting one or two stop(s) from their original plans. To begin with, the actual time educators had with the students were not always the same as the allotted time for the program. Some groups came 15 minutes to an hour late. When this happened, the gallery tour educators usually preferred to adjust their plans by cutting out stops instead of making each stop shorter. In the case of the Red Museum, Andy (gallery educator) cut out two of the art stops because his students were

late due to traffic. Laurie (admin staff) said that there are two main reasons for making fewer stops: 1) spending longer time would allow students to gain a more in-depth understanding of the artwork and the themes, and 2) logistically, it takes a long time to get from one stop to the next because of the big museum building. Burnham (1994) strongly advocated visitors to slow down and look at an artwork longer because she believed that the "ideas of an artwork including the narrative, the colors, the way the paint is applied, the atmosphere, and the emotion" will slowly come forward as the students respond and listen to each other to build "collective understanding of a work of art" (p. 522).

Secondly, educators sometimes spent more time or less time at each stop depending on students' responses and interests. At the Yellow Museum, Cindy and Vincent added two shorter artwork stops on the spot because students stopped and showed interest in works that caught their attention. Neither Cindy or Vincent spent any extended time discussing the artworks that were not included in their plans, but they both spent one or two minutes looking at those artworks and encouraged students to briefly share their observations. At the Blue Museum, Agnes (gallery educator) cut one stop because students were interested and engaged with the first artwork. This enabled them to sit and talk about a single artwork for an extended time. Also, Lilly at the Yellow Museum cut out one stop because another educator's group had already taken up the space in front of the artwork. Affirming the importance of flexibility, Agnes, who has 13 years of teaching experience, emphasized that museum educators need to be able to make quick changes because every tour and workshop is different (program length, students' needs, and interest, etc.). This finding resonates with Burnham's (1994) argument that the

educators should put students' responses and experiences first so that students can "question, search, challenge, be moved by, and ultimately bring the work into the context of their own lives" (p. 524).

Similarly, the gallery educators were flexible, cutting out or adding gallery activities depending on students' responses. For example, after already having her students do a quick observational drawing in front of the second artwork, Lilly (gallery educator, Red Museum) added one more drawing activity to her last stop. She said she included this at the end of the tour because students seemed to enjoy the previous drawing activity. Similarly, Agnes (gallery educator, Blue Museum) said she chose to show sample materials rather than the artist's carving tools because sample art materials made more sense with the flow of the dialogue.

The studio educators were also flexible to cut out or modify the final reflection depending on students' responses and also for logistical reasons. Cindy (fine arts educator, Yellow Museum) and Judy (studio educator, Red Museum) asked for two or three volunteers for reflection, while Niki (studio educator, Blue Museum) had her students walk around the finished artworks, and Jessica (studio educator, Blue Museum) cut out the reflection due to a time constraint. On the other hand, Vincent (fine arts educator, Yellow Museum) extended the reflection time in the studio because all of his students wanted to share their finished artworks, and he had plenty of time left than his initial plan of having a gallery parade and a few student-share.

5. Social Interaction

Finally, the last theme I identified was the idea that it was the social interaction that made museum learning a rich experience. Vygotsky emphasized the role of

reciprocal exchange of language in learning. Specifically, Vygotsky argued that knowledge is constructed when the child is actively interacting with the social environment and conversing, questioning, explaining, and negotiating meaning with an adult or advanced peer (Fosnot & Perry, 2005; Vygotsky, 1978). Building on Vygotsky's theory, Yenawine and Housen (1998) developed VTS to encourage students to become active inquirers that look carefully, develop opinions, express them, consider multiple viewpoints, speculate together, and argue and build on each other's ideas interacting with the educator and their peers. Beyond VTS, there are other approaches to gallery teaching through dialogue, including dialogic teaching without questions (Burnham & Kai-Kee, 2011) and open-interpretive dialogue (Hubard, 2010). While considering the three cases, I identified three categories of social interaction: student-teacher interactions, students' peer social interaction, and educators' peer interaction.

Student-teacher interaction. As mentioned in the Student-Centered Learning section, learning does not happen through teacher-directed transmission of knowledge in a constructivist classroom. Rather the focus shifts from the teachers to students. Interestingly, while students actively contributed their thoughts and ideas about the chosen artworks, educators learned from the students as well. They discovered new details and interpretations of the artworks, as well as insights into other portions of the program. For example, Lee (gallery educator, Blue Museum) had been showing a photo of the artist carving a stone sculpture during her sessions for five years. Her student pointed out a small stone piece flying up high in the air and noted that that piece was in the air because the artist hit the stone so hard, which Lee hadn't noticed before. This instance showed that the educators might learn new information from the students'

observations. This finding echoes Yenawine's (2013) argument that the educators are never experts, but they are facilitators of the students' process, and validate students' different interpretations and opinions through facilitated dialogue. Freire (1970/2017), who first used and criticized the "banking" concept of education—where teachers are knowledgeable experts who deposit information for the passive students to receive, memorize, and repeat—proposed a new relationship where educators and students simultaneously occupy both roles. Also, Burnham and Kai-Kee (2011) emphasized that gallery dialogue should be shaped by information from various sources gathered by both teachers and students.

Students' peer social interaction. While the children interacted with the museum educators during art viewing in the gallery and art-making in the studio, I witnessed many cases students were interacting with each other. As Vygotsky (1978) stressed the benefits of working with peers in addition to adults, in six out of the nine observed gallery sessions, I witnessed that the students were continuously learning from each other while they collectively built their own interpretation of the artworks through sharing their observations and ideas. For example, at the Red Museum, Hannah's camp group observed the details of a painting, with each of the student adding strange things they noticed in the work. As they were creating the list together, one of the students brought up a term the class created, "realaginary," which is a compound word (real-imaginary). The student pointed to the floating figures and connected the term, which refers to make believe, creative imagination, and real but magical things. After a back and forth conversation, another child brought up "realaginary." The student used it to show that he or she agreed that though the painting featured a recognizable landmark—

the Eiffel Tower—there were also imaginative figures in the background. Similarly, at the Blue Museum, when Roy's students were observing the tall abstract sculpture that was broken into three pieces and had black parts cut and polished by the artist, students collaboratively came up with an imaginative interpretation that the sculpture is a broken tower with a slide and the character lives inside the tower. This finding parallels the idea that students reflectively connect new learning to existing cognitive structures through collaborative and cooperative processes between students and with teachers (Dewey, 1980; Piaget, 1969; Vygotsky, 1978; Walker & Shore, 2015). Gallery educators generally supported students working together to add observations and interpretations into the discussion. However, not all group dialogues involved the same sort of collaborative meaning-making. That is, if the educator asked leading questions or less open-ended questions, students' answers didn't vary, and they didn't seem interested in adding more to the ideas of their peers.

Similarly, students learned from each other through the various interactions in the studio. To be specific, in seven out of the nine sessions that I observed, I witnessed students learning different ways to manipulate and arrange the same art materials as they were making and reflecting upon their artworks with their peers. For instance, Amy (studio educator, Red Museum) asked her 7th graders to choose five paper cut-out shapes and arrange them to show balance, movement, and place as a warm-up activity. After each challenge, Amy encouraged students to discuss their solutions with their neighbors. When students were discussing their arrangements showing balance, they compared and discussed how their classmates used light and dark colors to show weight, or equal shapes on each side to show symmetry, or to form a sort of seesaw. The activity with the

peer discussion made students excited to find different solutions and readied them to think about what to put in their final artworks (Their motivating question was: How can an artist show a place using shape, color, and texture?) Consequently, they came up with varying collages featuring outer space, a house by a river, a mountain with big trees, a playground, a sea, and a boat, a bedroom, and a meadow. Similarly, Jenny and Eva's (media art educators, Yellow Museum) 4th graders collaborated in creating stop motion animation, which needed a narrative and characters. Students took turns in taking photos, animating characters, and checking the time, while learning to negotiate and collaborate. This collaborative learning was especially present in the animation workshop because of the design and facilitation of the program as well as the limited material (computer) per student, but even though most of the time the children worked on their own, a few studio educators invited their students to briefly share with peers near them.

Educators' peer social interaction. The students were not only learning from each other; the educators were also learning through their interactions with other educators. Educators were learning through their interactions during and after Professional Development Programs (PD), during collaborative planning at the start of each exhibition, and through working together in the program. To begin with, the three museums—Red, Blue, and Yellow—all provided PD that informed educators of various teaching approaches. While the educators gained information from the experts through their PD, they also learned from peer educators as they shared and reflected upon their teaching experiences. Andy (gallery educator, Red Museum) said peer reflection after each PD or program is helpful in informing his teaching. Moreover, Sophie, the administrator mentioned that the Yellow Museum's educators actively exchange ideas

during their museum's PD, and with educators at other nearby children's museums as part of their PD.

In addition to PD, educators learned from each other through the various collaborations occurring between all of the museums. During their individual interviews, the Yellow Museum's educators agreed that at the beginning of a new exhibition, they work together to come up with several art projects. In the case of the Blue Museum, the educators said that they work cooperatively on each program, from the planning process to clean up at the end of the day. The educators also include administrative staff members, exchanging emails with them, and copying them on their correspondence with other educators. The gallery educator(s) share their artwork choices and tour sequences, gallery activities and objectives. Then the studio educator discusses workshop procedure, the warm-up activity, art materials, and objectives, which correspond to the program theme and gallery tour plans. In this process, educators and administrative staff might offer advice and feedback and revise the plans together. Also, the educators prepare the studio set-up together before students' arrival, occasionally advising each other and cleaning up together, often reflecting on their successes and challenges. This cooperation seemed to give educators shared responsibility for the whole program, regardless of which portions they led. Thinking about the whole program together also seemed to create a connection between the two portions. In her interview, Lee (gallery educator) added that reflecting afterward with the peer educator is helpful on both emotional and practical levels. That is, getting to share the successes of a good group, or commiserating after a difficult one, learning new approaches and modifications for activities and discussion, while also receiving other educators' feedback, helps to maintain camaraderie

and boosts morale overall in her view. In fact, this finding parallels Pugach and Johnson's (1995) research, which found that teachers "gain confidence and skills in considering and implementing alternatives" when they collaborate and bring diverse expertise concerning class problems (p. 101).

Summary

Part 1 of my discussion concentrated on five ways the administrators and museum educators supported and facilitated their tour and workshop programs that adopted constructivist approaches (or did not). First of all, as constructivist teaching rejects the teacher's transmission of information and instead focuses on student-centered learning (von Glasersfeld, 2005), educators honored students' responses, facilitated material exploration, and conversed individually and in small groups to foster students' ownership of their learning. In particular, during the gallery tours, although all the gallery educators facilitated dialogue instead of dictating information, students became more involved in interpreting the artworks when the educators were responsive to their comments and ideas, while they were less involved when the educators' questions were leading to pre-identified ideas or less open-ended. In the studio, facilitation of a warm-up activity helped students familiarize, explore, and experiment with the art materials to make unique contributions to their projects. However, the educator's step-by-step demonstration influenced the class to generate artworks that were similar to the educators' models and peers' artworks. In contrast, educators' individual or small group discussions focusing on students' choices helped them to make thoughtful choices during art-making (Lord, 1958/1996).

Secondly, acknowledging the relevance of an inviting environment (Hein, 1998), including the set-up of the physical space (gallery and studio) and the number of students per educator, helped to create an inviting learning environment for students. Indeed, having a smaller number of students in both the gallery and studio made it easier for educators and students to communicate, and allowed participants plenty of space to work with. In accordance, Randi Korn & Associates' (2018) national study of the effects of facilitated single-visit art museum programs on students in grades four to six revealed that the student-to-facilitator ratio was 20:1 or less and is considered necessary criteria for facilitating inquiry-based teaching.

Third, knowing the students' information in advance helped the educators to connect museum learning to students' previous learning and experience, including school curriculum, interests, and needs (Fosnot & Perry, 2005; von Glasersfeld, 2005). On the contrary, having limited information challenged educators to accommodate the students and students to participate better. However, the museum educators did try to form connections with their classes. As a way to learn about the students, educators briefly established relationships with the students at the beginning of sessions. Establishing these connections at the start helped gallery educators break the ice and enabled studio educators to learn more about the students' gallery experiences (if different), which could be built into the studio learning. In both the gallery and the studio, educators' responsiveness to circumstance (whether to cut or add gallery stops and activities or hold studio reflection time) was necessary for accommodating students' responses, interests, and the logistics of the museum setting.

Finally, different kinds of social interaction (student-teacher, students' peer, and educators' peer social interactions) made the museum learning much more rich. Not only did the students learn through their peer interactions, but the educators also gained new insights through their discussions with other teachers, while also learning from their students through reciprocal exchange of language (Vygotsky, 1978).

Part 2. Connections Across Gallery and Studio

I identified two ways the museum education departments supported and educators facilitated students' learning to promote (or do not) connections across the gallery and studio and how students' learning reflected (or did not reflect) the connections across the gallery and studio: 1) by appointing same educator or different educators, and 2) by offering different tour and workshop sequence.

1. Same Educator or Different Educators

Due to the design of the programs, the five out of the nine observed tour and workshop sessions had different educators leading each portion of the program. The remaining four sessions had the same educator leading both portions of the program. Whether the program was led by the same or different educator(s), I witnessed that the review of the gallery tours was important to studio educators in connecting students' gallery and studio learning, as well as reminding students what stood out for them. Also, I witnessed that the use of theme and well-crafted motivating questions served as a thread in connecting both portions of the program.

Review of gallery tours. The quick review of the gallery tour was helpful in ensuring connection between the two portions of the program, while informing the studio

educators what happened in the gallery, and reminding students what stood out during the tours. This also helped to quickly establish a relationship between educator and students (more on this in the previous section: Establishing a Relationship with Students). In the cases when different educators led each portion of the tour and workshop program, the art teachers were not exactly sure what their students saw, talked about, or created in the other portion of the program. This is because in a constructivist classroom, where students actively shape their own learning by observing, posing questions, examining, investigating, and proposing answers while interacting with their peers and with the teacher, every learning is different (Burnham & Kai-Kee, 2011; Fosnot, 2005; Mui, 2010; Walker & Shore, 2015). As a way to find out about what students learned in the galleries, five out of the nine studio educators that didn’t lead the gallery portions reviewed the gallery tours with the students upon their arrival to the studio. Even though the reflection was very quick—Niki (studio educator, Blue Museum) confirmed that students saw sculptures and Judy and Amy (studio educators, Red Museum) established that students saw and discussed many shapes and colors—the reflection served as a nice confirmation and transition to introduce the warm-up activity, art materials, and workshop.

Interestingly, three of the four educators who led both portions of the program did not reflect with students about the gallery tours or what caught their attention at the beginning of the studio workshop. All three educators started the studio workshop by introducing art materials, brainstorming what artworks to make, and demonstrating some skills. They seemed to strictly follow their initial workshop plans, which asked students to make artworks in the studio that related the last artworks students saw in the gallery. For example, students made a “safe place” after looking at the three-panel painting

depicting an unstable setting with torn out structures, and another group of students decorated pre-cut cloud shapes after looking at a photo collage of various skies. As mentioned previously, reviewing and considering students' previous learning and experience is key in a constructivist classroom (Bawa & Zubairu, 2015). Thus, not accounting or reviewing other artworks students engaged with—including the works not included in the original tour plans that caught the children's attention—seemed to be a missed opportunity to offer greater connection between the gallery and studio experiences.

Theme and motivating questions. Similar to the review of the gallery tours, I witnessed the use of theme and well-crafted motivating questions serving as a bridge in connecting students' gallery and studio learning (especially when the educators were different), as well as the incorporation of students' personal experiences. The two museums provided thematic tour and workshop programs and incorporated motivating questions in the studio portions, and also had strong support from their administrative staff members. While the other museum didn't offer thematic programs, their special exhibition served as an overarching theme, and educators could incorporate a motivating question of their own choice.

At the Blue Museum, Agnes' (gallery educator) and Niki's (studio educator) theme was Materials and Process. In the gallery, Agnes' students saw two abstract sculptures and talked about shapes, texture, and colors, comparing different types of stone (material) and marks (process/tools). When students came to the studio, Niki facilitated a mixed media sculpture-making workshop with the motivating question: How might you arrange materials to create a cool sculpture? In response, students explored the

quality and arrangements of art materials (wood, stone, etc.) while making sculptures. At the Red Museum, Lilly's (gallery educator) and Amy's (studio educator) theme was Places and Spaces. In Lilly's gallery tour, students saw and talked about the museum building, two landscape paintings, and one abstract painting focusing on shapes, the artist's interests in pastoral space and the natural world, and abstraction. When students transitioned to the studio, Amy facilitated a collage workshop with the motivating question: How can an artist show a place using shape, color, and texture? In response, students used various types of shapes, colors, and textures to create collages that showed places including a bedroom, seashore, hills, and outer space. As indicated above, the themes helped bridge and connect the gallery and studio portions by providing a focused topic to be discussed in each portion, but at the same time, themes posed limitations by restricting other topics that might be suggested by the students. In fact, Hubard (2010) questioned thematic museum programs because themes might limit possible interpretations and the multiple avenues for inquiry that artworks invite.

Moreover, the well-crafted motivating question connected not only the tour and workshop, but also students' personal experiences. For instance, Roy (gallery educator, Blue Museum) and Janine's (studio educator, Blue Museum) theme was Sense of Self and Art. Roy's students saw three abstract sculptures focusing on the artist's biography and the travels where he found his materials and inspiration. Roy also included a gallery activity that provided students with individual time to connect the art with their own lives by coming up with a word to describe themselves, finding an artwork that matches the word and drawing it. When students transitioned to the studio, Janine reviewed the gallery tour, facilitated a warm-up activity, and began a paper-sculpture making

workshop with the motivating question: How might you create a paper sculpture that tells something about yourself? In response, students made sculptures that spoke to the motivating question and their personal experiences, including a building (he loves to build models), playground (she loves to play with friends), swimming pool (she loves to swim), and two houses (parents are separated).

Similarly, Hannah's (gallery and studio educator, Red Museum) students investigated a painting while discussing the artist's first move to a new city, historical context, and the artist's technique. When students transitioned to the studio, Hannah facilitated a painting workshop with the motivating question: How might you show a time you did something for the first time in the painting? Students came up with a range of diverse paintings that depicted the first time they tried a trapeze, petted a cat or a dog, attended a funeral, and held a baby. Hannah emphasized during her interview that she shapes a focused question that might thread the art, materials, and children's lives together. Indeed, children's answers to Hannah's motivating questions were extremely personal, as were their final artworks. Art educator and author Nancy Beal (2011) supported the use of motivating questions in art-making because they can provide students with strong emotional and personal connections to their work, involving them in the creation of the meaning. Ecker and Mostow (2015) built on the conversation by bringing it into the museum context. They wrote that the well-crafted motivating questions would inspire students' immediate and personal responses and relate to the significant experiences of their lives, as well as the artworks they saw in the gallery. Beal (2011) and Ecker and Mostow's (2015) support of motivating questions echoes Dewey's

idea that education should focus on the individual child's needs and interests (Dewey, 1978).

On the other hand, if the theme and motivating question were too broad, students had a hard time addressing it. For instance, at the Red Museum, Andy (gallery educator) and Judy's (studio educator) theme was Exploring Issues Through Materials. Andy guided students to investigate the museum building and two paintings focusing on artists' passion and stories. In the studio workshop, Judy asked the motivating question: how might you use color and shape to show what you feel? Some of the 8th graders seemed to have a little difficulty addressing it, and one of the students made a collage showing her passion (fashion design), arranging cut-outs of female models and women's sandals from a magazine. Accordingly, a motivating question that was too broad or difficult to address seemed to miss the opportunity to provide students the greater connection between the gallery and studio experiences, as well as personal connections.

Tour and Workshop Sequence

Based on my observations, which followed the gallery tour to studio workshop order, I witnessed that the students' gallery learning influenced the studio learning, reflecting a connection between the two portions. Specifically, students' gallery learning influenced the studio learning in two ways: 1) the way students were talking about art and 2) the way students were referencing visual elements.

Talking about art. I witnessed that the students learned the way to observe and talk about the artworks from the gallery session and adopted those methods in the studio when observing and discussing their own artworks and the creations of their peers. In addition, the groups used vocabulary that they learned or frequently used on the gallery

tours to discuss their own work in the studio. For example, students (kindergarten, 2nd, and 3rd grade students) at the Blue Museum often used words they had learned during the gallery tour to describe the sculptures they made in the studio, including shapes (circle, round, holes, and rectangle), textures (bumpy, rough, and smooth), and manipulative words (carve, dig, arrange, and scratch).

Students not only borrowed the words they used in the studio from their time in the galleries, but they also adopted the language they had used to observe and discuss the work of professional artists to observe and discuss their own art and the work of their peers. This is due to the fact that the way gallery educators encouraged students to investigate professional artists' artworks was similar to the way that studio educators encouraged students to reflect on their own work and peers' work in the studio, which in turn influenced the way students responded. That is, four out of the nine observed studio sessions ended with a lengthy reflection. Interestingly, even though two studio educators denied that they use a specific teaching approach, they both asked open-ended and probing questions to deepen the participants' observations and interpretations. They then paraphrased what the students said in order to clarify their interpretations, while also defining art terminology during the studio reflection. This teaching approach resembled the inquiry-based teaching approach described by Shulman-Herz (2010), in which educators facilitate dialogue through asking sets of open-ended questions and providing relevant information in between children's answers. In response, children generally closely and respectfully observed their own work, along with the artwork of their classmates, shared observations, and used words they learned or often used on the gallery tours to describe their own creations. On a similar but different note, Barrett (1997)

argued that if children learn to perceive, inquire, and discuss the art of their classmates, they will likely become responsible for thoughtful and respectful interpretation and make the transfer to talking about art made by adults.

Referencing visual elements. Due to the sequence of having the gallery tour first and studio workshop second, I witnessed many students making connections between the artworks of professional artists' and their own by comparing and finding resemblances. For example, Agnes's (gallery educator, Blue Museum) kindergarteners explored two abstract stone sculptures (one sculpture resembled the number 6 or the letter C, and another sculpture reminded them of a dinosaur or a car). In the following workshop led by Niki, students compared how their artworks looked similar or different from the sculptures in the gallery; they mentioned that their arrangements looked like the letter C, car, or dinosaur. Some of the students pointed out the holes in some of their materials (wooden objects and plastic cutouts) resembled the tool marks from the sculptures they saw in the gallery.

Moreover, a few students in each of the nine sessions directly referenced what they saw in the gallery, including shapes, colors, and artist's techniques in their own artworks. Given my emphasis on constructivism, which to varying degrees opposes forms of copying, imitation, working from models, or adults' exact directions (Beal, 2011; Lord, 1958/1996; Lowenfeld, 1947), I argue that when students incorporate visual elements into their own visions, it is different from merely emulating the artworks that they saw. Incorporating visual elements requires the students to make their own artistic decisions. Whereas, when teachers project their ideas onto children's artworks, they tend to follow the examples set out for them (Beal, 2011; Douglas & Jaquith, 2009; Jaquith &

Hathaway, 2012). To illustrate, even though none of the educators directed students to make or finish their artworks in specific ways, some of Agnes and Niki's kindergartners arranged their materials to look like the letter C in the alphabet or a dinosaur with two legs (in students' descriptions) and added many holes to their sculptures. In similar fashion, after investigating the surrealistic painting that had a human-faced cat in the center, two of Hannah's (gallery and studio educator, Red Museum) students painted a cat in the middle of their works, even though their initial answers to the motivating questions were not related to cats. Another student in her class borrowed the technique from the painting and made her background blurry and patchwork-like. Moreover, as Lilly (gallery educator, Red Museum) said, students are not only coming for the art but also for the unique museum building. The class absorbed what they noticed in the museum building and referenced it in their art-making (e.g., one student referenced the structure and noted that a classmate's collage of a bedroom looked very distorted, just like the museum building).

On the other hand, even though the educators didn't specify what students should make, the choices and facilitation of the studio workshops at the Yellow Museum influenced students to make more direct visual connections between the artworks they saw in the gallery and made in the studio, as well as to make artworks similar to those of their peers. As mentioned previously, the educators chose art projects that were related to the exhibition theme (weather), or the last artworks students saw in the gallery, and also facilitated a step-by-step demonstration at the beginning of the studio session. After looking at a painting that depicted a dark setting with structures that are torn apart, Cindy's students made a "safe place." The last artwork Vincent's group saw was a photo

collage of different skies, and during their studio time, his group decorated pre-cut cloud shapes. While Jenny and Eva's students made animation clips related to weather after investigating a work that featured a miniature tree and photos of the tree in various types of weather. This finding contradicted what a teacher in a constructivist classroom would do: assist children to engage with art materials, develop ideas and make artworks based on their experiences (Andrew, 2010; Beal, 2011).

This finding related to students' referencing of visual elements echoes Trimis and Savva's (2004) study of students that participated in a three-phased program (an art activity in the classroom, a museum visit, and art-making in the classroom afterward), which found that most students used techniques similar to those observed in the museum (joining sculptural parts and making artworks move) and a few students adopted the specific subject matter in their paintings. For this specific reason—that the gallery tour and the artworks classes see on it tend to become a direct inspiration to students' art-making in the studio—educators' opinions regarding the sequence of tour and workshop varied. Among the 11 educators in the two museums that experienced both sequences (tour and then workshop, or workshop and then tour), seven educators said they prefer to have the gallery tour first because the gallery experiences will inform students' choices and inspire them. Eckhoff's (2017) article support this, arguing that art-making after art-viewing would inspire children, provoke their exploration, and promote a new understanding of themselves as artists. In the same vein, Eckhoff, Takeshi Okada and Kentaro Ishibashi (2017) investigated the role inspiration plays in creativity from a cognitive perspective. In particular, their experiments involved "three-level between-subject (copy-control, and reproduction) and two-level within-subject (Pre/Post-test)

mixed factorial design.” In their study, 30 novice undergraduates copied unfamiliar (abstract) drawings and then drew original drawings using natural objects as motifs (p. 1809). Their research discovered that novices’ cognitive representation of the act of drawing changed—people formed new perspectives of object materials they were asked to draw through imitation of others’ artworks— and after encountering unfamiliar artwork through copying or prolonged observation, the undergraduates created novel and creative artworks. On the other hand, two educators said that they prefer to offer the workshop portion first, because as Niki (admin staff and studio educator, Blue Museum) said, students’ art and experiences should come first. Unfortunately, it was difficult for me to determine my thoughts regarding the sequence without observing the other workshop order, where the workshop was first, and the tour second.

Summary

Part 2 of my discussion focused on findings pertaining to a) how administrators in three museum education departments and programs in three museums promoted (or did not promote) connections across gallery and studio, and b) how students’ responses demonstrated (or did not demonstrate) connections between gallery and studio learning. Discussion around how the museum administrative staff and programs promoted (or did not promote) connections across the gallery and studio recognized how the review of the students’ previous learning, along with inclusion of theme and motivating questions, helped to promote the connection between the two portions. Further, I recognized that the students’ responses reflected the sequence of the sessions that they participated in. Indeed, their art-making after art-viewing inspired ideas, provoked exploration, and promoted a new understanding of themselves as artists (Eckhoff, 2017).

VI – IMPLICATIONS FOR EDUCATION

This research aimed to illuminate how three art museums conceptualized and implemented constructivist approaches in their gallery tour and studio workshop school programs, as well as the relationship between gallery and studio learning. In this chapter, I will discuss the implications for museum administrators and educators who are interested in providing integrated art viewing and art-making programs that adopt constructivist pedagogy for students. Further, I will make recommendations for museum administrators and educators who oversee or teach gallery tour and studio workshop programs, and schoolteachers who might participate in such programs. Finally, I will conclude with questions for further research and conclusion.

Integrated Gallery and Studio Learning

The well-integrated gallery tour and studio workshop programs, adopting constructivist pedagogies were supported by how the administrators designed the programs and supported stronger teaching in galleries and studio for educators and how the educators facilitated the programs for student participants.

Implications for Administrators

Based on my findings, I argue that administrators that already have, are developing, or are considering to develop well-connected tour and workshop programs with constructivist pedagogical approaches should consider 1) limiting the number of

students per each portion, 2) making sure the educators are informed of students' information, 3) providing opportunities for educators to work cooperatively, and 4) the tour and workshop sequence. I argue that students' gallery learning and studio learning would align with constructivism, be better connected, and more meaningful, with the support of the administrators and program design.

First, I suggest museum administrators to consider limiting the number of students per each portion of the program. Based on my findings, I found that having a smaller number of students in the gallery made it easier for the educators to memorize students' names and students to easily listen to and participate in the group discussion. On the other hand, both the teacher and students in the larger groups seemed to have a challenging time communicating—listening to each other, sharing comments, or building onto others' comments. In support of my findings, Randi Korn & Associates (2018) insisted that a student-to-facilitator ratio of 20:1 or less is considered the necessary factor for effective facilitation of inquiry-based teaching in the museum galleries. Similarly, communication was easier with the smaller groups in the studio because there was enough time and space to explore materials, walk around to access additional materials and resources (educator and peers) and work on artworks (Day & Hurwitz, 2012).

Second, my findings suggest that knowing the students' information in advance helped the educators to connect museum learning to students' previous learning and experience, including school curriculum, interests, and needs (Fosnot & Perry, 2005; von Glasersfeld, 2005). Also, acknowledging the students that the educator is aware of students' previous learning and experiences gave the impression that the educator was genuinely interested in them and what they can contribute to the museum learning. On

the contrary, having limited information challenged educators to accommodate the students, and was a factor in limited student participation. Hence, I recommend the administrators make sure the person who is in charge of school programs coordination to check in with the schoolteacher in advance regarding students' information (previous learning, experience, and any relevant information) and pass the information onto their educator(s). This will help the educators to make more connected and meaningful museum learning for students.

Third, this study taught me that not only were the students learning from their social interactions with the teacher and peers, but educators were also learning through their own peer interaction. Educators were learning through their interactions before, during, and after the programs were over, as well as during PD (They did this by developing gallery activity and studio workshop ideas, planning for each program, facilitating and reflecting upon the programs, and exchanging ideas with other museums nearby). Educators' peer interactions were both helpful tool on both emotional and practical levels. In support of this finding, Johnson and Pugach's (1995) research found that teachers "gain confidence and skills in considering and implementing alternatives" when they collaborate and bring diverse expertise on class problems (p. 101). Thus, I recommend administrators to consider offering ample opportunities for educators to share their ideas and encourage them to use each other as resources. Moreover, I learned that the communication between educators (especially if the two portions are led by a different person) is very important in making cohesive tour and gallery learning for students.

Finally, I learned that the sequence of having the tour first and then the workshop second impacted the way students talked about their artwork and how they referenced visual elements to their artworks in the studio. Students adopted the way to observe and describe the professional artists' artworks in the gallery to describe their own and peers' artworks in the studio. Also, they often used vocabulary that they learned or frequently used in the gallery to discuss the works that they created, as well as the artworks made by their peers. Similarly, students incorporated what they saw in the gallery, including shapes, colors, specific features or character, artist's techniques, and even museum architecture in their own artworks. Nevertheless, the interviewed educators' opinions varied regarding the sequence of the tour and workshop order, and without observing the other order (workshop and then tour), I cannot determine my opinion. Accordingly, I suggest administrators think carefully about the strengths and weaknesses created by the sequence of the tour and workshop.

Implications for Museum Educators

Based on the results of this dissertation, I claim that the students' gallery and studio learning could be more connected and meaningful based on how the educators approach their teaching in each portion of the program. To be specific, I suggest educators consider 1) embedding students' information from school in the planning, 2) being more thoughtful of the questions asked and more attuned to students' responses, 3) providing the opportunity for exploration of materials and facilitating individual or small group conversations in the studio, and 4) incorporating thoughtful motivating questions in the studio.

First, my findings suggest that embedding students' previous information from school helps accommodate aspect of diverse experiences students bring with them including their interests and needs that might influence their interpretation and engage students in the museum learning (Hein, 2012). However, if the students' information is limited, I recommend both gallery and studio educators have a moment at the beginning of each session to quickly establish a relationship with the students. For example, gallery educators might get to know the students by checking in with individual student or asking them about their experience with art or materials, which might also help to break the ice. Similarly, the studio educators might review the gallery tours (especially if the different educators lead each portion) to become more familiar with their group and to learn about the gallery tours, which might have strayed from the plans that the studio educators had been familiar with. Furthermore, I suggest that the reflection of gallery tours would help educators to offer a greater connection between the gallery and studio experiences even if the same educator lead both portions of the program.

Second, I suggest educators be thoughtful of the questions they ask and be responsive to students' responses. Although the dialogic teaching—educators facilitate dialogue to allows visitors to voice their views (observations, ideas, and interpretation) of the artworks—is widely accepted and practiced (Burnham & Kai-Kee, 2011; Terrassa, Hubard, Holtrop, & Higgins-Linder, 2016), I learned through this study that students became more involved in interpreting artworks when their educators were more responsive to their comments and ideas. To be specific, when educators honored students' ideas by paraphrasing their comments, connecting those observations with similar or contrasting ideas, and sharing information when relevant (RK&A, Inc., 2018;

Shulman-Herz, 2010), students seemed more comfortable sharing their ideas. Also, the dialogue evolved primarily through students' comments and questions, rather than the educators' transmission of information. However, students seemed to become less involved in the interpreting process when the educators asked leading questions or less open-ended questions. Thus, I advise educators to ask open-ended questions that are not leading toward pre-identified information and not to ask the same questions successively and repeatedly even though they may be open-ended. Also, I recommend educators to be open to students' responses and ideas that might not necessarily relate to the information educators know or prepared and support students to construct their interpretations.

Third, I learned through this study that having a warm-up activity at the beginning of a session instead of step-by-step demonstrations helped students to familiarize themselves with the art materials and to come up with varying artworks at the end. As described in the findings, the warm-up activities—the brainstorming and exploration of single or limited materials—seemed to encourage students' curiosity, autonomy, and realization of the materials (Hafeli, 2014), and readied students to think about different ways to manipulate and arrange materials for the main activity. On the contrary, the studio educator's step-by-step demonstration and suggestion seemed to limit various possibilities students could do with their materials and made students to generate artworks that were similar to the educators' models and peers' artworks. Further, one-on-one or small group conversations focusing on students' choices and processes during students' art-making helped students to make thoughtful selections. Accordingly, I recommend educators to embed warm-up activity (exploration of single or few materials) at the beginning of the studio workshop, engage in individual or small group

conversations focusing on participants' choices and processes during art-making, and be cautious of giving demonstrations to students that might involve step-by-step instructions.

Lastly, the use of well-crafted motivating question assisted students in making a better connection between the gallery and studio learning, and helped them recognize links with their personal experiences (Ecker & Mostow, 2015). Also, the thoughtful motivating question helped students to make personal and varying artworks from others in the end. In contrast, the motivating question that was too broad or less related to the artworks students saw challenged students to find an entry point for their art-making, as well as make a connection between gallery and studio learning and personal experiences. Thus, I suggest educators embed a thoughtful motivating question that could inspire students' immediate and personal responses and offer multiple entry points for students to respond with the art materials.

Summary

Given my particular findings, I propose that art museum education administrative staff members, museum educators, and educators that either have or are developing well-connected gallery tour and studio workshop programs that adopt constructivist approaches for children follow these recommendations.

Recommendations for Museum Administrators Who Oversee Programs that Include Tour and Workshop School Programs

- Keep in mind the importance of maintaining a low number of students per educator in order to ensure a conducive learning environment for students.

- Consider the strengths and weaknesses of having the same or different educator(s) lead the same school groups.
- Consider the strengths and weaknesses of the tour and workshop sequence (whether students experience the tour or the workshop first).
- Themes should provide a focused topic for students to discuss in each portion, but at the same time, the themes should not limit other emerging topics to be discussed.
- Communicate well with the schoolteacher and museum educators to support educators provide programs that consider students' previous learning and experiences.
- Support educators' communication with each other so that they can become each other's resources.

Recommendations for Art Museum Educators Who Teach Tour and Workshop School Programs

- Consider embedding information about the students provided by the schoolteacher into the museum learning.
- Work collaboratively with the other educator(s) that lead the other portion of the program in order to better accommodate students.
- Quickly learn about the students in order to establish a relationship with them.
- Be considerate of the questions asked to the students and be responsive to students' responses.
- Remember that students are absorbing everything they see in the museum that could be integrated into their learning.

- Consider incorporating a motivating question that is well-fitted to the artworks, material, and students' personal experiences.
- Allow flexibility to accommodate the students' needs, interests, and experiences.
- Consider reviewing and reflecting upon students' learning before transitioning to the other portion of the program, as well as at the end, as it might strengthen students' experiences throughout.

Recommendations for Schoolteachers Who Participate in Programs that Include the Studio Workshop

- Keep in mind that museum educators consider students' previous learning and experiences to be integrated into the museum learning.
- Communicate with your students prior to the museum visit and inform the museum educator about your class and the students so that the educators can offer students a meaningful experience with art in the museum.
- Consider providing students the opportunity to explore a few artworks or art materials in advance of the field trip.
- Consider offering the students an opportunity to reflect upon their museum learning when they are back at school.

Questions for Further Study

In coming to the conclusion of this dissertation, I realize that new questions have emerged that can further the exploration and inquiry that began here. For example:

- How might more cases capturing these types of programs echo, deepen, expand, or complicate what I have already found?
- How might the investigation of the program in reverse sequence (having the studio workshop first and gallery tour second) influence students' learning?
- How might the consideration and investigation of students' previous learning from school influence our understanding of what students learn at the museum?

Since the dissertation focused on school children that participated in the program through field trips, I question:

- How might the general public's learning be similar or different from children's learning in such tour and workshop programs?
- How might a voluntary museum program differ from one where the schoolteachers register the students?

Since the dissertation focused on a specific framework: constructivism, I question:

- How might the consideration of other frameworks such as Enactive Learning[1] and Situated Learning[2] impact the results of the study and recommendations to myself and museum professionals?

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[1] Enactive Learning approach posits that learning happens through the learner's action and its relation to the environment (Thompson, 2010).
[2] Situated Learning emphasizes the idea that learning is situated within specific activity, context, and culture (Lave & Wenger, 1991/2003).

Conclusion

My research investigated the following questions: How do three art museums conceptualize and implement constructivist approaches in their gallery tours and related studio workshops? Further, what is the relationship between these two learning experiences? In detail, I examined how the administrators from each museum designed their programs and supported their educators, how educators facilitated their teaching in gallery and studio, and how students responded to the gallery and studio learning in relation to the constructivist pedagogy.

The results of this research provide insights to museum administrators, museum educators, and art educators that teach either or both art viewing and art-making programs to children. The results of this study inform the design, structure, and pedagogical approaches of gallery tour and studio workshop art museum education programs, which might offer food for thought to interested administrators to consider in approaching tour and workshop school programs. Also, the result of this research informs the practice of museum and art educators that are interested in adopting constructivist pedagogy in their teaching. Moreover, this research shed light on a critical examination of the relationship between the responding to artworks and making art, which museum professionals and art teachers beyond the museum settings might be interested.

Final Reflection

One of my primary goals of conducting this research was to examine how art museums conceptualized and implemented constructivist approaches (or did not) in the museum tour and workshop school programs. As I came to the conclusion of the study, I

couldn't help but wonder whether the lecture-based and close-ended approaches in teaching are always negative or less meaningful to students. That is, as mentioned in the background section, I got interested in the idea of constructivism when I came to study art education in the U.S., specifically at Teachers College. I do not want to deny what and how I gained knowledge from Korea, including the representational skills in arts—mostly gained from thousands of observational drawings and practices. How might my responses have been if it was the other way around? That is, I began to question, What if it was the other way around? What if I learned under educators that facilitated their teaching based on the idea of constructivism and then I was introduced to the idea of lecture-based teaching and learning? Would I have had the same response and interest in the constructivist pedagogy? I came to realize that my constructivist framework, mediated through my own subjectivity, shaped the results of my study. It became palpably clear that if I had investigated with a differing conceptual framework, the results of the study might have been different.

Furthermore, I began to question whether the results of my research is applicable or worthy of implementing in Korea. In order to move forward and to consider the applicability of my study results, I need to consider the context of the education system and support system in Korea that relate to art museum education and instructional methods in the arts. I also need to consider the perspectives of the museum program professionals and participants (schools, parents or caregivers, and students).

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Appendix A

Informed Consent and Participant's Rights

INTRODUCTION

You are being invited to participate in this research study called "Constructivist Approaches in Museum's 'Tour & Workshop' School Programs". You qualify to take part in this research study because **you are over 18 years old, work at an art museum, and have an administrative role in "Tour & Workshop" programs.** Approximately three museum education administrators will participate in this study and it will take 45 minutes of your time to complete.

WHY IS THIS STUDY BEING DONE?

This study is being done to determine (1) how constructivist approaches are conceptualized and implemented in art museum's "Tour & Workshop" school programs, and (2) the relationship between gallery and studio learning for student participants in these programs. The ultimate aim is to arrive at findings that will help museums provide richer opportunities for participating children.

WHAT WILL I BE ASKED TO DO IF I AGREE TO TAKE PART IN THIS STUDY?

If you decide to participate, you will be interviewed by the principal investigator, Juyoung Yoo. During the interview you will be asked to discuss the goals, objectives, and vision for the museum's "Tour & Workshop" school programs. You will also be asked to share how the museum designs these programs, as well as how it supports and guides the educators leading the programs.

Your interview will be audio-recorded with your permission. If you do not wish to be audio-recorded, I will be taking notes only. The interview will take approximately forty-five minutes. You will be given a pseudonym in order to keep your identity confidential. Also, the museum will be given a pseudonym to ensure confidentiality of your identity.

WHAT POSSIBLE RISKS OR DISCOMFORTS CAN I EXPECT FROM TAKING PART IN THIS STUDY?

This is a minimal risk study, which means the harms or discomforts that you may experience are the same amount of risk you will encounter when a colleague is asking you about your thoughts and beliefs related to the goals and visions of programs you are in charge of. You may or may not feel discomfort sharing your thoughts and beliefs related to your program's goals and objectives. However, the principal investigator is taking precautions to keep your information confidential and prevent anyone from discovering or guessing your identity, such as using a pseudonym instead of your name and keeping all information on a password protected computer and locked in a file drawer.

WHAT POSSIBLE BENEFITS CAN I EXPECT FROM TAKING PART IN THIS STUDY?

There is no direct benefit to you for participating in this study. Your participation may benefit the field of museum education to better understand the best way to provide richer opportunities for participating students in "Tour & Workshop" programs.

WILL I BE PAID FOR BEING IN THIS STUDY?

You will not be paid for taking part in this study.

WHEN IS THE STUDY OVER? CAN I LEAVE THE STUDY BEFORE IT ENDS?

The study is over when you have completed the interview. However, you can leave the study at any time even if you haven't finished.

PROTECTION OF YOUR CONFIDENTIALITY

The investigator will keep all written materials locked in a desk drawer in home. Any electronic or digital information (including audio recordings) will be stored in an external hard drive, which will be kept in a locked cabinet in the investigator's home. What is on the audio-recording will be written down and the audio-recording will then be destroyed. There will be no record matching your real name with your pseudonym. Regulations require that research data be kept for at least three years.

HOW WILL THE RESULTS BE USED?

This study is being conducted as part of the dissertation of the principal investigator. The results of this study will be published in journals and presented at academic conferences. Your name or any identifying information about you will not be published.

CONSENT FOR AUDIO RECORDING

Audio recording is part of this research study. You can choose whether to give permission to be recorded. If you decide that you don't wish to be recorded, you will still be able to participate in this study.

______I give my consent to be recorded ____
Signature

______I **do not** consent to be recorded ____
Signature

WHO MAY VIEW MY PARTICIPATION IN THIS STUDY

___I consent to allow written and audio taped materials viewed at an educational setting or at a conference outside of Teachers College ___________________________
Signature

___I **do not** consent to allow written and audio taped materials viewed outside of Teachers College Columbia University ____
Signature

WHO CAN ANSWER MY QUESTIONS ABOUT THIS STUDY?

If you have any questions about taking part in this research study, you should contact the principal investigator, Juyoung Yoo, at 646-388-2275 or at juyoungyoo.art@gmail.com .

If you have questions or concerns about your rights as a research subject, you should contact the Institutional Review Board (IRB) (the human research ethics committee) at 212-678-4105 or email IRB@tc.edu. Or you can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY 1002. The IRB is the committee that oversees human research protection for Teachers College, Columbia University.

PARTICIPANT'S RIGHTS

- I have read and discussed the informed consent with the researcher. I have had ample opportunity to ask questions about the purposes, procedures, risks and benefits regarding this research study.
- I understand that my participation is voluntary. I may refuse to participate or withdraw participation at any time without penalty.
- The researcher may withdraw me from the research at his or her professional discretion.
- If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue my participation, the investigator will provide this information to me.
- Any information derived from the research study that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
- I should receive a copy of the Informed Consent document.

My signature means that I agree to participate in this study

Print name: ____ **Date**: ________________________

Signature: ____

Appendix B

Observation Protocol

<table>
<tr><td colspan="2">Site: Museum (#   )
Program: Tour and Workshop</td><td colspan="3">Date/time:</td><td>Theme:</td></tr>
<tr><td colspan="2">Number of Participants</td><td colspan="2"></td><td>Participants' age</td><td></td></tr>
<tr><td colspan="2" rowspan="2">Educators Preparation
(Visual aids, activities, materials)</td><td colspan="2">Gallery</td><td colspan="2"></td></tr>
<tr><td colspan="2">Studio</td><td colspan="2"></td></tr>
<tr><td colspan="6">Introduction</td></tr>
<tr><td colspan="2">Questions?

Visual aids?

Nonverbal interaction</td><td colspan="4"></td></tr>
<tr><td colspan="2">Chosen Participants
Description (and why):</td><td colspan="4"></td></tr>
<tr><td colspan="6">Gallery: art viewing and learning</td></tr>
<tr><td colspan="3">Educator</td><td colspan="3">Participants</td></tr>
<tr><td>Dialogue?

Any activities?

Any information?
When? How?</td><td colspan="2"></td><td colspan="2">Any questions or comments?
How do they participate in activities?
Response to information</td><td></td></tr>
<tr><td>Nonverbal interaction</td><td colspan="5"></td></tr>
<tr><td colspan="6">Studio: Art making experience</td></tr>
<tr><td colspan="3">Educator</td><td colspan="3">Participants</td></tr>
<tr><td>Dialogue?
Any activities?

Any demonstration?
When? How?</td><td colspan="2"></td><td colspan="2">Any questions or comments?
How do they participate?

Response to demonstration</td><td></td></tr>
<tr><td>Non-verbal interaction</td><td colspan="5"></td></tr>
</table>

Appendix C

Observation Checklist

Gallery

Educator	**Students**
Encourages observation	Observe artworks closely
Educators may suggest looking at a single artwork for extended time	The learner's active participation in looking at a single artwork
Creates a comfortable environment where students ideas are welcomed	Feel comfortable sharing their ideas
Provides an environment that welcomes students to ask questions	Actively ask questions
Asks open-ended questions	Respond to educators' open-ended questions
Encourages interactive dialogue	Actively participates in the dialogue
Encourages dialogue that has room for associations	Connect what they see, do, and feel about the artworks with what they already know and understand
The dialogue encourages speculation	There is evidential reasoning going on
Encourages students to consider potential meaning of artworks	There is room for students to form an interpretation and conclusion of an artwork
Provide information at key time	Students learn from information
Provide activities related to artworks	The learner's active participation in the activities

Studio

Educator	**Student**
Encourages observation	Observe artworks closely
Creates a comfortable environment where students ideas are welcomed	Feel comfortable sharing their ideas
Provides an environment that welcomes students to ask questions	Actively ask questions
Asks open-ended questions	Respond to educators' open-ended questions
Provides a safe environment for material experimentation	The learners experiment with materials
Materials are organized and accessible for students' choices	Choose their own materials within the studio
Provides activities related to artworks	The learner's active participation in the activities
Lessons do not emphasize mimicry or technical skill training only	Inspired by the others instead of copying others' works
Encourages students to reflect on their and their peers' artworks	The students will become responsible for respectful interpretation of their own and the peer's artworks
Encourages students to take risks	Not afraid of taking risks or making mistakes
Encourages students' idea exploration	The learners bring their own ideas

Avoids giving prescriptive directions but gives information and guidance at key points and when necessary	
Demonstrates or models only when necessary	
Enables students to connect their creation processes with the professional artists'	Understand the professional artists' creation processes through their own art making

Appendix D

Interview Protocol

FOR ADMINISTRATIVE STAFF:

General
If I were to observe your "Tour & Workshop" school program, what would you say typically happens?

Describe each component
Can you describe what typically happens in the gallery?
Can you describe what typically happens in the studio?
Is it fairly consistent, what happens in each component?
Are there distinct goals for each component?

Connection
Is there an overarching goal for Tour and Workshop programs?
Would you say that there is a connection between gallery and studio learning experiences for students?
If so, could you describe how they are connected? If not, what makes you say that they are not connected?
Do you think the sequence (tour>workshop or workshop>tour) makes different experiences for students?

Planning
How do you design learning activities for "Tour & Workshop" for your program?
Who's involved in the designing process?
If others are involved, how do you work together?
Could you describe how the design of the program influences how educators teach?
Would you say your T&W programs adopt a constructivist approach (inquiry-based, dialogue-based, VTS, experiential in nature, or other)?
If yes, can you describe in detail how that approach is used in each component of your program?
How do you support and guide the educators that lead the programs so they use that approach?
You mentioned that your goals were x, y, and z; how do you support and guide the educators that lead the programs so they may accomplish the goals?

Background
How long have you been working at this museum?

How long have you been overseeing Tour & Workshop?
What shaped your ideas regarding goals and approaches for T&W programs?

- Did you get any formal training from the museum? If yes, how were you trained?
- Did you get any formal training or education outside the museum? If yes, what are they?
- If there is any informal self-training, can you tell me what they are?

FOR EDUCATORS:

General
Can you briefly describe today's tour/workshop?

- What was successful? What would you do differently and why?

What were your goals for today's studio/gallery?

- Would you say that the goals were met today? How?
- If not, why do you say that the goals were not met?

Describe each component
Tour educator

- How many artworks did your students see? What were they?
- Why did you choose to see artworks x, y, and z?
- Can you describe how you engaged your students to see x, y, and z?
- Would you say you used specific teaching approach (such as inquiry-based, dialogue-based, or VTS), if so, what was it?
- How did you come up with that approach?
- Were there any interesting conversation or comment you remember from the tour?
- Did you provide activities to your students? If so, what were they?
- How engaged were your students in general?

Workshop educator

- What did your students work on today?
- How did you introduce the workshop to your students?
- What were the materials? Why did you choose materials x, y, and z?
- Would you say you used specific teaching approach (such as inquiry-based, dialogue-based, or choice-based), if so, what was it?
- How did you come up with that approach?
- Were there any interesting conversation or comment you remember from the workshop?
- Were there any interesting moments you noticed during the students' art-making process?
- Did you provide activities to your students? If so, what were they?

- How engaged were the students in general?

Connection

Tour educator

How would you describe the workshop portion?

- Do you know what students worked on in the studio?
- How do you know students worked on x, y, and z?

Would you say your tour was well-connected to the studio? If so, how?

- Do you think the sequence (tour>workshop or workshop>tour) makes different experiences for students?
- What do you think the role of educator is in the gallery? Studio?
- What do you think the role of students is in the gallery? Studio?

Workshop educator

How would you describe the tour portion?

- Do you know what students saw in the gallery? What were they?
- How do you know students saw x, y, and z?

Would you say your tour was well-connected to the studio? If so, how?

- Do you think the sequence (tour>workshop or workshop>tour) makes different experiences for students?
- What do you think the role of educator is in the studio? Gallery?
- What do you think the role of students is in the gallery? Studio?

Planning

Can you describe your planning process?

How many people are involved in the planning process?

Do you plan and exchange ideas with the other educators or staff in advance? If so, how?

Do you reflect and exchange your teaching experience with other educators or staff after the program? If so, how?

Background

How long have you been working at this museum?

How long have you been teaching Tour & Workshop?

What shaped your teaching approaches?

- Did you get any formal training from the museum? If yes, how were you trained?
- Did you get any formal training or education outside the museum? If yes, what are they?
- If there is any self-training, can you tell me what they are?