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Not Just for Art Teachers Anymore: Interdisciplinary Teacher Professional Development at the San Antonio Museum of Art

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Thesis

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Dedication

For Jana, Willy, and Wendy:
for more years of patience, encouragement, and celebration than I can hope to repay;
for all of the stories you've given me to share;
and all of those yet to come.

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Abstract

Not Just for Art Teachers Anymore: Interdisciplinary Teacher Professional Development at the San Antonio Museum of Art

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This case study focused on the 2016 Summer Teacher Institute at the San Antonio Museum of Art in San Antonio, Texas. The workshop intended to present an interdisciplinary professional development program to participating teachers from various disciplines, grounding non-art concepts with works of art. This study evaluates the effectiveness of the program by examining the events of the workshop within a framework of experiential and social learning theory, reviewing anonymous teacher feedback, and through interviews with the museum educator leading the program and one participating teacher. The workshop's adherence to the theoretical framework, its fulfillment of the museum educator's objectives, and the teacher's consideration of how likely she would be to use skills and strategies learned in the workshop in her classroom were the elements determining the workshop's success. Through analysis of other interdisciplinary professional development programs and direct communication with the involved educators, this study offers information other institutions may consider when designing interdisciplinary arts-focused programming that will be of most practical use to participants.

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Chapter 1: Introduction

Interdisciplinary art education and museum-hosted summer teacher institutes are two separate, but popular topics of research. This study concentrates on those two topics combined. Using the Summer Teacher Institute at the San Antonio Museum of Art (also referred to as the Museum) from June 14-17, 2016, as a site of study, I explored how professional development opportunities within an art museum can inspire educators to integrate other subjects into their key area of focus, and particularly how they can give teachers clear ideas they may actually enact in their classrooms. To more fully understand how educators respond to and interact with the programming, I asked one of the teachers to share her thoughts and experiences with me. By conducting interviews at the beginning and end of the institute, I learned what this participating teacher had gained from museum institutes in the past, what she hoped to gain from this one, and how she imagined her summer experience would influence her classroom practice. I spoke with her again in the spring of 2017 to determine whether, and to what degree, content she learned from the institute was manifested in her classroom instruction.

I present this teacher's experience alongside my own, as a participant observer in the Institute; brief, anonymous feedback from other teachers at the institute; and the reflections of the Museum's Coordinator of School and Teacher Programs, the organizer of this year's institute. It is my hope that prioritizing the voices of the people served by these programs and the people designing them offers a nuanced presentation of this

particular Institute, and that by identifying what aspects of professional development workshops make the most impact on their participants, other institutions are able to speak to participating teachers in order to understand and address their needs.

PROBLEM STATEMENT

Art museums have progressively become more interested in serving as educational resources for their communities. For this reason, more attention is being paid to how they collaborate with schools. Beyond merely acting as a site for a field trip, many museums are establishing and nurturing relationships between schools and, significantly, their teachers. One way this is happening is through professional development opportunities held within museums, frequently referred to as "teaching" or "teacher institutes" (Alhadi, 2008).

Museums must be sure they not only offer these professional development opportunities, but also that they are genuinely helpful to the teachers who attend. Ongoing relationships between museum educators and school professionals are essential to identify each party's objectives and how to meet them, but the literature would imply that these relationships are not always as stable as they ought to be (Marcus, 2008; Wright-Maley, Grenier, & Marcus, 2013). With new curricular standards to uphold, teachers have increasingly less flexibility in the material they present to their classes and the manner in which it is presented. In an era of strict standards and tight budgets, an interdisciplinary approach may ensure that art remains in the classroom where it can coexist with other required subjects. To ensure that their programming is beneficial to all

participating teachers (no matter their subjects), art museums must adopt an openness to interdisciplinary learning within the institution. And to ensure that the connections made during the institute make it back to the classroom, museums must actively listen to teachers: not only before designing their programming, but in evaluation of the effectiveness after the institute's completion.

CENTRAL RESEARCH QUESTION

The following question motivated and directed this research:

- How does the 2016 Summer Teacher Institute held at the San Antonio Museum of Art structure its programming to encourage interdisciplinary arts education, and how does one participating teacher intend to apply what she learned to her classroom?

I also explored several related sub-questions:

- What did these teachers expect to gain from this institute?
- What are the objectives SAMA considered when designing the institute? How do they design their programming to meet these objectives?
- How does the museum's programming influence the participating teachers' practice or planned curriculum?
- At the end of the program, what ideas or objectives are teachers bringing back to their classrooms? What do they actually implement? What did participating

teachers learn from the museum that aided in their success? What, if anything, did those teachers fail to implement, and why do they think it was unsuccessful?

DEFINITION OF TERMS

- **Arts integration**: A teaching approach that imparts strategies and techniques used in the fine arts (e.g., collaboration, engagement, open-ended questioning) and teaches students how to apply these strategies in non-arts subject areas. Arts integration is more practice-based than content-based (Silverstein & Layne, 2010).
- **Common Core**: The Common Core State Standards, a series of college-readiness standards in English literacy and mathematics, were devised beginning in 2009. As of this writing, 42 states and the District of Columbia have adopted the standards, which were intended to provide a unified metric to "ensure that all students have the skills and knowledge necessary to succeed in college, career, and life upon graduation from high school" ("Frequently Asked Questions," 2017). Texas is not one of the states using the Common Core, relying instead on the Texas Essential Knowledge and Skills (TEKS) standards.
- **Interdisciplinary studies/interdisciplinary art education**: Teaching in which multiple subjects are addressed at once, especially regarding their interaction. For example, an interdisciplinary art education lesson on a Claude Monet painting would not be restricted to an analysis of the work itself, but may incorporate history (the social climate of mid-nineteenth century France and its influence on

the reception of the Impressionists), science (the advances in manufacturing and chemistry that led to resealable tubes of paint, allowing artists to paint outdoors), and other subjects.

- **Professional development**: Opportunities for an individual to learn or strengthen various skills that will help them in a professional setting. These may happen in a group setting (e.g., attending a workshop) or individually (e.g., completing an online course or reading a text addressing specific skills relevant to the individual's profession). For teachers, professional development can be defined as "any educational activity that attempts to help teachers improve instruction" (Melber & Cox-Petersen, 2005, p. 104).
- **STEM:** An acronym of Science, Technology, Engineering, and Mathematics. Increasing American students' comprehension and capabilities in these fields has been a priority for many educators and politicians alike since the early 2000s, citing lagging performance when compared with students of other nations (National Academies of Science, Engineering, and Medicine, 2007). The rationale for increasing focus on STEM is generally based in the need for American students to remain competitive in the global economy (Federal STEM Education Programs, 2007). In response to STEM, many arts educators are advocating for the transformation of the acronym to STEAM, attempting to preserve arts opportunities by outlining their harmony with STEM disciplines (Daugherty, 2013; Michaud, 2014; Robelen, 2011).

- **Teacher institute**: A professional development program for school teachers. For the purposes of this study, "teacher institute" is used to describe such programs that are coordinated and offered by an art museum to reinforce the museum's position as an educational resource for teachers.
- **Texas Essential Knowledge and Skills**: The set of state-mandated curriculum standards for K-12 students in Texas (abbreviated as TEKS). Since 2003, classes from "foundation" subjects (English language arts, mathematics, science, and social studies) and "enrichment" subjects (foreign languages, health and physical education, fine arts, economics, and "career and technology education [and] technology applications") must meet TEKS requirements (Scott, 2004).

MOTIVATIONS FOR RESEARCH

I would not say that I came to the arts late. In one way or another, I have always found ways to insert art into my life, or at the very least I have appreciated things around me. However, the arts were always a secondary interest—an extracurricular consideration worth cultivating primarily for their appearance on looming college applications—and there was always, in my mind, a divide between visual and performing arts. I fell on the performing side of that line during high school. I think it was the verbal aspect of theater that drew me closer to it. I would go on to study literature in college, confident that my calling was to earn a PhD in English and a professorship at a small liberal arts college not unlike where I spent my undergraduate years. I loved reading, loved analyzing literature,

loved the discussions we had in class, and I do not recall a moment during those years when I doubted that a degree in literature was what was best suited for me.

When the time came to write my honors thesis at New College of Florida, I pulled from my own personal interests and decided to write about graphic novels. It was a fun topic to research. I explored cultural histories, postmodernism, and film theory, the latter subject an especially important resource for analyzing a page of panels the way one might dissect a page of text. Even considering the normal stress and strife that accompanies any extended academic project, I enjoyed writing my thesis. On the day I defended my research project, the professors on my committee reviewed my transcript after my presentation. Their consensus was: "Why didn't you take any art history?"

The easy answer is that my schedule never allowed it. While there were several art history course descriptions I lingered over during semester registration, they almost always conflicted with a literature course that I knew I would need. The longer, more complex (and more honest) answer is that I still imagined *Art* and *Art History* in a separate sphere from the rest of the humanities. I liked to look at paintings, but I was sure I would not be able to hold my own in an art history class. I do not recall the moment that division was cemented, but there it was in my mind: art is art and books are books, and never the twain shall meet.

In the years after I finished my undergraduate degree, it became clear that the surprisingly cutthroat world of English academia was not for me. Finally, I realized I wanted to work in a museum. I spent a year working with children's programs at the

Samuel P. Harn Museum of Art in my hometown of Gainesville, Florida. The alpha and omega of my time at the Harn was working directly with teachers during the summer art camps. I would spend a week working with an instructor, another volunteer, and up to fifteen students aged 7-11. I was as new to these art-making processes as many of the kids were, and I listened closely to the instructor's lesson so I would know how to answer any questions I was asked along the way. I followed the group on their weekly docent tour, learning about the collection along with them. These experiences were wonderful. It was great fun to make art with kids who are too young to be judgmental. Even more than the artmaking, I enjoyed getting to know the teachers. A handful of art teachers from the county public school system designed and taught several camps each summer, and by working with them for several weeks, I came to know them fairly well. They would introduce themselves to the students not only as teachers, but also as artists: Ms. Nicole was a sculptor, Ms. McDonald was a printmaker, and Ms. Z made mosaics and murals. By appealing to the students on a personal level (while still maintaining the teacher-student dynamic), they made these students comfortable enough to ask questions, make art that was not perfect, and tell their own personal stories through their art—and I was more comfortable too.

Working with these teachers and watching how they interacted with students, and how much the students enjoyed being creative in the museum, made me wonder about the museum-hosted teacher workshops I heard about. Surely professional development, with its need to address state standards, should be much more stiff and businesslike than a

week of artmaking. What went on during a teacher workshop in an art museum? What did the teachers come to gain, and what did they take back with them? I wondered if these were only for art teachers, and that's where my real interest sparked. I had neither an extensive background in art history nor a tremendous amount of artistic skill, yet I still felt drawn to working in the art museum environment. Why could not teachers of other subjects feel the same way? I had managed to bridge the gulf in my mind between Art and Art History and my own literary experience—could summer institutes do the same in a broader curricular respect?

After spending so much time working directly with educators, I was confident I would want that to be a focus of my career. My curiosity about the summer institute experience, and my own interdisciplinary background, began to crystallize into a research plan. With the arts so often needing to justify their presence in schools, I hoped that by observing an institute myself and speaking to the teachers attending, learning what drew them to the museum and the summer and what they took back to school with them in the fall, I would be able to find ways that art classrooms—and art teachers—could work with classrooms and teachers of other disciplines to draw links between these subjects. Art had always been separate from my education, and that left me with the idea that you were either an art person, or you were not. Could summer institutes instill a spirit of collaboration in teachers of all disciplines? Could they take that energy and insight back to school and let their students know that such a disciplinary separation was, indeed, only in their heads?

RESEARCH METHOD

Following examples set by Grant & Patterson (2016), Grenier (2010), and Merseth (1990), I determined that case study research would be the most effective method to explore the experiences of teachers at an art-museum based professional development workshop. My case was the Summer Teacher Institute at the San Antonio Museum of Art, where I was an intern from May through July, 2016. I kept detailed field notes regarding my roles and observations of the Institute; however, my duties prevented me from being an observer of every session during the week. To supplement my own notes, I interviewed one of the participating teachers, an educator with over twenty years of teaching experience and a frequent participant in the Museum's programming. I spoke with her at the Institute's beginning and soon after its conclusion, to gather both her expectations and objectives for the program and her evaluation of it success and use to her practice. I contacted the teacher again in February, 2017, to speak with her about her school year so far and determine whether she had in fact incorporated skills learned at the museum into her classroom.

I also spoke with the Coordinator of School and Teacher Programs at the Museum, to compare his proposed objectives for the institute with what he considered successful, and to compare his evaluation to that of the participating teacher. This was the Coordinator's first year conducting the Institute, after working as an art educator for several years. These interviews were semi-structured to "gain different insights into the

same situation" (Lacey & Luff, 2009, p. 27). I also consulted copies of anonymous teacher feedback and various handouts and lesson plans used during the workshop.

To analyze the data, I constructed an evaluative framework based on pedagogical theories of John Dewey and Lev Vygotsky and case studies of other art museum-based teacher professional development opportunities, both interdisciplinary and single-subjected oriented. From the literature, my interviews, and the anonymous teacher evaluations, I devised a series of criteria, including: (a) clear communication between museum educators and teachers to establish teachers' curricular and classroom needs; (b) experiential learning activities; (c) opportunities for collaborative or social learning; and (d) opportunities for detailed reflection. By examining how the Institute at the San Antonio Museum of Art met these objectives, I evaluated how effective the program was at encouraging participating teachers to implement interdisciplinary arts-based curricula in their individual classrooms.

LIMITATIONS OF THE STUDY

This study was bound to a single program at a single institution: the 2016 Summer Teacher Institute at the San Antonio Museum of Art. I collected data through interviews from a participating teacher and the Museum's coordinator facilitating the workshop. I hope my results provide some benefit to other educators by furnishing one example of how teachers respond to museum programming and its effectiveness, yet it is only one example and findings here should not be applied to all teachers participating in every program at any single institution.

SIGNIFICANCE OF THE STUDY

I believe any research that increases our insights into how art museums can expand their educational influence is beneficial. As museums are pushed increasingly to justify their programming with objectives and outcomes (Barnett, 2012; Nelson & Cohn, 2015), teachers are likewise expected to supply quantifiable evidence of their success in the classroom and their participation in continuous professional development (Daugherty, 2013). The merits of these evaluation strategies aside, I firmly believe that museums should be an educational resource for all, particularly other educators.

For professional development programs to be effective, a strong relationship of respect must exist between teachers and these institutions. If museums truly wish for their workshops (and by extension their objects and rhetoric) to have measurable and significant impact, they will need to communicate with participating teachers in order to understand their needs, the standards they must meet, and what will ultimately be worth receiving from the museum and taking back to the classroom. If art museums wish to be a resource for interdisciplinary education, the need for communication is even sharper: museum educators may be accustomed to working with art teachers or facilitating field trips for students young enough to spend all day in a single classroom, but how can they modify their programming to welcome teachers of other disciplines?

This single case study is not intended to supply a successful model to be copied by museums and school districts nationally. Much of it was a first-time experiment. I was a semi-outsider to the event, neither officially affiliated with the museum nor

experiencing the program with the same perspective as the teachers. However, by recording my observations and letting a teacher and a museum educator frame the event with their hopes, expectations, and resolutions for what to do next time, it is my goal to provide an idea of what other art museums may consider in their own development of interdisciplinary programs.

CONCLUSION

Museums and schools have a well-established relationship: they have been sites for field trips and professional development workshops for decades. Art museums are currently working to encourage visitors and maintain relevance as teachers are held to more learning standards; school budgets remain tight, accompanied by the anxiety of cuts to arts programs in favor of subjects such as mathematics and the hard sciences. For the past decade, STEM has risen in popularity in educational policy, and arts educators and advocates are exploring the strategy of preservation through cooperation: make the arts relevant to STEM subjects to ensure they remain in place for students. Bringing art museums into this interdisciplinary paradigm would appear to be of benefit to teachers (and perhaps a more diverse audience of teachers than those who usually incorporate the museum in their curriculum) and the institution.

I conducted a case study at the San Antonio Museum of Art to explore one example of how art museums and teachers may use the professional development setting to improve teachers' comfort with interdisciplinary education, and how art museums may be a relevant resource for such curricula. To analyze the effects and success of the

Museum's summer 2016 interdisciplinary workshop, I researched other museums' efforts in similar programming. Literature on both STEM and STEAM contains a great deal of exploration of ideal teaching practices for students; discussion of ideal ways to impart this to teachers is smaller, but growing. To evaluate the teaching styles on display during the program at the San Antonio Museum of Art and how teachers responded as learners, I consulted the educational theories of John Dewey and Lev Vygotsky, two researchers often cited in analysis of both teacher education generally and effective STEM/STEAM learning. The most accurate insights into the program's efficacy and how similar opportunities could prove directly useful for teachers, however, came from interviews. My conversations with the Coordinator of School and Teacher Programs, overseeing the Institute's development and execution, and with one of the participating teachers gave me the most complete and complex understanding of what the Institute was supposed to be and how successfully it met its own objectives, and informed me most accurately of how future efforts can ensure that lessons in the museum return to the classroom, and how this institution may evolve from an artistic to an interdisciplinary resource.

Recording and discussing my investigation of the Summer Teacher Institute at the San Antonio Museum of Art, this thesis contains five chapters. In a review of pertinent literature, I discuss the educational theories of John Dewey and Lev Vygotsky in order to establish an analytical framework for the execution of the Summer Teacher Institute. In this review, I also discuss the evolving dynamic between classroom teachers and museum educators, particularly when museums offer professional development opportunities, and

relate the significance of STEM and its provocation of interdisciplinary education initiatives. In Chapter 3, I discuss my chosen methodology, case study research, and the special benefits this research model brings to the study of education. This chapter is followed by a presentation of the data I collected during the Summer Teacher Institute: anonymous teacher evaluations, interviews with the Coordinator of School and Teacher Programs and one of the participating teachers, and my own observations. I describe the events of the workshop, relate my interviewees' personal analysis of the program's successes and shortcomings, and analyze whether the program was successful based on the teaching framework constructed from my outside research. In Chapter 5, I conclude by offering some suggestions on what other institutions may consider in the development of interdisciplinary professional development opportunities to increase the chances that the museum-based activities are realistically and practically useful in a teacher's classroom.

Chapter 2: Review of Literature

This literature review presents research from multiple fields with the intention of establishing a context in which to examine and evaluate the 2016 Summer Teacher Institute. The first section reviews John Dewey's experiential learning theories and Lev Vygotsky's communal learning theories, as well as his concept of the "more knowledgeable other" (Van der Veer & Valsiner, 1994). By examining these theories and other cases exploring the effectiveness of these models in informal learning environments (such as the museum) and in the education of teachers, I construct an evaluative framework for the Institute of this case. The review continues by presenting a look into the historical relationship between classroom teachers and art museum, the evolving institutional perception of how best to serve as an educational resource, and other cases of art museum-based teacher professional development workshops. The chapter concludes with a discussion of STEM's rise to prominence in educational policy, the response of art education advocates and their attempts to integrate the arts into these disciplines, and how other museums have responded to these approaches.

A Theoretical Framework for Teaching Teachers

To provide a framework for my evaluation of the efficacy of the 2016 Summer Teacher Institute at the San Antonio Museum of Art, I explore the educational theories of John Dewey and Lev Vygotsky. While these individuals were most active in the first half of the twentieth century, educators continue to consult their suggestions and observations

on effective teaching philosophy. The two men never collaborated—Dewey was based in the United States, while Vygotsky was in the Soviet Union—but each of their approaches are foundational to the constructivist theory of education. Though their original philosophies were presented in the context of educating children, they can be, and have already frequently been, modified to apply to an audience of adult learners. With its focus on the individual learner and the personal experiences and knowledge they bring to the galleries, the constructivist model is a current standard of museum-based pedagogy (Ebitz, 2005). Even more specifically, these constructivist theories have been used to supply a framework for the analysis and development of effective professional development for experienced teachers (Rogers, 2012; Sousa & Pilecki, 2013). By studying their applications to each of these contexts individually, I use the theories of Dewey and Vygotsky here to develop a model for considering ideal educational practices for the particular audience of experienced teachers in the specific setting of the art museum.

JOHN DEWEY AND EXPERIENTIAL EDUCATION

A prominent philosopher and educator, John Dewey is known for his role in the "progressive schools" movement of the early twentieth century. The movement was intended as an alternative to the traditional "transmission" model of education: the information deemed essential was presented to students, often through a lecture-style format, and pupils were expected to absorb it with an attitude of "docility, receptivity, and obedience" (Dewey, 1938/2015, p. 18). By contrast, the progressive schools

promoted an attitude of active learning through experience. Dewey is quick to clarify that not all experiences are equal in their educational value, offering a "criteria of experience" to ensure that the learner will gain sincere and substantial educational merit. In describing the necessary components of an effective experience, Dewey sets the stage for educational practices that are now considered to be well-accepted foundations in the field (Alhadin, 2008; Ansbacher, 1998; Jones & Risku, 2015). His discussion of "the continuity of experience," "that every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after," bears a strong resemblance to the concept of scaffolding, popularized in the latter half of the century (Dewey, 1938/2015, p. 35). Ultimately, Dewey's 1938 treatise resonates with contemporary ideas that students learn best through application of learned information—learning through active experience—instead of merely passively receiving information.

In Dewey's work, the phrases "learner" and "child" are used interchangeably, but his educational philosophies are often applied to settings other than the traditional classroom. Constructivism in the art museum also necessitates a transition from purely informational to experiential models, in exhibit design as well as educator technique. Gooding-Brown's (2000) suggestion to follow a "disruptive model of interpretation" when discussing artworks with students invites them to share their individual perspectives within a semi-structured setting. Rather than setting up their encounter with the artwork to be its own unique experience, shared by all, students draw on their

individual past experiences to make meaning from the work and "explain…how they are positioned in the world" (Gooding-Brown, 2000, p. 43).

Van Moer, De Mette, and Elias (2005) present Gooding-Brown's disruptive discourse through an explicitly Deweyan lens, analyzing both its advantages and drawbacks when used in the museum:

> Starting from their own experiences with the artefact, visitors construct an initial interpretation. Leaving the original artefact (temporarily) behind, they reinvestigate their original interpretation through discussion and consultation of different sources (artists, critics, historians, cultural journals, art books, educators, personal experiences, other beholders). Then, they move towards exploring their own positions and how those positions may construct and influence interpretation….Although the disruptive model embodies Dewey's notions of inquiry learning and is ideal to use in an experience-based exhibit, it has its weak point. Because of its emphasis on talk and discussion, the model cannot be used by individual visitors. (2005, p. 50)

The authors are correct that Gooding-Brown's disruptive model is dependent upon a group setting, which of course is not guaranteed when attending the museum. However, given the focus on teacher professional development and the group setting of the particular teacher workshop discussed here, it is an appropriate example of how Dewey's experiential education model is applied within the art museum.

LEV VYGOTSKY AND SOCIAL LEARNING

The concentration on quality experience and continuous learning in Dewey's educational philosophy complements the theories put forth by Lev Vygotsky, a contemporary of Dewey (though not a colleague). Vygotsky was primarily interested in developmental psychology, particularly how it is affected by sociocultural factors. His

research led him to the conclusion that learning is most successful when it is approached as a social activity, and he developed the concepts of the "zone of proximal development" (ZPD) and the "more knowledgeable other" (Vygotsky, 1978). In an educational environment wherein one person is sharing knowledge with another, the ZPD is the space between the understanding at which the learner could arrive on their own and that at which they could arrive with the assistance of the more knowledgeable other (Cochrane, 2012; Eun, 2008). (Vygotsky intended for his theories to be applicable to development outside the classroom as well as within it, thus the use of a more generalized phrase rather than the classroom-connoted "teacher" or "tutor.")

Vygotsky's communal learning model is frequently adopted in adult learning contexts, including that of professional development for teachers. Regardless of location or theme, such workshops are generally group activities: multiple teachers, often from the same school or at least the same district, participate simultaneously. Mark K. Warford (2011) goes as far as envisioning a teacher-specific ZPD, citing the constant change within classrooms and thus teacher knowledge itself. While not highlighting a particular discipline or grade level and not specifically designed for the professional development context, Warford offers a fairly structured outline for Vygotskyan teacher training, mandating reflection along with discussion and practical exercises. Prolepsis, a teaching strategy that "assumes (or pretends) that the learners know more than they actually do" to encourage self-directed acceleration to that point of knowledge (van Lier, 2004, p. 153, quoted in Warford, 2011), is also encouraged. When using this strategy with an audience

of teachers, "teacher educators should acknowledge candidates' prior experiences of teaching and learning" (Warford, 2011, p. 254): an emphasis that resonates with the Deweyan model of drawing on one's own experiences to make meaning within the museum.

Barohny Eun (2008) does go so far as to apply Vygotskyan theory to the professional development setting. Eun emphasizes the communal aspect of Vygotsky's social model, while cautioning against too little oversight when facilitating these social interactions. If the goal of a given learning exercise is *internalization*, that is, for the learners to cross the zone of proximal development to understand and adopt the concept, it requires "concrete social interactions that are embedded in purposeful activities," as well as continuous reflection and documentation (Eun, 2008, p. 143). Such social exercises should also be structured to ensure mutual benefit to the learner and the teacher (or mentor, or more knowledgeable other). In the case of an audience of teachers, Eun suggests a mentor would gain the benefit of being exposed to previously unfamiliar or unconsidered philosophies of teaching (2008).

In this discussion of effective interaction within the Vygotskyan model, Eun's language bears a striking resemblance to Dewey's own "Criteria of Experience." Eun (2008) cautions that "social interactions must be framed within an *activity* that has a clear purpose" (p. 139), while Dewey (1938/2015) asserts that an educationally worthwhile experience "arouses curiosity, strengthens initiative, and sets up desires and purposes" (p. 38). While Dewey's instruction is not quite as explicit as that of Eun, it is simple enough

to imagine that the "desires and purposes" rise more readily from an exercise with a firm objective.

CONSTRUCTING AN EVALUATIVE FRAMEWORK FOR THE 2016 SUMMER TEACHER INSTITUTE

From this examination of the original philosophies of both John Dewey and Lev Vygotsky, as well as how they have been previously applied to adult learning environments (professional development scenarios included), I designed a framework with which to analyze the effectiveness of the Summer Teacher Institute explored herein. One of the key elements of a teacher workshop is the opportunity for social interaction among educators. If we were to combine this concept with the Vygotskyan idea of the "more knowledgeable other," then the teacher workshop is an ideal environment to exercise Vygotsky's ideas of social, communal learning; particularly with a group of teachers of diverse backgrounds and concentrations. Dewey's emphasis on experience is a natural fit for a teacher workshop held at an art museum, particularly if the museum holds a constructivist educational model that would welcome interpretive activities such as Gooding-Brown's disruptive model (2000). Contemporary pedagogical theorists and practitioners continue to call for social constructivism in teacher education, to promote the creation of a community both of practice (Grenier, 2010; Warford, 2011) and of learners (Rogers, 2012). For such a program to be successful in Vygotskyan and Deweyan senses, it would need to include communal activities in which participants see a clear objective, as well as continued knowledge development for both instructors and

learners, whether that is in content or pedagogical strategy. To better understand how this metric can be applied to the interdisciplinary workshop at the San Antonio Museum of Art, I explored other museum-based professional development opportunities offered such communal learning experiences.

TEACHER PROFESSIONAL DEVELOPMENT IN THE ART MUSEUM: A BRIEF HISTORY

An early investigation into the connections possible between museum and classroom was undertaken by the Council on Museums and Education in the Visual Arts. In 1972, the Council released their study *The Art Museum as Educator*, a collection of reports and case studies from a selection of United States museums. Their rationale was clearly museum-focused: seeking evidence of what was and was not successful in nationwide programs, "raising the level of discourse among art museum educators," and establishing some sort of standard best practice for art museum education are among the purposes outlined in the study's preface (Newsom & Silver, 1972, p. 3). The potential of the art museum to serve as a resource for educators was present, but the section on "Teacher Training" bears little resemblance to the professional development programs best known today. By observing programs in a variety of art museums, including the Cleveland Museum of Art, the Milwaukee Art Center, and the Museum of Modern Art in New York, the Council hoped to better understand the current relationship between museum educator and classroom teacher, the expectations of each party, and how museums could live up to this instructional goal.

At this time, the role that most art museums seem to see themselves holding was more of a site for classroom teachers to continue their own training. The language of the study expresses reluctance, if not flat-out discomfort, at the idea of a museum educator directly communicating with a group of young students in the museum itself. The museum educator's purpose, rather, is to develop "special projects…meant to help teachers and school groups become more independent" when they visit the galleries; that is, provide resources so that a teacher on a trip to the museum can administer the tour themselves (1972, p. 462). The museum is a passive learning site here. The selection of extant teacher training opportunities mostly consists of having slides, artwork reproductions, films, and "instructional packages, designed especially for local school curricula" available to any teachers who take the initiative to seek them (1972, p. 463). One museum is said to offer "workshops," but there is no elaboration on what goes on at these programs, nor is there any discussion of professional development as a requirement for teachers. One conclusion that has persisted, however, is that addressing these uncertainties will require improved communication between schoolteacher and museum educator, and that classroom teachers have a right to expect that a museum educator will "know more about the world of the school…take a more human interest in the teachers he is trying to instruct, and perform more sensitively and professionally as a teacher himself" (1972, p. 466).

In the decades since this initial report, art museums have continued to examine their roles as educational resource. Denise L. Stone's "A Descriptive Study of the Art

Museum Relative to Schools" (1992) gives a detailed examination of "the way art museums serve schools and the response of schools to art museum services" (p. 51). Stone provides evidence for services ranging from "programs offered to schools…curricular links with school art education instruction…[and] the participation of school professionals in planning and offering school programs" (1992, p. 14). Notably for this work's purposes, she also includes information on both the existence of teacher workshops in the art museum and teachers' attendance at these programs.

Stone's data gives a comprehensive picture of how a given museum workshop might look. The majority of her respondents reported that about 100 teachers attended over the past year of the study, that they were mostly classroom teachers, and that they "represented only a small portion (1-25%) of the available teacher population" (1992, p. 58). Stone's study leads her to conclude that "art museums in the sample extend a strong and active commitment to schools," but "school professionals do not seem to respond in kind to these efforts" (1992, pp. 59-60). These results are helpful from a quantitative position (getting an idea of how many teachers one might expect at a workshop, for example), but there is not much discussion of the museums' objectives in their commitments. Based on the information supplied by this study, the "strong and active commitment" of these institutions is merely in communicating with local school districts and having resources such as workshops available (even if they are sparsely attended). This initiative should not be discounted, of course, but it does not provide much enlightenment on what either the museums or teachers are hoping to gain from these

relationships. It is difficult to determine a precise date of when museums began to regularly offer teacher workshops, but it appears from Stone's study is that such workshops were a bit rarer in 1992 than in 2017.

More recent scholarship on the subject of the relationship between teachers and art museums suggests that school teachers are taking greater advantage of these institutions than Stone observed. The "curricular links" (1992, p. 14) Stone alludes to are foremost on the minds of several education professionals today, including those who develop and attend programming. Encouragingly, there are more teachers explaining their positions on this issue and offering guidance to both museum educators and other teachers on how they can use the art museum as a resource for their practice. With the introduction of the Common Core, teachers have a new set of curricular standards to take into account. Chrissy Gray-Rodriguez (2015) credits a workshop at the Museum of Contemporary Art Chicago with introducing her to Visual Thinking Strategies (VTS[1]), a tactic she soon introduced to her classroom, discovering that "fostering a conversation about a work of art instead of providing an informative lecture led to a much more engaging experience" (p. 252). After the introduction of Common Core, she coached other teachers to incorporate VTS into their curricula, using the method's focus on developing skills in observation and literacy to meet standards of critical and analytical

[1] Visual Thinking Strategies is a method of observation of and engagement with works of visual art, devised by cognitive psychologist Abigail Housen and art educator Philip Yenawine. VTS is designed to be student-centered, prioritizing communication to develop visual literacy skills, while meeting state education standards in subjects such as art, language, and social studies ("About Us," 2017; Landorf, 2006, pp. 28-29).

thinking. The adoption of Common Core standards, according to Gray-Rodriguez's work, is simultaneously an opportunity for the advocacy of art education and a chance "to create *cross-curricular* [emphasis added] lessons that utilize the museum collection" (p. 254). While Gray-Rodriguez's enthusiasm is encouraging, the implication remains that teachers are either unaware or uninterested in taking advantage of museums as resources to supplement their curricula.

If getting teachers to attend museum workshops is still a concern, how, then, can museums attract them? What compels those teachers who are in fact attending workshops? Some answers to these questions can be found in Robin S. Grenier's case study (2010) of two summer institutes hosted by Mystic Seaport in Mystic, Connecticut. Grenier's attention to the individual teachers' reasons for attending the program are very informative when considering what professional growth they hope to undergo. Mystic Seaport is a maritime museum instead of an art museum, but it is not difficult to imagine how their goals would align with attendees of an art museum-hosted workshop. Among the motivations collected by Grenier are personal interest, institutional reputation, and "the opportunity to share their learning with peers" (pp. 505-506). Grenier's case study is a valuable example of how the methodology can be used in the context of museum education, especially when one is identifying effective practices and relying on the words and experiences of the teachers themselves.

Many of the teachers Grenier interviewed had positive reactions to the institutes and could give examples of how they integrated the knowledge gained at Mystic Seaport

into their classrooms the following fall. While each teacher's experiences were uniquely their own, some aspects shared common appreciation. One of these was the opportunity for activity in the institute environment. Grenier describes the adventures of one of her subjects, Missy, climbing the rigging of the *Amistad*:

> She tied her summer-weight skirt into a knot around her knees, slipped off her sandals, and climbed the ropes.…When she finished, she climbed down out of breath and smiling. As she took a seat, she turned to a friend and exclaimed, "Now that's what I call learning!" (2010, p. 507)

The active, experiential quality of the Mystic Seaport institutes was repeatedly cited by Grenier's subjects as a highly effective component of the program. The frequency of "experience" as a significant benefit to the institute environment merits more research into how experience and learning influence each other. John Dewey's writings on experience, education, and aesthetics are themselves often referenced when scholars explore how effective learning can take place in the museum. While many of these texts concentrate on the learning experience for the general public visitor, their application of Dewey's ideas may provide some insight for determining the effectiveness of teacher institutes.

Ted Ansbacher distills Dewey's positions in *Experience and Education* (1938/2015) to a few simple questions, relevant to contemporary museum issues:

> Can we develop a theory for learning in museums? What kinds of experiences do we want visitors to have at exhibits? How and what do visitors learn from this experience? How can exhibit effectiveness be evaluated? What is the difference between education and entertainment? How does experience-based learning relate to school curricula and standards? (1998, n.p.)

It is not too complicated to take these questions and apply them to the teacher institute. Many of the main concerns are the same: obviously, "learning in museums" is still a priority, and the evaluation of experience and effectiveness is essential. The teacher institute environment in particular, however, requires some refinement of these issues and some additional questioning in order for it to be most beneficial and successful.

Perhaps the most significant question to add specifically in respect to the teacher institute would address the impacts the institution has on its participants. Another question to add to Ansbacher's list, then, might be this: If the experience is what makes the institute successful, how can we repeat that experience in the classroom? How might we apply the educational exhibit from the art museum into the classroom where another subject takes priority?

BRIDGING THE GAP BETWEEN CLASSROOM AND MUSEUM

While the traditional image of the museum field trip remains popular, the literature reveals a frequently aloof (though not hostile) dynamic between museums and schools, and more specifically museum educators and classroom teachers. Many publications directed toward museum professionals address similar difficulties faced by institutions that attempt to serve this educational purpose: the objective hurdles of shortening class days and shrinking budgets (Talboys, 1996; Wright-Maley et al., 2013); the teachers' uncertainty of how to effectively integrate a museum's contents with their classroom curricula (Marcus, 2008; Newsom & Silver, 1978; Talboys, 1996; Wilkinson & Clive, 2001). Rationales to advocate for the museum as an educational resource are

also repeated across the literature. With some variations, the most oft-repeated justification is the museum as a site of "active learning" (Talboys, 1996; Wilkinson & Clive, 2001) or "free choice" learning (Grant & Patterson, 2016). While these justifications have remained roughly the same for the past four decades, the perceptions of the respective roles of the museum educator and classroom teacher are more fluid (at times mystifyingly so). Newsom and Silver's early surveys in *The Art Museum as Educator* (1978) suggest that museum educators, while they wanted teachers to bring their students to the museum, were uncomfortable being responsible for teaching those students once they were in the galleries. Their example of a summer institute offered by the Cleveland Institute of Art attributes the frustration of both parties to "communication problems":

> the "wrong" teachers came; many of them wanted more methodology, more how-to, less art history; the museum scheduled the course to begin before all the schools were dismissed for the summer; teachers felt they could not imitate what the museum instructor did. (p. 465)

Some of the issues that arise in such programming are the sort that one can only be sure of after the fact, but other lapses (such as scheduling) could be easily prevented by simply checking with the teachers one plans to invite to the program.

Such gaps in communication remain an issue as museums' education departments continue to evolve. As recently as 2013, publications were released whose main drive was in improving communication between museum educators and classroom teachers. Wright-Maley, Grenier, and Marcus (2013) suggest that the hands-off museum educator role has shifted, and there exists a "tacit understanding that once the teacher

has…brought students to the museum, learning is in the hands of the museum educator" (p. 209). Without effective communication before the visit, however, the successful integration of museum contents and classroom curriculum will remain a challenge. By offering a model dialogue between a hypothetical classroom teacher and museum educator, the authors provide a recommendation of helpful practical information for each party. One particular example is a collection of questions the museum educator provides the teacher in order to discover useful information

> that would help us [museum educators] do a better job, including your learning goals, your students' specific needs, what you're doing in your classroom before and after you visit us, and who the go-to people in your school and district are. (Wright-Maley et al., p. 212)

Explicit instructions as to which party should reach out first are not provided, but the implication of the text is that the teacher would furnish this information to the museum educator when scheduling a visit, rather than the museum educator asking the teacher for it.

Communication between professionals of similar but distinct fields continues to be emphasized in museum education literature. To accomplish an experience that brings teacher and museum educators together with the express goal of exploring multiple disciplines, communication is essential.

INTERDISCIPLINARY STUDIES: STEM, STEAM, AND ARTS INTEGRATION

Interest in interdisciplinary studies as a concept remains consistent among educators, but the terminology continues to change. As the nomenclature shifts, so do the

metrics used to establish standards and evaluate the success of individual initiatives and programs.

Many of the contemporary conversations around interdisciplinary studies frame the approach as a means to advocate for the continued presence of the arts in an education system that is increasingly dependent on inflexible standards and quantifiable performance. This focus is often interchangeable with the terminology of STEM: Science, Technology, Engineering and Math. Recently, arts educators and other advocates have pushed for the inclusion of A in the acronym, thus turning STEM to STEAM (Angiers, 2010; Robelen, 2011; Wynn & Harris, 2013). Promoting effective interdisciplinary arts education with this rationale, however, requires an examination of the original STEM initiative and its rise to educational prominence.

THE ROOTS OF STEM

A cursory review of contemporary publications, both professional and informal, reveals the STEM acronym becoming commonplace from roughly 2007 onward. The first appearance of the term with specific connotations to education dates back to 2001, when Dr. Judith Ramaley of the National Science Foundation presented it as a paradigm in which students would solve "real-world problems and [create] opportunities—the pursuit of innovation" (Daugherty, 2013, p. 10). The same year marked the introduction of the No Child Left Behind Act, setting federal performance standards in reading and mathematics, with schools facing sanctions if they failed to make "adequate yearly progress" in these areas (Editorial Projects in Education Research Center, 2015, n.p.).

The strict monitoring of student performance through regular standardized tests and mandating that classroom teachers be "highly qualified" (i.e., state certified and possessing at least a bachelor's degree in their subject) soon led to criticism from the teachers themselves, as they felt constrained to "teach to the test" at the expense of other, more abstract disciplines, such as foreign languages and the arts. The increased national control and concentration on mathematics and reading was a response to suggestions that the United States was falling behind other nations in students' knowledge of these subjects. More significantly, this was read as a harbinger of future failure in the increasingly technology-based global economy, and these anxieties were often referenced in the developing advocacy for STEM curricula.

A 2005 report from the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine frames these anxieties in no uncertain terms. Produced by the Committee on Prospering in the Global Economy of the 21st Century, the decline of American students in science and mathematics performance is characterized as "a gathering storm" that "would inevitably degrade [the United States'] social and economic conditions and in particular erode the ability of its citizens to compete for high-quality jobs" (2005, p. ix). The report goes on to enumerate the values of education in "science, technology, innovation, and manufacturing"—a variant from "engineering and mathematics," but not a dramatic one—and addressing the current shortcomings of K-12 schools to prepare students for successfully pursuing professions in

these fields (2005, p. x). The STEM acronym is referenced, but only once in the 563-page report, specifically in relation to college and university departments.

By 2007, STEM was no longer jargon used by professionals already in scientific fields, neither was it reserved for the post-secondary setting. A group of educators with experience from both K-12 schools and universities met with the U.S. House of Representatives Subcommittee on Research and Science Education to discuss how federal agencies could act in support of STEM programs in public education. Chairman Brian Baird referenced the National Academies' "*Gathering Storm* Report," echoing the concern of American readiness for "high-paying, technology-based jobs" (*Federal STEM Education Programs Hearings*, 2007). Another hearing before the Committee on Science and Technology, centering on pre-high school STEM programming, focuses on raising student interest as well as improving their skills "and to translate that interest into rewarding careers that will be of benefit to the entire Nation from a federal, school district, university, industry and teacher perspective" (*STEM Education Before High School*, 2008, p. 3).

These early calls for increasing the priority of STEM disciplines in K-12 schools are paired with discussions of how to prepare teachers to meet these needs for their students. The 2005 *Gathering Storm* report focuses on increasing sheer numbers of qualified teachers with bachelor's degrees in a STEM discipline (National Academies of Science, Engineering, and Medicine, 2005). Professional development opportunities are discussed, but the programs cited are only referenced for their success in adhering to state

standards and promoting science. Curriculum design, structure, or pedagogy are not discussed. Speaking before the House Subcommittee in 2007, Dr. Iris R. Weiss draws on evaluations of existing STEM programs and associated professional development:

> We know that teacher content knowledge is necessary, but it is becoming increasingly clear that it is not sufficient. Teachers also need to learn how to use their instructional materials well, how to figure out what their students understand and where they are struggling, and how to make appropriate instructional decisions based on that information. (*Federal STEM Education Programs*, 2007, p. 34)

Dr. Weiss and the other witnesses at the 2007 hearing were educational professionals, but it would appear they were more active in administration than the classroom.[2] Many of the witnesses present at the 2008 hearing are also linked to larger foundations and educational administration, but an active science teacher was also present. When asked about in-service training, David Smedley of North Heights Junior High School in Texarkana, Arkansas, responded that being able to attend annual National Science Teacher Conventions and interact with "science educators from all levels of education has provided me with many, many tools in my box" (*STEM Education Before High School*, 2008, p. 44). Smedley credited this informal environment, where he was free to meet with other professionals, with creating a national teacher support network

[2] Dr. Weiss is identified as the President of Horizon Research, Inc., "a contract research firm…specializing in mathematics and science education research and evaluation" (*Federal STEM Education Programs*, 2007, p. 40). The other witnesses are the President of the National Science Teachers Association, the Director of Mathematics and Science for Chicago Public Schools, the Director of Science, Technology, and Mathematics Education at Western Washington University, and the President and CEO of the Maryland Science Center at Maryland Academy of Sciences.

and providing ideas for "very successful" classroom activities; specifics of structured workshops at these conventions were not mentioned.

The rhetoric driving the introduction and adoption of STEM, as well as the original No Child Left Behind Act, is couched in an admiration of American prominence in global business and innovation and the desire to preserve that prominence. Many of the arguments of individual lawmakers, administrators, and educators are explicit in this connection. According to Representative Bart Gordon, the United States must be able "to make 20 or 30 or 50 widgets for every one they're making in China and India and elsewhere….And that means you have to have a background in STEM, and we're not doing well in that" (STEM Education Before High School, 2008, p. 11). Indeed, the ominously named *Rising Above the Gathering Storm* report suggests we are in the throes of another "Sputnik moment," a crisis that comes "when the nation worries about its scientific and technological superiority and its ability to compete globally" (2005, p. 73). The original Sputnik moment saw a sudden and determined shift in the objectives of American education: the genesis of science and technology becoming a federal education priority, "effectively [canceling] out every humanistic argument for the arts" (Jones & Risku, 2015, p. 82). A 2010 follow-up to the original *Gathering Storm* report includes a preface of alarming "factoids" to illustrate the United States' continued slide into mediocrity in the technoglobal marketplace. Among statistics illustrating higher spending on prisons than higher education, and the outsourcing of American technology jobs to China is the tidbit: "The United States graduates more visual arts and performing arts

majors than engineers" (*Rising Above the Gathering Storm,* 2010, p. 7). The perception that the disciplines comprising STEM and those of the arts are abstract rivals is persistent, and the push to adhere to easily measured standards means that arts are often still forced to take a backseat to other subjects in the curriculum. But many arts educators and other advocates are trying a new tack to impress the importance of making the arts equally accessible by inserting them into the present technological vogue: turning STEM into STEAM.

THE RISE OF STEAM

In 2007, the America COMPETES (Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science) Act went into effect, increasing funding for science research and education initiatives to improve American innovation. When the bill was reauthorized in 2010, it was liberally peppered with the STEM acronym, authorizing appropriations for government agencies such as NASA and the NSF to develop educational programs to increase K-12 student interest in STEM (America COMPETES Reauthorization Act of 2010). The phrase was now common enough for other parties to attempt to insert themselves in it: a piece introducing the approach to the audience of the *New York Times* concludes by observing new upstarts clamoring to be equally noticed. The M of medicine would create "STEM squared," and that "even the arts are hankering for an orthographic position" (Angier, 2010, n.p.). Perhaps surprising the author, STEAM proved to have more longevity than STEMM,

with the annotated acronym appearing in educational publications with rapidly increasing frequency after 2010 (Grant & Patterson, 2016).

The America COMPETES Act was reauthorized in 2010. The next year saw the publication of a report from the President's Committee on the Arts and the Humanities. The 2011 report was titled *Reinvesting in Arts Education*, and its advocacy for the presence of the arts in schools is likewise tied to "the essential role [arts education] will play in preparing students for success in the knowledge and innovation economy"—near-identical language used by STEM proponents (Duncan, 2011, p. 1). The PCAH describes their interdisciplinary focus with the phrase "arts integration." Arts integration as an educational approach is more strategy- than content-based, usually practiced in such a way that exercises grounded in theatre, music, dance, and/or the visual arts are adapted to "build skills and teach classroom subjects across different disciplines" (Duncan, 2011, p. 10). The report cites recent neurological research to support the idea that these strategies improve the retention of information in non-arts subjects, and that the arts-based skills inherent in these strategies are worth as much as knowledge in reading, science, or mathematics. Though the President's Committee report opts not to capitalize on the STEM-STEAM evolution, these rationales are repeated by those who do, and the literature suggests that STEAM is a bit catchier.

Much of the early advocacy for STEAM was based in design: Steve Jobs was held up frequently as a prime example of the harmonious (and lucrative) unity of technological development and a mind toward aesthetics (Robelen, 2011; Wynn &

Harris, 2013). James W. and Marjorie Bullitt Bequette recall the origins of American art education, stating that incorporating the elements of design (as it may manifest in, say, engineering) "is as much *the business of art education* as teaching the artistic/creative process" (2012, p. 40). Teaching the arts as a "way of knowing"—perhaps through using the studio habits of mind, for example (Hetland et. al., 2007)—would appear to be a simple fix to insert arts education to preexisting STEM classes. It is more difficult, after all, to devise national curriculum standards for arts classes than for math and science. Bequette and Bequette (2012) address the frustration of this nebulousness as well, citing it as an easy reason to dismiss any attempt at STEAM. In his testimony to the House of Representatives, Texarkana science teacher David Smedley explicitly called for administrative and government support for teachers if STEM classes were to succeed (STEM Education Before High School, 2008). In order for STEAM to thrive, this support may need to be even more pronounced, ensuring that teachers of all disciplines are familiar and comfortable enough with interdisciplinary content and strategies. Examining how this support manifests in the professional development context may provide important examples for creating an interdisciplinary experience for teachers that they feel ready to revisit in their classrooms.

THE ART MUSEUM AS AN INTERDISCIPLINARY HUB

As the literature has revealed, the museum has become a standard location to hold teacher professional development courses. Many researchers emphasize the informal and experiential environment of the museum as a boon for adult learning and teacher

development (De Backer et. al., 2015; Grant & Patterson, 2016; Melber & Cox-Peterson, 2005; Talboys, 1996). The potential for this learning to take place in a setting that prioritizes experience, among a group members of the "community of (teaching) practice" (Grenier, 2010; Warford, 2011) suggests that viewing and/or designing a workshop through a combined Deweyan/Vygotskyan model would not be out of place. In the Vygotskyan tradition of learning from the "more knowledgeable other," a review of case studies of various museum-based interdisciplinary professional development workshops may present the best sources of information to determine what strategies have proven most effective.

A study of a selection of professional development opportunities conducted by L. M. Melber and A. M. Cox-Petersen (2005) concentrates on science teachers, but its commentary on effective strategies for these training experiences applies to a cross-disciplinary model. Melber and Cox-Petersen sought to determine the most effective setting for professional development programs, comparing a museum-based model, a field-based model, and a third model in both the museum and the field. After their subjects had participated in all three workshops, they were asked to evaluate the three programs; one of these methods asked them to rate the helpfulness of each workshop on a Likert scale (from 1, "not at all helpful," to 5, "very helpful"). While the museum-based model received the lowest average score of the three, this score was still a 4.13 out of 5 (compared to 4.50 for field-based and 4.80 for museum- and field-based) (Melber & Cox-Petersen, 2005). Far from a condemnation of the museum-based workshop model, this

rating makes sense for programming designed for science teachers exclusively, concentrating on scientific concepts. It should also be noted that the museum was still a component in the highest-ranking model. This study credits the informal learning environment of the museum with offering "virtually untapped potential to engage teachers in professional enhancement that integrates professionalism, content, and pedagogy" (Melber & Cox-Petersen, p. 105). The hands-on, experiential programming these workshops provided was the key element that improved teachers' understanding comfort when discussing scientific concepts with their classes, but it should also be noted that the museum workshop of the study included activities that had been designed with these teachers' classrooms in mind, "with support from state frameworks that were intended to provide *specific instructional strategies and guidance on teaching techniques* [emphasis added]" (Melber & Cox-Petersen, p. 109). These results suggest that, while informal, experiential learning can be of enormous benefit to teachers in professional development settings, providing these experiences within a framework that has been designed for particular practical application is even more effective.

While Melber and Cox-Petersen used their cases to examine exclusively scientific content, they provide useful details to keep in mind when designing and evaluating professional development opportunities that attempt to integrate scientific and artistic concepts. Another recent case study further attempted to answer these questions of practical development within the STEAM paradigm, examining three years of programming based in both an art gallery and a natural history museum (Grant &

Patterson, 2016). These programs at Southern Utah University were designed around STEAM learning for students, not teachers, but the work to develop effective programming is similar for both audiences—especially if professional development workshops make the effort to give teachers strategies that can be directly applied in the classroom. After three years of observation and continued development, Grant and Patterson concluded that vital elements of a successful STEAM program included collaboration "with professionals from all five STEAM areas because it is very difficult for one person to know it all" and reflective evaluation "to learn how you are doing, [and] how [your participants] are learning" (Grant & Patterson, 2016, p. 150).

CONCLUSION

By reviewing decades of literature exploring examples of workshop programs, though they are varied in their subjects, locations, objectives, and participants, it can be concluded that museum educators must take an active and collaborative role with classroom teachers to present the museum as a welcoming resource. Being present to welcome teachers and students to the museum and then departing to let the teacher run the tour, believing they better know their classes and goals, does not promise success for delivering effective curriculum support. The cooperation necessary here extends to the professional development setting. The history of teacher professional development within the art museum is still fresh, but it is established enough that institutions and educators continue to evaluate how these opportunities can be most useful to both participants and facilitators. Examining the teaching of teachers with the foundational theories of John

Dewey and Lev Vygotsky not only supports the quality of experiential learning in collaborative environments, but also provides a recognizable framework with which to approach the design and evaluation of successful workshops (or, if they are unsuccessful, what might be done to improve future endeavors).

Continued collaboration with teachers and schools will also assist museums in staying current on the issues that are of most concern in classrooms. For the last ten years, one of these chief concerns has been the improvement of STEM education, and the accompanying pushes to ensure that the arts are not cast aside in favor of these subjects. Pairing art education with other disciplines, whether done under the label of STEAM, arts integration, or interdisciplinary learning, appears to be one of the best current solutions to this potential problem. Research has suggested that many teachers are uncomfortable taking this direction in their classrooms due to unfamiliarity with other subjects (STEM Education Before High School, 2008; Sousa & Pilecki, 2013). Working within the tradition of professional development programs, art museums can maintain relevance and resourcefulness for teachers by designing workshops around these contemporary interests. By reviewing the cases of recently offered workshops that have been designed with these objectives, even when keeping in mind the individual characteristics of their environments and execution, we can presume that some broad aspects of program structure will remain the same: the informal nature of the museum can be taken advantage of to provide teachers with active, experiential learning. These activities may be determined to be more successful if their use within the classroom is clear; and these

experiential, collaborative learning environments are most effective when participants have (and take) the opportunity to reflect on what they have learned. With these frames in mind, particularly that of inviting participant reflection, this study can offer an analysis on the success of the San Antonio Museum of Art's foray into art museum-based interdisciplinary teacher professional development.

Chapter 3: Methodology

INTRODUCTION

I selected case study methodology for this investigation, drawing on its frequent use in evaluating teacher training and development (Merseth, 1990). In this chapter, I begin with an descriptive overview of this particular study. I then set this description within a discussion of case study methodology as a whole. Building on this general case study research, I present the details of the case at the San Antonio Museum of Art. I contextualize the data I gathered from observations and interviews would within a pedagogical framework I constructed based on my research in pedagogical theory and accounts of other teachers' professional development experiences.

One of this study's primary goals was to document personal and individual experiences at one museum's offering of a professional development workshop. It was natural to conduct qualitative research in order to gather, contextualize, and analyze these experiences to present the results in a way that could be of use to the field. Case study methodology proved to be the most effective model for this work. I took detailed notes during the weeks before the Summer Teacher Institute, discussing the Coordinator of School and Teacher Program's objectives and observing the evolution of the week's program. During the four-day workshop, I attended guest talks, observed activities, and accompanied the teachers in the galleries, occasionally participating myself. Throughout this process, I kept detailed notes of the topics discussed and my observations of the teachers' reactions and behaviors. I also conducted interviews with two workshop

participants, the Coordinator and a teacher, to ascertain their expectations and motivations for the program and their own reflection on the events. I spoke with the Coordinator some time after the program's conclusion, after a "postmortem" discussion with the Manager of School and Teacher Programs initiated reflection on the program from the Museum's perspective. I interviewed the participating teacher once midway through the Institute and a second time a few weeks after its completion, and finally exchanged emails well into the 2016-2017 school year to follow up on her experiences.

QUALITATIVE RESEARCH AND CASE STUDY

Research methods generally adhere to one of two paradigms, or they may contain features of both. One form is quantitative, where data is extrapolated from sources such as surveys, statistics, and other easily measured variables. The other is qualitative, where data is gathered through interviews, open-ended surveys, or other more subjective, individualized sources (Hancock & Algozzine, 2006). One study may implement both quantitative and qualitative methods, but dependent on the research question, certain methods are more appropriate than others. Qualitative research may lead to a more personalized understanding of the variables and influences of the research subject, as "the goal is to understand the situation under investigation primarily from the participants' and not the researchers' perspective" (Hancock & Algozzine, 2006, p. 8). When one's research requires gathering data that cannot be easily generalized, wherein the distinctions and differences between individuals are essential to the research, qualitative methods are the most appropriate (Gerring, 2017).

Case study is a qualitative research methodology used to "gain in-depth understanding of situations and meaning" for the individuals of the case, frequently serving as evidence in efforts to influence or change policy or procedure (Hancock & Algozzine, 2006, p. 11). Interacting with a specific situation in such detail means that case study research frequently employs thick description, a term developed by anthropologist Clifford Geertz. With thick description, a researcher goes beyond relating the surface level details of an event or action, instead delving into the social motivations and consequences of the event. Geertz worked from an anthropological position, but case study researchers in other fields may draw on the technique to deliver information that emphasizes "the views and stories of research participants, but [is] always mediated by the interpretive lens brought…by the researcher" (Dawson, 2010, p. 943). Case study methodology is often used in educational research because of these inherent elevations of the personal experiences of the participants, the attention paid to the social environment affecting their experiences, and its potential to be used in directing or analyzing policy and procedure.

CASE STUDIES AS TEACHING MODELS

Speaking specifically of case study in relation to teacher training, Katherine K. Merseth (1990) defines the term as

> a descriptive research document based on a real-life situation, problem, or incident. In the presentation of a case study, every attempt is made to provide an unbiased, multidimensional perspective. A case study describes a situation requiring analysis, planning, decision-making, and/or action. (p. 54)

Case studies are frequently employed when conducting research on education practice and teachers' knowledge. Many of the arguments (and case studies themselves) for this paradigm emphasize its value by drawing parallels with training for pre-service and novice in-service teachers. Incorporating case study is often compared to conducting field training for future teachers to accompany classroom learning. Adding further support to the use of Dewey's educational theories to improve their own practice, teachers credit field training with providing an analogue to the "laboratory experience" he promotes (Florio-Ruane & Clark, 1990). For researchers and teacher educators, the availability of case studies on which to base their classroom studies, discussions, and exercises provides additional ways "to portray teaching in ways that help form appropriate understanding" (Doyle, 1990, pp. 12-13).

For teachers themselves, consulting and participating in case studies may lead to developing future practice not just by experience, but by the reflection mandated by the format of the case. A successful model provides a teacher with activities and strategies to emulate, and their positive impacts have already been documented and demonstrated. A case study of an unsuccessful model, however, can be useful not just as an example of "what not to do," but as an opportunity to analyze *why* not to do it. Florio-Ruane and Clark (1990) emphasize this benefit of case study methodology as a way to illustrate "the subtle, often taken for granted norms that organize communication and learning in classrooms" (p. 25) by requiring teachers in training to study their practice in greater reflective detail. This continued reflection also contributes to case study methodology's

credit as a tactic to impart pedagogical strategies to teachers in training, not simply to explore content (Doyle, 1990; Florio-Ruane & Clark, 1990).

The alignment of case study methodology with qualitative data, and in particular detailed data of personal experience, led me to use it as the framework of my research. The Summer Teacher Institute at the San Antonio Museum of Art was a real-life example of interdisciplinary professional development opportunities; my own observations and the experiences and reflections of the educators designing and participating would contribute to my analysis of the workshop's success. Even if the program turned out to be less successful than desired, the depth of observation required would hopefully lead to structured ideas of how to improve future offerings.

When the plan for my study was submitted to the Institutional Review Board at The University of Texas at Austin, it was ultimately judged to be exempt from IRB approval due to the intention to prioritize the participating subjects as individuals.

THE CASE: ART@360°

The San Antonio Museum of Art offers multiple professional development opportunities throughout the year. During the school year, many of these events take place on a single evening, but the Museum offers a week-long Teacher Institute each summer. My case study was comprised of the design and programming of the Institute of 2016, titled Art@360°. As part of my research, I spoke with the museum educator who scheduled and designed the program before the event itself; took notes during the workshop, observing the activities and talks offered; and interviewed the museum

educator who was the main facilitator of the workshop, as well as one of the K-12 teachers participating in the program. I also reviewed two sets of anonymous evaluations that each participating teacher was asked to provide during the workshop itself.

The museum educator overseeing the program agreed to an interview after I asked him directly, and was open about the process of choosing and scheduling speakers in the weeks before the Institute. On my behalf, he sent an email to the attending teachers, describing my research and requesting participants who would be willing to be interviewed. One teacher responded, and I spoke with her at the beginning and end of the program, and again several months after the program's conclusion and well into the school year.

When I spoke to the museum educator and the classroom teacher, I implemented a semi-structured interview format (Lacey & Luff, 2009). There were certain specific details I wanted to be sure were addressed (for example, the museum educator's prior classroom experience and the classroom teacher's previous encounters with interdisciplinary educational approaches), but I also wanted to leave the potential for realizations or observations that I would not think of, given my comparative lack of experience in the field.

I interviewed the Museum's Coordinator of School and Teacher Programs and the architect of the 2016 Summer Institute, identified here and throughout the study as CO, roughly six weeks after the completion of the program. This had the benefit of allowing time for reflection, both on a personal level and the professional "postmortem"

conversation that was held with CO and the Manager of the School and Teacher Programs department. The participating teacher who responded to my interview request, identified here and throughout the study as ES, met with me immediately after the end of the second day for our first interview. Our next interview took place over the phone, roughly three weeks after the program's conclusion. When I contacted her in the second half of the 2016-2017 school year, most of our communications were held over email, due mainly to time restraints for each of us.

The anonymous evaluations prepared and administered by the Museum, while intended to elicit short responses, were also very revealing and useful in my research. The San Antonio Museum of Art composed and distributed these evaluations after professional development events in order to draw on participants' comments to improve future programs. On signing out at the end of both the second and fourth days, museum staff asked each teacher to complete them (on the final day, the staff were able to broker an exchange: the certificate of program completion would be exchanged for a completed evaluation). While the questions were somewhat general ("What was your favorite activity today?" "What would you improve?"), the open-ended format of the questionnaires allowed teachers who were inclined to go into more detail opportunity to do so. Their answers were useful for me to gain an understanding of what kind of programming teachers expected to encounter at the Museum, and the anonymity hopefully permitted respondents to be more critical than they may have otherwise been. It was important for me to have access to both positive and negative reactions and

responses to develop a more nuanced idea of what kind of programming would be considered "successful," and how that definition would change, considering the role of the respondent.

LIMITATIONS OF THE STUDY

The personal nature of case study can be both a benefit and a hindrance. When the researcher's role is more that of an active participant than a distant observer, as often happens in qualitative research, this increases the potential for gathering rich data and a more nuanced, comprehensive idea of the situation in question. However, increasing this personal involvement with the study requires researchers to be appropriately vigilant to acknowledge their own personal biases (Gerring, 2017). Interviews may be biased, should participants "tell the researcher what they think s/he wants to hear, or what they think is appropriate" (Gerring, 2017, p. 173). Case studies also benefit from a diversity of viewpoints and experiences. For this specific case, I was able to review the evaluations from each teacher participating in the study, but only interviewing two subjects limited both the scope of the "thick description" I collected and the complexity of my interpretive analysis.

While case study is very useful for gaining a holistic and detailed understanding of an individual's experiences in a real-life situation, this concentrated focus can also contribute to the method's drawbacks. I chose to conduct a case study of an art museum-based teacher professional development program, designed to encourage teachers to pursue interdisciplinary studies in their classrooms, because I wanted to gain information

about how programs with this intent could be successfully offered in other institutions. The individualized nature of my research means that, even if the case program went perfectly and was deemed a success by all parties involved, it would still only be one example, and in the case of the educators I spoke with, two individuals' experiences: hardly enough data to be applied widely to the field. This particular case study may be valuable for the museum in question, but when distilling information that may be useful for other institutions, the specific examples must be broadened and generalized. Further study of interdisciplinary teacher professional development in the art museum, particularly evaluative research, would also greatly benefit from a longitudinal model. The opportunity to implement suggested changes and record whether they were in fact effective or not would, of course, prove to be much more practically beneficial than a study that ends before its hypotheses can be tested.

CONCLUSION

Performing a case study in the setting of a teacher professional development program, one must be aware of the particular environmental and policy influences on the program. Art@360° is a singular example of teacher professional development, bound by the resources of its location (e.g., the collection at the San Antonio Museum of Art) and the criteria of its environment (i.e., Texas Essential Knowledge and Skills standards that must be met by teachers' curriculum, and the qualifications set by the Texas Environmental Education Advisory Committee to determine an institution's eligibility to provide Continuing Professional Education opportunities for Texas educators). This

particular workshop could never be precisely replicated, which limits the scope, as does the relatively limited number of interviews collected. To offset these limitations and broaden the relevance of the study's conclusions, I familiarized myself with other researchers' approaches to performing case studies of similar workshops, searching for similarities in execution and evaluation. Despite the limitations, case study remained the most appropriate and rewarding methodology to address the research questions. Classrooms differ from room to room based on school location, resources, administration, the makeup of the students, and the personal style of the teacher (among countless other variables), and to understand the practical needs of teachers, an approach must prioritize their identities and needs as individual educators.

So, with research question, methodology, and location in hand, I set out to explore the Art@360° workshop held at the San Antonio Museum of Art in the summer of 2016. In Chapter 4, I describe the objectives of the workshop, how the events of the week played out, and how the participating teachers received and evaluated these interdisciplinary activities, reflecting on their personal experiences of the program and how it might fit into their classrooms.

Chapter 4: Data Analysis

INTRODUCTION

In downtown San Antonio, about a mile north of the Alamo, a castle looms over streets otherwise populated by auto body shops and CrossFit gyms. This idiosyncratic architecture is the former Lone Star Brewery, originally built in 1884 and reborn in 1981 as the San Antonio Museum of Art. The Museum's collection at the time of its debut included Latin American works from the pre-Columbian era onward, and American and European paintings from the seventeenth through twentieth centuries. In the decades since, the Museum has expanded its collection to strengthen its identity as an "encyclopedic" museum. The "first commercial brewing operation in the state of Texas" ("Lone Star Brewery," n. d.) now hosts nine discrete collections, arranged within two five-floor towers (excluding any temporary exhibitions). The Museum prides itself on possessing "one of the largest collections of art of the ancient Mediterranean world in the southern United States" ("Museum History," n. d.), as well as collections from East and South Asia, Oceania, and the prestigiously-named Nelson A. Rockefeller Center for Latin American Folk Art.

The Museum's mission statement includes the "responsibility to engage and educate diverse audiences" ("Museum History," n.d.), and a robust Education department works year-round to develop and implement various programs within the Museum and the larger San Antonio community. From 2013-2014 (the dates of the most recently available Annual Report), the Museum hosted over seventeen thousand students on

school tours. Some of these students attended as part of the School Partnership Program, wherein the Museum designs custom tours for low-income schools, including a pre-visit to the school by an "on-call" museum educator before students arrive for their tour. This Program is qualified by the Museum as "a close collaboration between *teachers* and *museum educators*" (emphasis added) as a means to support Texas curriculum standards and increase museum attendance (Cesar, 2014; San Antonio Museum of Art, 2014). In addition to this more traditional student-tour model, the Museum hosts multiple events every year that are designed for the school-based educators themselves. During the school year, the Museum hosts monthly Educator Workshops from September to April; two "Evenings for Educators," one in the fall and one in the spring; and a multi-day Summer Teacher Institute in June.

During my internship at the San Antonio Museum of Art in summer 2016, I participated in the Institute as an observer, assistant, and occasionally a facilitator. The title of the Institute was "Art@360°." This title was intended to communicate the interdisciplinary goal of the Institute, invoking connotations of a thorough and holistic examination of the art of the Museum's collection, from multiple perspectives. I spoke at length to CO, the Coordinator of School and Teacher Programs, who designed and led the program, and to ES, an elementary teacher who frequently took advantage of the Museum's professional development opportunities. My goal through these conversations was to understand how the San Antonio Museum of Art attempted to position itself as a resource for teachers, specifically in how it would provide tools and techniques to

incorporate arts-focused interdisciplinary education into their classrooms, and whether the school educators truly found these techniques effective.

ART@360°

In 2016, the Summer Teacher Institute was title "Art@360°." Developed by CO, this program was intended from the beginning to be an interdisciplinary event. The 360-degree perspective of the title was intended to emphasize input and participation from multiple sources: not just museum staff, but participating teachers; not just art or classroom teachers, but teachers from varying subjects and grade levels. The majority of teachers who attended the Institute were classroom teachers on the elementary level, many of whom had been attending professional development events at the Museum for some time. Given the interdisciplinary theme of the 2016 program, however, an effort was made to attract educators from newer disciplines, and the attendees included a small number of high school teachers, including one mathematics specialist.

I arrived in San Antonio roughly two weeks before the Institute, but the final schedule for the program was still in flux as I familiarized myself with the institution. In my first two weeks at the Museum, we reviewed three drafts of a program: more abstract goals (designing cohesive daily themes, connecting the facilitators' presentations to the collections) butted up against more traditional scheduling issues (what kind of pizza should we order for lunch?). Ultimately, the program was divided into four themed days: "Collaborative Journeys: Shared Experiences and Different Perspectives"; "Art, Science and Technology"; "Art Around the World"; and "Histories" (see Appendix A).

Presentations and activities were facilitated by both museum staff and invited guest specialists.

Coordinator CO's objectives for the 2016 Summer Teacher Institute were to both involve more teachers who might reside outside the groups traditionally served by the Museum's workshops, and to "basically test the idea of the museum as an interdisciplinary nexus…a place where a community of practice could be grown" (personal communication, July 29, 2016). The theory of the "community of practice" treats the development of knowledge not as an internalized and individual process, but one that is relational, grounded in "the practices of a sociocultural community" (Haneda, 2006, p. 808). Étienne Wenger, who with Jean Lave introduced the community of practice theory, emphasizes the importance of both knowledge boundaries and knowledge brokers: the "boundaries" set by the shared experience and practice of a community are permeable, and the "knowledge brokers" who cross those boundaries to gain new knowledge can "change how [their] community defines competence (and…actually deepening [their] own experience)" (Wenger, 2000, p. 227). The inherent social nature of the *community* of practice, a community established by shared motivation and experience, its grounding in the understanding of learning as a social and environmental activity, and particularly the action of boundary crossing aligns with the Vygotskyan paradigm, which "embraces conflict as a catalyst for developmental change" (Warford, 2011, p. 256). Melinda Mayer (2010) affirms the informal learning environment of the museum as an ideal site for hosting these communities of practice,

especially when "non-professionals" are invited to join in the conversation. In this particular situation, we may count teachers as "non-*museum* professionals," though they are of course educational professionals.

Two sets of evaluations distributed to the teachers (one after the second day, one after the final day) aid in determining whether this Institute met CO's objectives, and whether some teachers were more satisfied with the workshop than were others. This chapter elaborates on how CO designed the 2016 Summer Teacher Institute to meet his objectives, as well as how closely the actual event adhered to the initial concept. After presenting the museum educator's self-evaluation below, I share the participating educators' reactions, both in the brief, anonymous feedback all participants provided and by sharing my more in-depth conversations with one teacher who participated in the workshop.

THE ORIGINS OF THE OBJECTIVES

The 2016 Summer Teacher Institute was CO's first foray into designing and executing the annual event. It was not his first encounter with the San Antonio Museum of Art: before taking on the role of Coordinator of School and Teacher Programs, he worked with the Museum as an on-call educator. On-call educators work most often and most directly with the School Partnership Program, facilitating the pre-visits to classrooms before students come to the Museum for a tour. Through this position, CO grew familiar with the Museum's collections and its relationship with San Antonio area schools and curricula. However, he also observed some "issue(s) of concern" between

"on-calls" (Museum parlance) and those members of the staff who oversaw the School Partnership Program from the Museum itself. These issues re-manifest in the evaluations of the 2016 Institute, from the perspectives of both museum educators and participating school teachers.

Before CO was a museum educator, he was a classroom educator in Chicago. He shared this professional background with a fellow on-call in San Antonio. One of the consistent contentions he describes was the sense of a lack of ownership over what was taught during school pre-visits. As two educators who were already familiar with curriculum development, adhering to educational standards, and classroom management, CO and his colleague "want[ed] to have more control over what we taught because, after all, that's what we did when we were in the classroom" (personal communication, July 29, 2016). While on-call educators initially enjoyed a level of autonomy over curriculum, complications arose from their disparate backgrounds. Not everyone shared classroom experience, which was of particular concern when it came to ensuring that these school visits, and the following museum experiences, adhered to the curricular standards the classroom teacher wished to meet. This diversity among the on-call staff, as well as the underlying function of the School Partnership Program being to ascertain "what teacher expectations are and what learning outcomes might be for [a class's upcoming] visit to the Museum," led to a more standardized approach to curriculum: the museum educator overseeing the School Partnership Program developed a more consistent lesson plan, which the on-call educators followed.

CO's transition to Coordinator meant that he regained some of this curricular autonomy, as he broadened his scope from the School Partnership Program to include museum-hosted workshops for both teachers and students, with the anticipation that his experience as an educator would update these programs to "reflect modern education processes."[3] In designing 2016's Summer Teacher Institute, CO knew from the beginning that he wanted the program to have an interdisciplinary theme. Compelled by his experiences as a classroom teacher and on-call museum educator, aware of the desire for control over one's curriculum, and driven to attract teachers new to the museum environment, CO assembled a program with connections between the arts and neuroscience, social studies, and mathematics. Several different guest presenters, including local museum educators, a student of neuroscience, and a retired science teacher, thematically guided the daily events of the Institute. (see Appendix A).

In designing the daily structure of the Institute, CO drew from other interdisciplinary curricula. One of these sources was a course plan from the Missouri Fine Arts Academy (MFAA), Missouri State University's three-week summer program for "highly motivated student artists" ("About," 2017). The interdisciplinary course offered at MFAA more resembles arts integration curriculum than STEAM: it concentrates on the connections between fine art forms (music, dance, visual art, and theatre), rather than the arts and non-art subjects. For a fine arts-intensive program, this approach makes sense,

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[3] Prior to CO stepping into this role, the workshops had been run by a subgroup of docents who were enthusiastic about sharing their gallery insights (as many docents often are), but lacked formal art education training. The result, CO summarized, was that the workshops were more devoted to "crafty stuff."

but certain rationales for the course were applicable to the development of the Art@360° curriculum: prominently, the importance of "active participation in discovering content" (*Interdisciplinary Course*, n.d.).

Drawing from the MFAA course and other interdisciplinary sources, CO composed a preliminary program to outline his broad objectives for the workshop. This document outlined many "big ideas" he hoped to address during the Institute; ideas that evolved and, in some instances, had to be shelved for a future program. This program, while it was ultimately not distributed to participants, established the objectives of the week:

> One of the aims of Art@360° is to highlight the educational role of the museum. The San Antonio Museum of Art gives educators from all subject areas access to objects…that serve as primary resources and touchstones for inquiry. Taking inspiration from organizational development's 360° feedback, we hope to motivate educators to participate in outreach to the learning communities we serve together.
>
> A second goal is to advocate the arts in education (personal communication, June 2, 2016).

The goals expressed in the Program echo the desires of earlier museum educators urging that institutions combat the uneasiness or uncertainty teachers felt within galleries (Newsom & Silver, 1978; Talboys, 1996), and, unsurprisingly, the near-constant goal of arts advocacy. The emphasis on "360° feedback" cites both businesses' "How can we improve?"-style surveys and self-evaluations as inspiration, noting the importance of "multiple viewpoints" in creating and revising a given design (personal communication, June 2, 2016). While the definition for successful feedback is somewhat sketchy, making

reflection and evaluation a priority is in line with both theoretical (Eun, 2008) and practical (Melber & Cox-Petersen, 2005) discussions of teacher professional development. In her discussion of the practical application of pedagogical theory within the museum, Mayer (2010) also emphasizes the importance of reflective practice and creating a community of reflective practitioners.

With such qualitative parameters, the success of such a program is difficult to express in hard numbers. In addition to the objectives for the teachers participating in the workshop, CO hoped to diversify the teachers who traditionally attended professional development opportunities at the museum and to present examples of interdisciplinary arts education that went beyond the "STEAM" buzzword. How would that be measured? How many teachers from non-arts or non-general classrooms would need to participate in order to achieve this goal? When museum staff reflected on the workshop after its completion, they relied on their own observations and, significantly, the reflections of the participating teachers. These detailed responses and critical self-evaluation provide the most direct feedback about what teachers appreciate and expect in museum professional development workshops, and suggest that for the most successful programming, museum-teacher collaboration must be extended beyond the beginning and end of the program itself.

DAY BY DAY

From Tuesday, June 14, to Friday, June 17, thirty-nine teachers spent five hours each day at the Museum, participating in workshops and hearing guest speakers. Both

traditional subjects and more abstract strategies were the foundations for each day's theme. "Collaborative Journeys," the first day's theme, emphasized reflection and communication among the participants. The event's first guest speaker was a doctoral student in Interdisciplinary Learning and Teaching from The University of Texas at San Antonio, setting the tone of the day with a presentation on visual notetaking. The lecture was informative and interactive, setting teachers up to both use these techniques themselves and introduce them to their students in the future.

The initial presentation being offered by an art educator (one who had experience working as a high school art teacher, and who therefore had likely been on the other side of the podium in a few workshops) was familiar to most of these teachers. Visual notetaking was an activity with clear artmaking connections; it could be easily incorporated into a classroom exercise and modified for different grade levels. Responses to this first presentation were enthusiastic, with multiple teachers listing in their anonymous evaluations that visual note-taking was the "aspect of the program [that] will be most useful to [their] teaching" (June 15, 2016). This opening lecture was followed by a connected artmaking activity, and again reactions were warm. After lunch, the day concluded with a gallery tour facilitated by Museum staff, then with a gallery lecture and presentation from Mari Hernandez, a local San Antonio artist. This first day was the most "traditional," if museum professional development can be said to have a traditional structure. As the week progressed, both form and content began to diverge from Tuesday's model of "potential classroom lesson-artmaking activity that can be recreated

for the classroom-look at the art in the museum." Interdisciplinary topics ranged from the expected (symmetry in Islamic art) to the obscure (the tricky neuroscience of a particular Internet meme). Some teachers were delighted by the unexpected conversations, but others were uncertain of just what to *do* with this varied selection of information.

"Art and Science" is not a wholly unfamiliar pairing by now. With the rising emphasis on STEM, and STEAM persistently following behind, these two disciplines are natural partners in professional development (although usually the art is bringing in the science instead of the other way around).[4] The first presentation for the second day of the Institute was delivered by another doctoral student. Rosa Lafer-Sousa had the benefit of a personal connection to the Institute: she is a former student of CO from when he was an educator in Chicago. Now a neuroscientist at the Massachusetts Institute of Technology, Lafer-Sousa represented a perfect example of the intersection of the arts and the sciences. Her presentation was more in line with the format of an academic conference: teachers were provided with her corresponding scholarly paper and, while she was a lively and engaging speaker, the tone was much more lecture-based than the visual notetaking presentation of the first day.

Lafer-Sousa focused her presentation, "The Brain on Art," on research she had undertaken on an Internet meme that had become popular in 2015: "The Dress." The

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[4] CO himself avoided the term in materials for the 2016 Institute: "I've been promoting STEAM for years and have worked with STEM people…and in working with them found out that they really don't understand how the arts fit into their science, technology, engineering and mechanical paradigm that they've created for themselves. And I don't think it serves them very well to be open to innovation with the top-down LEGO approach to building a robot…So I tend to stay away from the STEAM buzzword" (personal communication, July 29, 2016).

garment in question was either blue and white or black and gold, and passionate chromatic debates about the dress raged on social media for about a week. Lafer-Sousa's research concentrated on the neural perception that determined which color pairing a person might see (and what other circumstances might influence them to see it). I, personally, was fully absorbed, as were a handful of the other educators (one called it "the most fascinating talk I've heard in my life"), but broadly speaking this presentation had the most divided response from the teacher evaluations.[5] Critiques ranged from simple admissions of lack of interest (one form suggested "maybe not too much science" in the workshop at all) to more passionate protests:

> 1st session ["The Brain on Art"] was too wordy + meaningless—Science of Vision could have been stated in 15 minutes! Great info for scientists, NOT ARTISTS! Though I did make magnificent drawings in my sketchbook to ESCAPE.

The evaluation forms were anonymous, and thus there is no way to correlate the reactions to individual concepts or presentations to teachers of a particular grade level or discipline. Even considering the breadth of responses, however, certain threads connect the responses, both positive and negative: (a) a desire for more hands-on activities/time in the museum galleries; (b) firmer connections established between the arts and other disciplines; and (c) the inclusion of lesson plans. The last point was perhaps the most universal comment: 20 of the 83 submitted evaluations at the very least noted the lack of

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[5] Teacher evaluations were completed and returned on June 15 and 17, 2016. All quotes attributed to this anonymous feedback were taken from these collections of forms.

formal pre-written lesson plans, with several making more explicit requests to receive plans in the future.

The absence of lesson plans is a serendipitous metaphor for the challenge of bridging the gap between museum workshops and classrooms: lesson plans are not only tangible evidence of teachers' time in the museum, but material that may have a direct influence on their curriculum and classroom practice. If the Museum had provided lesson plans, however, would they have been useful to all participating teachers? An interdisciplinary workshop, it seems, would be attractive to teachers within a range of disciplines and levels. That variety then raises the question, though, of whether the Museum would provide lesson plans addressing all disciplines represented by the teachers or merely those disciplines *most* represented? For example, if there are 20 art teachers, 10 social studies teachers, and 1 math teacher, does the Museum provide three separate plans? Or one art plan that may be used by the most people? These questions appear again when considering grade levels. One of the teachers communicated their appreciation for "the opportunity to exchange ideas with a variety of teachers, NOT exclusively art educators," but also admitted that some of the topics covered were "a little cerebral and would not be applicable in my classroom."

The provision of pre-written lesson plans might be read to conflict with the ideas of curriculum ownership CO expressed. Then again, one could argue that teachers have enough to plan and administer as it is, and might welcome the convenience of a lesson that had been designed for them and could be adjusted at will. Asking for teachers'

feedback in the evaluation forms provided clear and explicit ideas of what worked and what did not: perhaps the solution is as simple as asking teachers more questions, earlier on. When asked about how he would strengthen the connections between art and other disciplines for future workshops, CO suggested that this would indeed be the approach:

> I'll be…presenting a workshop on scalability, so across any kind of curriculum …I've got some teachers out of Floresville who really want to tackle this and lead the program. And they've been doing this teacher workshop for ten years, coming to them, so I'm letting them take the lead…let them feel like they've got some ownership in the workshops, since they know the teachers and what the current issues are better than I would. (personal communication, July 29, 2016)

My interview with CO closed with him expressing his wish to deliver an interdisciplinary workshop that would be "authentic to the mission of the Museum" (personal communication, July 29, 2016). The San Antonio Museum of Art declares it has the "responsibility to educate and engage diverse audiences, provide transformational experiences, strengthen our shared understanding of humanity, and encourage a sense of wonder and discovery" ("About the Museum," n.d.). Those "diverse audiences" could be the teachers CO hoped to attract; "transformational experiences" could allude to the connections and epiphanies advocates of interdisciplinary arts education hope to inspire. If success is measured by teachers returning to the classroom and using the metaphorical tools they gained from the Museum, then we must first define what these tools will be. The best way to do that, it appears, is to ask teachers what they need.

A Participant's Perspective

My conversations with CO gave me useful insight into the objectives behind Art@360° and how it attempted to represent the Museum to participating teachers. The 84 anonymous evaluations were a valuable accompaniment to CO's testimony, offering detailed opinions that ran the gamut of responses from enthusiastic support to reserved appreciation to blunt disappointment. Of course, it is not reasonable to expect that every individual will love every session planned for a four-day, twenty-hour workshop. Even taking personal tastes and expectations in mind, the scattered opinions of the teachers' evaluations and the self-evaluations of the museum educators determined that this workshop, while not a stark failure, definitely had room for improvement.

But the measure of success for an interdisciplinary teacher workshop requires more change than merely making sure to provide lesson plans. Addressing of-the-moment topics such as STEAM curriculum and contemporary Internet memes can make for stimulating conversation, and the social element of professional development workshops should not be dismissed, but how does one present these themes in a way that is useful to the broadest range of teachers? Would an attempt to deliver such a broad curriculum ultimately dilute its relevance?

Hoping to determine at least one answer to this question, I supplemented my conversation with classroom teacher-cum-museum educator CO with a series of discussions with ES, a teacher who participated in the workshop. ES has two decades of teaching experience and is a frequent attendee of the professional development

opportunities at the San Antonio Museum of Art. She responded warmly to my pre-workshop call for participants for my research, and she seemed optimistic about the potential takeaways from an interdisciplinary workshop in the art museum. I spoke with her midway through the institute and again after its completion to hear her response to the workshop's structure and content, and to gain some insight in the museum-classroom divide from a teacher's perspective.

ES has been teaching for 20 years, though it was not her first vocation. Formerly a certified public accountant, ES credits her occupational pivot to having children and becoming "very interested in how they learned," inspiring her to get her alternative certification and enter the field of education (personal communication, June 15, 2016). During her teaching career, ES has worked with students in grades K-6. Currently, she teaches two classes: a fine arts class for students from kindergarten to second grade, and a "gifted and talented" (GT) class of mostly first and second graders. ES describes her GT classroom as a fairly flexible environment, with a varied curriculum that often explores the fine arts (music, visual art, and theatre) from a social studies perspective. Considering the age of ES's students, this often manifests as studies in history or geography attached to a particular artwork:

> So we start in caveman days and start with cave art and basic drumming and percussion…We visit different time periods and we'll talk about what life was like back then and we kind of look at the social structure, maybe talk food. In second grade we kind of focus on art and music, culture from around the world, so we'll do a lot of geography, mainly focusing on probably the Eastern world more than the Western…just some other areas they might not be as familiar with. (personal communication, June 15, 2016)

When I asked about the effect she hoped these lessons would have on her students, ES told me that her main goal was not to deliver specific information to them, but rather to instill "seeds for later in their life" that would prepare them for self-directed learning, encouraging them to "have a creative side and a curious side and an exploring side" (personal communication, June 15, 2016). These "seeds" of interest echo many scholarly arguments in favor of the cognitive benefits of art education, particularly for younger learners. Music, dance and visual art activities improve a child's ability to retain information and exposure to global art and the cultures of their creators aid in the development of more complex thinking (Sousa & Pilecki, 2013).

I also asked ES about her experience with intentionally interdisciplinary curriculum. Her response to this question was especially detailed, and I appreciated speaking to a veteran educator when discussing this subject. In our conversation, I heard more familiar themes of curriculum pressure and a disconnect between administrative expectations and classroom capabilities. At the beginning of her career, ES and other teachers had more individual control over their classrooms, without a school-wide scope and sequence to follow. While acknowledging the drawbacks of this approach—disorganization, lack of curricular cohesion—ES also recalls that collaboration between teachers occurred naturally, often taking an interdisciplinary direction:

> We'd be learning about the ocean, and through the ocean we'd explore the literature, math, science, those things…So I think there was a lot of really interdisciplinary stuff at the time, and I think probably most teachers kind of liked that…and it worked really well. (Personal communication, June 15, 2016)

In the 20 years since ES began teaching, Texas schools have followed the national trend of tightening standards and increasing accountability, often measured through standardized tests, such as the Texas Assessment of Knowledge and Skills (TAKS). In response, classrooms have become more structured and "uniform," with less room for curricular experimentation. ES expressed some frustrated resignation with the continued emphasis on the quantitative details of teaching: the frequency of tests, the scores of those tests, the number of minutes devoted to math and language arts classes. Schools and teachers are still interested in integrating subjects and providing interdisciplinary experiences for their students, but a main obstacle in doing so is time, a hurdle also described in STEAM-focused literature (Bequette & Bequette, 2012; Sousa & Pilecki, 2013).

When I asked why she chose to participate in Art@360°, ES responded that she hoped the focus on science and math through a visual art lens would provide her with a direction for her GT class in the upcoming school year, including some ideas for class projects (personal communication, June 15, 2016). She also spoke of the opportunity to meet new people during the Institute and the inspiration that can occur when hearing about their own personal projects and interests. I spoke with her again a couple of weeks after the Institute's completion, after there had been time to process the week, to determine how successful the program was for her own practice.

ART@360°: THE AFTERMATH

The reflections ES provided in her second interview were more comprehensive than the anonymous feedback surveys completed by all the teachers, but she communicated similar ideas on the utility of the programming. In our first interview after the workshop's second day, ES expressed some reservation with the abstract, "esoteric" quality of the program so far: many ideas, but few activities (personal communication, June 15, 2016). After the program's completion, the lack of concrete materials to take away from the museum remained her primary disappointment. ES suggested that the subject matter may have generally been more appropriate for older students, rather than the first- and second-graders she teaches. The format in which material was presented, however, was more significant: much of the programming revolved around "information, like, kind of enlightening us on some things related to science and technology…but I didn't feel like they translated into things that I could take back and use in the classroom" (personal communication, July 10, 2015).

Even though the Institute did not quite meet ES's expectations of providing inspiration for combining math, science, and art in her elementary classroom, she did not struggle to recount aspects of the workshop that she enjoyed. She was interested by Lafer-Sousa's polarizing "Dress" lecture, and anticipated implementing some of the workshop elements into her teaching practice. The most successful and potentially useful techniques were those relating to artistic study, such as questioning strategies. ES felt that these gallery-based skills would be helpful for her to increase her students' meaningful

engagement with artworks, an area in which she desired improvement. Another technique she considered for her classroom was modeled by a museum instructor taking on the role of an archaeologist in the gallery, and it should be noted that role work is an established arts integration strategy ("Role Work Strategies," 2017). Ultimately, then, the workshop was not entirely unsuccessful for ES. However, she found the strongest success to be in her individual experience of the program (taking personal interest in the subject matter, enjoying spending extended time in the museum, and interacting with other teachers), and the usefulness for her classroom was concentrated in the artistic activities and discussions. This would be hoped for from a professional development program in an art museum, of course, but considering the goals of the program to impart interdisciplinary educational strategies, the fact that the most successful practical elements were still isolated to one area should be acknowledged.

ANALYSIS: WHAT WOULD MAKE THIS WORK?

After reviewing case studies of other museum professional development programs, the testimony of teachers and museum educators, and the foundational pedagogical theories of Dewey and Vygotsky, I established a few characteristics to look for when evaluating the San Antonio Museum of Art's Art@360° workshop: (a) communication between museum educators and school teachers to establish teachers' needs; (b) experiential learning activities, at least some of which would have demonstrable application to teachers' classrooms; (c) opportunities for teachers to interact not just on a social level, but in a setting that would provide opportunities for

them to learn from the knowledge of their peers in other disciplines; and (d) opportunity for reflection, both on the part of workshop facilitators and participants. From the anonymous evaluations, my conversations with ES, and my own observations, the program fell short of meeting these criteria.

The Institute approached the theme of interdisciplinary studies by inviting experts and professionals from a variety of disciplines, both art- and non-art related, to give talks and occasionally lead activities for the audience of teachers. Many of these speakers had educational experience: some were retired K-12 teachers, some were in the midst of doctoral programs. While this is a promising beginning to developing an atmosphere of experienced educators learning from each other, the manner in which these experts introduced their topics veered away from the model of collaborative experience that had seemed essential for the success of other STEAM workshops (Grant & Patterson, 2016; Melber & Cox-Petersen, 2005). While several of the talks transitioned into activities, this order meant that when a lecturer continued longer than originally scheduled, time for the activity had to be cut. Without sufficient time for explanation and practice, it is more difficult to envision the relevance of the activity or how to include it in classroom curriculum. Many of the anonymous evaluations remarked on a desire for more gallery time and less lecture time. Even this simple change in venue, and of being present in front of an artwork that was being discussed, appeared to increase interest and engagement. In the case of ES, the strategies that she felt she could take into her classroom were those she had been able to observe and practice directly.

For the activities that were completed, some were designed to be collaborative, but groups were generally decided merely by proximity. Many activities were facilitated at long tables set up in the museum lobby, where teachers who knew each other were already sitting together. Establishing assigned seats is probably not necessary for a group of adults, and indeed seems counterintuitive to the informal learning environment of the museum. However, composing groups to ensure that teachers work with other professionals who have experience in different subjects than their own may lead to a more productive interdisciplinary experience, given that the activities are designed to capitalize on this style of collaboration.

Perhaps the frustration most frequently referenced by participants was the lack of connection between the subjects of the workshop and their own classrooms. This was credited to the relevance of the discipline, the complexity of the concepts, or occasionally both. ES also critiqued the manner in which the topics were presented to participants, going into detail about how more "hands-on" experiences would not only have improved her own comprehension of the topics, but helped her adapt them for her first- and second-graders (personal communication, July 10, 2016). When designing activities for interdisciplinary professional development programs, it seems apparent not just to capture the interest of the adult teachers in attendance, but to keep the learning styles of their students in mind: a teacher of younger students may be more likely to include the concepts of a workshop if she is introduced to those concepts in a way that can be directly replicated (or in need of only slight modifications) in her classroom.

The workshop did make time for the final evaluative component: reflection. However, most of the reflection appears to have had more benefit for the museum than it did for the teachers. This imbalance was also noted by ES, who suggested that designated reflection time after learning an activity "and then showing how you would set it up in a classroom…[would make] an idea that's likely to stick" (personal communication, July 10, 2016). It is to the museum's credit that they both invited feedback from the teachers and put aside time after the workshop's completion to do a "postmortem" reflection and discussion about the program; I was present for this discussion and had the impression that the museum staff was honest in examining the week and very open to both self-critique and the comments offered by the teachers. The kind of reflection that both adheres to Vygotskyan ideals and has been successful in similar programs, however, would need to be more frequent and more structured (Eun, 2008; Melber & Cox-Petersen, 2005).

CONCLUSION

I contacted ES again in early 2017, to ask her if she had implemented the gallery talk strategies she hoped to introduce to her classroom, or if any other aspects of the Institute had made it into her instructional practice. She admitted that she had not actually drawn on any of the material from the program (personal communication, February 19, 2017): she was moderately embarrassed to reveal this, but research suggests that this outcome should not be surprising (Melber & Cox-Petersen, 2005). Teachers participating in this program and other case studies make it clear that activities will most likely be used

in the classroom if they are presented in a classroom-ready format. In a workshop intended to address curricula of multiple subjects, where teachers encounter subjects they are unused to teaching, both reinforcing these new concepts through activity and allowing ample time for collaboration and reflection would appear to be essential. The Vygotskyan concept of prolepsis may call for an overestimation of teachers' knowledge, but maintain an understanding of their instructional identity and provide at least some support in the learning process (Warford, 2011). This structure was absent for many of the activities conducted during the workshop.

The "postmortem" discussion conducted by CO and the Teacher and School Programs Manager accepted that the program was not as successful as they had hoped. Many of the problems were attributed to growing pains and inexperience: it was CO's first time running a teacher professional development workshop at the museum and the interdisciplinary focus was a diversion from the more traditional themes (for example, focusing on a particular style, movement, or region of art). Technical issues were also acknowledged (organizing the schedules of so many guest presenters was a minor ordeal up to the week before the Institute) After reviewing the anonymous evaluations and their own experiences during the workshop, many of their conclusions and resolutions aligned with other case studies: creative activities should open with a clear rationale for the exercise to justify the practice and connect it to the classroom, and that the teachers expect a dynamic learning experience at the museum. Spending most of the day in the

auditorium listening to a lecture is not taking advantage of the informal learning that a museum environment offers.

Asian Art was the preliminary theme for the 2017 Summer Teacher Institute (the actual Institute ended up focusing particularly on Buddhist art). Potential ideas for this program included dividing the participants into smaller groups and, expectedly, providing lesson plans. This workshop returned to the theme of arts-exclusive programming, drawing attention to the Museum's highlight temporary exhibition (*Heaven and Hell: Salvation and Retribution in Pure Land Buddhism*). Perhaps a more specialized focus removes the need to consult with professionals outside of the museum: the experts on the exhibition's content and history are likely in-house, in the educational and curatorial departments. Should the Museum attempt to revisit the interdisciplinary paradigm, it is recommended they follow the suggestions of researchers who urge developers of these programs to consult with several people familiar with the relevant fields. Learning from the case of the 2016 Summer Teacher Institute, establishing a dialogue with at least one current classroom teacher may improve the chances that activities are designed with more immediate and apparent application. The opportunities for exploration and informality within the museum make it an ideal place for teacher professional development, but to ensure that what happens in the museum does not stay in the museum, it may be necessary to recreate the classroom spirit.

Chapter 5: Conclusion

This chapter reviews the case of the San Antonio Museum of Art's 2016 Summer Teacher Institute, determining its success in relation to the constructed framework and the evaluations of the participants. Qualitative research methods gathered a nuanced understanding of the personal experiences of the participants and their perceptions of the program's successes. Data came from field notes, anonymous evaluations, and interviews with two participating subjects, each of whom approached and experienced the workshop with distinct, but related, objectives. The chapter concludes with potential developmental practices that other institutions may take into account when designing interdisciplinary, arts-centered teacher professional development programming.

EVALUATING SUCCESS: RESEARCH FINDINGS

This study was conducted with the intent to discover how one art museum-based professional development program intended to make the art museum a useful educational hub for interdisciplinary curricula, and what its actual effects were in the case of one participating teacher. CO, the museum educator who designed and executed Art@360°, wanted the program to serve teachers who may not generally be expected to sign up for a professional development program at an art museum. Usual attendees included elementary teachers, who teach multiple subjects to the same class of students daily, early childhood educators, art teachers, and social studies teachers; CO wanted to bring in teachers who concentrated on mathematics and the sciences. To further adhere to the

interdisciplinary direction, he constructed a program grounded in the knowledge of guest experts: art educators, a neuroscientist, a mathematician, and traditional Indian musicians. The anonymous evaluations taken from the attending teachers revealed a wide range of reactions: certain presentations provoked dramatically different responses, from energetic interest to explicit boredom. Responses reflected equally wide variation in opinions of the usefulness of the curriculum, and I reviewed these responses within a framework I designed with the intent of transforming criticisms into applicable future directives.

Research on Deweyan experiential learning, Vygotskyan communal learning, and the prior applications of these theories led to the composition of four criteria for a successful interdisciplinary art-museum based program: (a) communication between museum educators and school teachers so that the institution understands teachers' needs; (b) experiential, "hands-on" activities with a design that is explicitly relevant to and replicable in the classroom; (c) opportunities for communal learning between educators of disparate disciplines and experiences; and (d) structured reflection for both participants and facilitators. I applied these criteria in addition to the program designer/facilitator's objectives, chiefly to present the Museum as a resource for educators of all disciplines to use for support and integration of the arts in their classrooms. The perceived efficacy of the programming, i.e., how likely participating teachers were to apply what they learned to their classrooms, was the metric of "success" in this case.

I must present my discussion of the first criterion with the disclaimer that I began my research roughly two weeks before the beginning of Art@360°, so I was not privy to

much of the planning process. From my conversations with CO, I concluded that he developed the programming by inviting input from the guest speakers and drawing from his own experiences as an educator, both in the classroom and with the Museum. From his work as an on-call educator with the Museum's School Partnership Program and as the Coordinator for School and Teacher Programs, CO had prior experience working with teachers in San Antonio schools, and was familiar with Texas state standards. Collaboration between classroom teachers and educators at the Museum contributed to the curriculum design for on-call educators, but the educators who actually made these classroom visits did not participate in this design. This experience and CO's frustration with the lack of control over curriculum, as well as the relatively limited amount of time that elapsed between his entrance into the Coordinator position and the planning of the Institute,[6] are likely contributors to a more internalized planning procedure. CO also discussed difficulties with the marketing aspect of the Institute, specifically regarding reaching out to teachers of nontraditionally served disciplines (personal communication, July 29, 2016); it seems sensible to extrapolate that similar issues may arise in attempts to reach out to teachers to determine a full and complex recognition of their classroom needs.

The second criterion called for hands-on learning experiences. This element appeared multiple times in the literature, from case studies of effective STEAM activities

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[6] Preparations for the 2017 Summer Teacher Institute were already underway by the end of the 2016 program in June. CO took on the position of Coordinator in October of 2015, shaving off a few months of standard preparation time for the summer Institute.

to the essential elements of Deweyan educational philosophy, and was one of the most common critiques in the teacher evaluations of the program. Art@360° was not entirely devoid of active learning: the program included multiple artmaking activities, including collaborative sculpture and a repoussé lesson based on art in the museum galleries, and several gallery talk sessions where teachers had the opportunity to interact about the artwork discussed. However, these activities fell short of the qualification that the activities be presented in the context in which they could be used in the classroom. There were no physical lesson plans distributed, which may have increased the likelihood that teachers would incorporate the lesson in their classrooms (instead of having to rely on the procedures and subject relevance from memory) in the future. The connections between the non-art lectures and the activities that followed were also tenuously presented, as ES communicated in her interviews (personal communication, July 10, 2016).

Opportunities for Vygotskyan communal learning in an interdisciplinary teacher professional development environment are perhaps the element that can be planned the least in any workshop design. An ideal execution of this concept would involve, at the least, roughly equal numbers participating teachers of a diverse enough variety of subject areas to ensure a somewhat even distribution. As a result, any small groups that formed for exercises or discussions would not be dominated by teachers of one area of knowledge, but individuals would have the opportunity to interact with as many "more knowledgeable others" as possible. Of the roughly 40 teachers attending Art@360°, there was one mathematics teacher and one science teacher, with the others being from the

"usual" population of early childhood, elementary, and art educators. Even in the best-case scenario of a diverse group of participants, meaningful social learning is most likely to occur in structured exercises, designed to require information and input from each teacher's field of expertise.

The final criterion, including opportunities for reflection, may have been the most successful element of Art@360°, but it was more successful for the museum than for the teachers. The museum openly invited teacher feedback to the program with two sets of evaluations completed by the participants, once midway through the week and again at the finale, going so far as to make completion of the final evaluation a condition to receive proof of receiving professional development credit. There were enough evaluations completed with enough detailed feedback to provide the museum with valuable information to consider when planning future professional development offerings. However, a sufficiently holistic reflective process would be structured to increase the likelihood that teachers would apply their reflections to their practice. If the only opportunity for reflection is one that is clearly communicated to serve the museum, then there may be little perceived need for teachers to retain those reflections, or indeed to comment with more nuance than "this gallery activity was useful" or "these techniques will not be useful in my classroom." Teachers completed these evaluation forms knowing they would be returned to the museum, not kept for their future reference. A more structured opportunity for reflection, where teachers are asked to think about activities, exercises, and techniques as they relate to their individual practice, may have a more

lasting impact than a simpler (but still valuable) exit survey. The importance of reflection is repeated in literature discussing teacher education in general (Eun, 2008), effective use of the informal learning environment of the museum (Melber & Cox-Petersen, 2005), and the expressions of one of the participating teachers in the case at the San Antonio Museum of Art (ES, personal communication, July 10, 2016).

IMPLICATIONS FOR FURTHER RESEARCH

From the evaluation of the 2016 Summer Teacher Institute, it seems apparent that a number of the issues faced by Art@360° could be addressed merely by more planning. While greater preparation only goes so far, elements such as increasing teacher involvement during the initial design stage and providing more opportunity for hands-on, communal activities could easily be addressed. Given the experimental nature of this workshop and the circumstantial obstacles, this is not a character critique of anyone involved in the design and facilitation of this workshop. Similar recommendations could be made regarding further research of this subject, whether that research is of future professional development offerings at the San Antonio Museum of Art or of other art museums who wish to provide their own interdisciplinary opportunities.

One of the most significant changes a future researcher may make is designing this study to be more comprehensive. Future studies would benefit from interviewing more participants, particularly teachers of varying subjects. This, of course, is dependent on the pool of participants a researcher has available to them. A study could potentially be developed where a more composed sample of teachers is used to determine how these

programs work with an ideally-diverse audience, but this may have a negative effect on the relevance of the research to actual professional development opportunities, which are usually more open-ended in terms of participants. A longer period of research would also indicate whether the criteria developed in this study are in fact effective when used to design programming for an interdisciplinary teacher workshop.

FINAL THOUGHTS

The San Antonio Museum of Art's summer 2016 professional development workshop started off with high and worthy objectives. However, conducting a complicated program for the first time carries certain risks, and it is unlikely that every minute will proceed as scheduled, with every participant feeling that their needs as educators have been fulfilled. Falling short of complete success does not equate to failure. A thorough and intentional reflection to identify both the shortcomings and the successes is a valuable process to undergo. It may even be considered appropriate for the field: the Vygotskyan model encourages both continuous complex reflection and an educational experience that enriches the knowledge of both the learner and the educator, and educational researchers laud the case study model precisely for its use in examining "good [ideas] that didn't work" (Florio-Ruane & Clark, 1990, p. 25).

The push for STEM is arguably the largest curricular concern in the United States schooling today, and the concentration on these fields is commonly (not without cause) seen as a potential threat for arts education opportunities. The arbitrary divide between right- and left-brain, creative and analytical, arts and sciences has a long history in the

United States: STEM is not wholly new, just a refreshment of priorities and attitudes that have been present in the United States since the 1960s. Efforts to overcome this manufactured rivalry, whether they be labeled arts integration, interdisciplinary studies, or STEAM, may be the most successful current effort to ensure that the arts remain a possibility and a priority in American schools. At the same time, art museums are continuously searching for ways to remain relevant and approachable, for their general audiences as well as educational groups. Informal, hands-on activities can already be found at museum family days or monthly evening events; capitalizing on these strategies in the professional development environment would seem to be a natural direction.

Art@360° at the San Antonio Museum of Art is only one example of how a museum may respond to these interdisciplinary desires. How another institution designs their programming is fully dependent on their collections, the experts they know, their relationships with community educators, and any number of additional variables. Some general suggestions can be drawn from this example, however: an effective interdisciplinary workshop requires more than just a diverse selection of guest speakers, for example. It could be argued that the ways in which Art@360° was unsuccessful are themselves an argument for further interdisciplinary initiatives in the museum. The Deweyan-Vygotskyan model of learning together through common experiences applies to the kind of creative problem solving necessary to analyze the shortcomings of this program in order to address them in another workshop. Creative problem solving is one of the most commonly cited benefits to grounding learning in the museum setting (Blain,

2001), and with critical thinking is often held up as evidence for including the A for Arts in STEAM curriculum (Daugherty, 2013).

Developing a single prescriptive curriculum for an interdisciplinary workshop, then, is not only impossible, but contrary to the strengths the informal education environment of the museum offers. Arts educators and advocates rely on the importance of the individual expression students can find in art education, especially as quantified standards remain a key determinant in educational policy. This case emphasizes the importance of preserving that respect for the individual not just in art classes, and not just for students, but when working with teachers across disciplines. The analysis of Art@360° would not be nearly as helpful without the detailed information from its designer and participant, communicating both personal motivations and practical classroom needs. Far from designing a one-size-fits-all professional development curriculum, potential presenters of interdisciplinary workshops would do well to communicate with the individuals they wish to serve. Collaborating with teachers of diverse knowledge, visiting their schools and classrooms to better understand their needs and wants, and creating a community of practice well before a workshop begins are the first essential steps to designing curriculum that will engage professional development participants. Drawing from these collaborations to craft clear and practical activities, tailored to educators' needs, while allowing them space to interact with and learn from each other, may be the best way to present the professional development workshop as an introduction to the museum as an educational resource.

For a teacher to maintain the connection between the museum and their classroom, activities must find the balance between enjoyable and practical. The case at the San Antonio Museum of Art, while of limited success as an interdisciplinary workshop, is a beneficial model of the value of learning from experience. As many researchers, teachers, and students would attest, that very often means learning from our mistakes as well as our successes.

Appendices

APPENDIX A

ART@360°

art in interdisciplinary studies at the museum

AGENDA
June 14-17, 10 AM – 3PM Daily

TUESDAY, JUNE 14	COLLABORATIVE JOURNIES: SHARED EXPERIENCES & DIFFERENT PERSPECTIVES
10:00 -10:15	Sign in Great Hall
10:15- 10:30	Opening Remarks, CO, Auditorium
10:30 – 11:00	"Visual Notetaking", Maggie Hilburn, Auditorium
11:00 – 12:00	"Journals: Customized Books", Great Hall Creating alternative books for journaling, pass out sketchbooks
12:00 – 12:45	Lunch
12:45 – 1:30	"Shared Experiences with Primary Resources: the Museum Object", Museum Galleries Group 1 High School– Museum Hack Group 2 High School – Museum Hack Group 3 Elementary – I can add to that, CO Group 4 Elementary – I can add to that
1:30 – 3:00	"Constructing Response" Building a collaborative response to a group selected museum object, SAMA Team, Great Hall

WEDNESDAY, JUNE 15	ART, SCIENCE AND TECHNOLOGY
10:00- 10:15	Sign in Great Hall
10:30 – 11:30	"The Brain on Art" Rosa Lafer Sousa, Auditorium
11:30 – 12:15	"Science and Art", Geoff Leech, Museum Galleries
12:15 – 12:45	Lunch
12:45 – 1:45	"Change and Stability" Museum Galleries Group 1 _____ Group 2 _____ Group 3 _____ Group 4 _____
1:45 – 2:00	Visual Telephone Game
2:00 – 3:00	Activity - Sketching and Journaling, Great Hall, Galleries

THURSDAY, JUNE 16	ART AROUND THE WORLD
10:00- 10:15	Sign in
10:15 – 11:15	"Raga, Rasa, and Rang: Hindustani Music, Mood, and Color" The Interrelation

	of the Arts," Sangeet Millennium, Auditorium
11:15 – 12:00	Performance - Sangeet Millennium, Auditorium
12:00 – 12:30	Lunch
12:30 – 1:30	Math/ Symmetry in Islamic Art, Conan Chadbourne, Auditorium, Great Hall
1:45 – 3:00	Activity - Sketching and Journaling, Great Hall, Galleries

FRIDAY, JUNE 17	HISTORIES
10:00- 10:15	Sign in
10:15– 11:00	"Highest Heaven" tour, Cowden
12:00 – 12:30	Lunch, set up display of books, journals collaborative responses, Great Hall
12:30 – 1:45	"Non-Dominant Narratives", Beth Foulds, American Galleries (Switch group A)
1:45 – 3:00	"From Self Portrait to Selfie", ***or*** "Histories" (Switch group B)

APPENDIX B

San Antonio Museum of Art
Summer Teacher Institute, June 2016
Evaluation Form

We value your feedback!

1. What was the highlight of your experience today, whether or not it relates to teaching?
2. What aspect of the program will be most useful to your teaching, and why?
3. How will you be integrating the museum's lesson plans in your classroom?
4. What aspects of today's program can be improved and how?
5. What themes would you like to see for future educator workshops at the museum?
6. Additional comments:

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